

# Tracing the Cretan Labyrinth: Mythology, Archaeology, Topology, Phenomenology

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## Abstract

This essay discusses the Cretan labyrinth in relation to J.T. Fraser's concept of eotemporality. The Cretan labyrinth is treated in diverse contexts, including its depiction in mythology and the archaeological attempts to locate it. The topology of the 'Cretan' or 'classical' labyrinth is analyzed, and a phenomenological account of the temporal experience facilitated by walking the labyrinth is provided.

## Keywords

Cretan labyrinth – J.T. Fraser – eotemporality – Knossos – trace – archaeology – topology

## 1 Introduction

The theme for the 2013 International Society for the Study of Time conference at the Orthodox Academy on the island of Crete was "Time and Trace." As was noted in the conference call for papers, the theme evokes a rich range of associations. The etymology of trace provides touchstones of particular relevance to this essay: Trace is *tractus* (L) and *trait* (F), 'line', 'outline', 'feature'; trace is what happens when a point becomes, in time, a line; and therefore is *graphein* (Gr.), to trace or draw. It is also *traccia* (I), 'spoor', 'trail' or 'track'. *Tractare* (L) is 'to treat' any subject narratively, as in a 'tract' or 'tractate'. These meanings point to an ambiguity that envelops the notion of trace: to trace a line may mean to lay down a track or to track an existing trail of traces. To trace is to draw (develop

a forward-moving itinerary) or retrace (double back over a route). Tracing as treating a subject in narrative form also contains this double-logic: to tell a story is to align an already known set of events along an arc. One might say that a 'story-line' is both the way one arranges events in time and the story as a whole. An analogous double-logic obtains in archaeology: to dig down is to unearth and bring to light; archaeology is the assembling or tracing of traces of the past in order to recover buried history and reconstitute the past in the form of a tract or narrative. In simple temporal terms, narration and archaeology share a double-movement: both a journey from the present into the past and a bringing of the past into the present.

Tracing is a complex and fraught temporal process because a fundamental desire to recover, to retrace and reconstitute is met with a fundamental doubt as to whether the tracing arrives at its destination. Do we track things down, piece together the story, or are we left with a set of puzzling traces, clues to an unsolved mystery? The question is one of coinciding: do the lines from present to past and past to present coincide and come to light, or are we left with a tangle of curious incidents dogging us in the nighttime?

These abstract, conceptual considerations came home to roost in my coming to Crete for the ISST conference. In Crete, I find myself caught between being a tourist and a scholar. I arrive eager to get in touch with and have some deep experience of the roots of western civilization but feel fraught with ambivalence as the academic-skeptic kicks in and doubts the very narrative I wish to construct and inhabit. It comes down to time and trace: are traces indices to a past we access and make contact with, or are they just remainders of something lost? These wavering speculations coalesce and crystallize around the Cretan labyrinth, which has exerted a persistent pull on the Euro-American cultural imagination through its multiple manifestations: the Cretan labyrinth may designate a site, a symbol, a shape, or a story. This essay plays out this dual disposition—a desire to access the archaic and a Derridean derision that deems such desires doomed to deferrals—by exploring two ways of tracing the Cretan labyrinth. The first involves tracing the connection between the labyrinth central to the myth of Theseus and the Minotaur and the site of the Palace at Knossos. This is a grand project taken up by classicists, historians, and archaeologists, in which the ultimate goal is to map the clues in a classical myth onto the cues of the material landscape; or, to use less spatial metaphors, to translate a timeless myth into historical reality. As we shall see, tracing the Knossos Labyrinth back in time leads into convoluted histories and archaeological mysteries and leaves us in a state of disorientation. The second tracing of the Cretan labyrinth is more literal: first I will show a method for drawing the 7-circuit Cretan labyrinth shape, ancient traces of which have been found

across the globe. Then I will use a topological analysis of the shape to adduce a concept of time expressed by the labyrinth's design and conclude by considering how such a concept of time may illuminate the experience of labyrinth walking. Exploring this shape leads to topological symmetries and psychological sympathies and leaves us in a state of reorientation.

Tracing the Cretan labyrinth entails following the twists and turns of the labyrinthine line. The diagram below (figure 1) is the 'Cretan labyrinth' design; it immediately invites one to trace the sinuous route from the opening to the center, and then reverse course and retrace the route back out again, to end where one began. The labyrinthine line evokes a suspension of progress (one begins and ends at a point); one traces a route that maximally lengthens the itinerary within a finite space; the route traverses one line in two directions. Considered as a diagram of time, the labyrinthine line shows linear time being twisted into a repetitious series of doublings back on itself—the labyrinthine line evokes a hiatus in linear time, an *aporia* or pause in which the directional distinction between past and future is lost. This form of time has been conceptualized by J.T. Fraser; he called it *eotemporality*, "for Eos, goddess of dawn" (2007, 17). Within Fraser's hierarchy of nested temporalities, the *eotemporal* is continuous and reversible; it could be represented as a simple line along which time does not have a preferred direction. This is an archaic form of time, born in the early universe, embodied in the older parts of the brain, and associated with the mind's 'deeper' psychological levels. In terms of the physical history of the universe, *eotemporality* corresponds to the scale of massive matter, and thus emerges with the slowing and freezing of matter into galaxies. In relation to human psychology, *eotemporality* corresponds to the oceanic, the unconscious, and hence "such a temporality often infuses our dreams" (2007, 17). *Eotemporality* is experienced as "the two-wayness of time. This is the feeling of



FIGURE 1

that curious fore- and after-knowledge which resembles the listening to a composition already well known" (2007, 189). Eotemporality comprises a continuous line without direction, which from the human viewpoint means moving in a temporality in which there is a double or uncanny sense of anticipation and memory folding into one another. This temporal ambiguity finds analogous expression or metaphorical mirrorings in states of disorientation, the loss of distinctions and or sense of direction, all properties associated with labyrinths in general, and the Cretan labyrinth in particular.

## 2 The Cretan Labyrinth: Mythology

The reticular labyrinthine line replicates itself on several levels of the cultural meme called the Cretan or Knossos labyrinth, including myth, architecture, and archaeology. This structure first appears in the myth of Theseus and the Minotaur, a story in which we see connections drawn among confusions in the hierarchy of gods-humans-animals, the loss of distinction between human and animal, and the spatial disorientation of the labyrinth. The myth recounts how King Minos, son of Europa and Zeus (who in the form of a bull carried Europa to Crete, where Minos and his brothers were born), prays to Poseidon for a sign of his favor and is sent a magnificent white bull, which Minos is to sacrifice in Poseidon's honor. But Minos cannot bear to part with the bull and bucks Poseidon's will, so Poseidon provokes in Minos's queen Pasiphae a consuming lust for it. Pasiphae has the sculptor-engineer-architect Daedalus build a wooden facsimile of a cow so she can mate with the bull; she gives birth to Asterion, the Minotaur, half-man, half-bull, that will eat only human flesh. The human not playing the proper part in relation to the gods is thus met with the loss of distinction between human and animal.

The horrified and shamed Minos has Daedalus build a labyrinth to house the Minotaur. This structure's intricate passages are diabolically confusing, so that anyone who enters cannot find his or her way out again and will be eaten by the Minotaur. Here, we need to note a crucial slippage in terminology: the Knossos Labyrinth would technically have been a maze, because it would have been multicursal (having multiple paths) with dead ends in it, whereas a labyrinth properly speaking is unicursal (having one path). Thus there is already a confusion or loss of distinctions when we consider the Knossos Labyrinth of the myth and the Cretan labyrinth as a specific shape. The monstrous house that disorients anyone who enters houses a human-animal monstrosity; as Steve McCaffrey drily observes, "Both a home and a feeding tract, it is a wrapped model that includes a labyrinth inside a labyrinth: the Daedalian con-

struct per se plus the curvilinear anfractuosités called the minotaur's intestines" (McCaffrey 2003, 115). The Minotaur annually consumes seven Athenian youths and maidens, the tribute Minos extracted when his son Androgeus was killed because he won the Athenian games.

At this juncture, we arrive at the most famous labyrinthine line, Ariadne's thread, which has a specific function in the context of the maze/labyrinth distinction. Aigeus's son Theseus volunteers to be one of the sacrificial youths and gets Minos to agree that if he can kill the Minotaur the tribute will end. Minos's daughter Ariadne falls in love with Theseus and asks Daedalus for help; he gives her a "clue" or ball of thread to give Theseus, who ties it to the stone door lintel at the labyrinth's entrance, unreels it as he goes in, kills the Minotaur, and follows the thread back out. Essentially, Ariadne's thread transforms the maze into a labyrinth: the multicursal confusions of the maze are resolved by the unicursal path traced by the thread. It thus makes sense, though it might seem confusing, that the unicursal path through the Cretan labyrinth design is called "Ariadne's thread," even though that thread does not show a way out of a maze. Umberto Eco rather grumpily observed that applying the label Ariadne's thread to the path through a unicursal labyrinth is inaccurate, because "in this kind of labyrinth the Ariadne thread is useless, since one cannot get lost: the labyrinth itself is the Ariadne thread" (1984, 80). This distinction can certainly be drawn, but it also can be questioned. Like a maze, the unicursal labyrinth produces a loss of orientation in one who traverses it: the left/right reversals in paths and reversed orientation of right and left hands in the paths in and out of the labyrinth map onto a loss of geographic orientation: the definitions of right, left, north, south are based on associations with right and left hands. As John T. Irwin eloquently summarizes, a labyrinth resembles a maze because it is

always open from the outside but appears to be unopenable from within. It permits a physical body access to its interior but denies it exit by subtly disrupting the link between relative and absolute bearing, by confusing the self's control of itself through the disorientation of the body. A labyrinth is in a sense a self-locking enclosure that uses the body's directionality as the bolt in the lock. (1993, 180)

In other words, even if one does not get locked physically in a labyrinth as people did in the mythical maze of Daedalus, the labyrinth induces a bodily disorientation that can confuse the mind as well.

It is interesting to note the deeper resonances that have been speculated to be attached to the pattern traced by Ariadne's thread. In *The Golden Bough*, James Frazer posits that Daedalus choreographed a dance for Ariadne, "a mazy

dance in imitation of the intricate windings of the labyrinth” that may have been a ritual of sun worship. According to Frazer, “the sinuous lines of the labyrinth which the dancers followed in their evolutions may have represented the ecliptic, the sun’s apparent path in the sky” (1911, 4:77). As evidence, Frazer points out that coins of Knossos have a sun or star in the middle of the labyrinth in place of the Minotaur. Frazer conjectures that Knossos King was a sun-god whose powers were renewed every eight years by the fire sacrifice of humans to the bull-headed image of the sun and marriage of the king-bull to the queen-cow (sun and moon).

If we return to the myth for a moment, we find a marvelous final image of the labyrinthine line. Theseus elopes with Ariadne to Naxos, where he abandons her. Minos, angry at Daedalus, imprisons him and his son Icarus in the labyrinth; Daedalus makes wax wings, and they fly out (Icarus’s fate we know). Minos tracks down Daedalus in King Cocalus’s court in Sicily and, to lure him out, offers a great reward for anyone who can pass a thread through a spiral conch shell. Daedalus solves the puzzle by tying a string to an ant and boring a hole in the center of the shell so the ant will draw it through the shell and out. In the context of tracing the mythic Cretan labyrinth, Daedalus emerges as the real hero: architect of the intricate, labyrinthine house of the Minotaur that traps all who enter, he ingeniously solves the puzzle of the maze he has created with the device of Ariadne’s thread and then doubles that feat by threading the conch. As a figure for the artist, the artificer, Daedalus is the master of space who can both construct the labyrinth and trace the route through it.

### 3 The Cretan Labyrinth: Archaeology

Tracking down the actual or physical Cretan labyrinth presumed to have existed at Knossos has been one of the prized projects of modern archaeology. King Minos and the labyrinth are not only solely mythical entities, for they are mentioned in the work of several classical authors, including Homer, Hesiod, Thucydides, Plutarch, and Herodotus, among others. In these works, Minos is depicted as a ruler of the seas with his fleet, and Crete is central in shaping the history of the Aegean world. But it is critical to keep in mind that all we know is that Minos lived in Crete sometime before 1380 BCE, and the first written accounts did not appear until after 750 BCE, on the mainland. Linking mythic Minos to historical Knossos thus involves a great deal of speculation, and many travelers from the fifteenth through the eighteenth centuries claimed to have found the original labyrinth.<sup>1</sup> Most of them believed the Gortyn caves to be

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1 For an overview of the historical account in this paragraph, see Castleden (1990).

the labyrinth; in actuality, it was a Roman quarry that they reimagined as a Greek Bronze Age palace! The first person to attempt to unearth the Labyrinth at Knossos was Cretan merchant Minos Kalokairinos, who began a dig at the hill of Kefala in 1878 and discovered massive walls of a complex building and Bronze Age artifacts. Kalokairinos's dig was stopped by the Cretan parliament in 1879, however, because the Turks controlled the island and it was feared that they would house the treasures in Istanbul. His discoveries were reported by W.J. Stillman, an American journalist and consul in Crete, who presented drawings to the newly formed Archaeological Institute in America.

This form of archaeological project and method proves rich in terms of time and trace. Written accounts of stories passed down through an oral tradition are treated as 'original sources'. A connection is then sought linking mythic story to written text to physical site and artifacts. From the standpoint of time, this project seeks to translate myth into history, thereby both authenticating the myth and transforming history.

Contemporary historian Cathy Gere situates this archaeological project of reading traces from the past in a wider context of modernist prophecy: "The historical sciences as a whole—cosmology, geology, paleontology, archaeology—pieced together a secular narrative after the Biblical chronology lost its credibility" in the later nineteenth century (2009, 7). The epistemological method of reading traces finds formal expression in Thomas Henry Huxley's 1880 essay "The Method of Zadig: Retrospective Prophecy as a Function of Science," in which Huxley recounts the Babylonian philosopher Zadig's ability to perform divination by deciphering minute clues. Huxley defined "retrospective prophecy" as the ability to bear witness to and account for events in the deep past that would otherwise remain invisible.<sup>2</sup>

The phrase "retrospective prophecy" expresses precisely the double temporality of eotemporal labyrinthine time, in which the present moment suspends the passage of unidirectional linear time and the line extends back to the past and into the future simultaneously. Put differently, mapping the mythic past to the material present provided a cultural origin story that also projected a cultural destiny. The first exercise in archaeological retrospective prophecy emerged from Hermann Schliemann's excavations of Troy and the tomb of Agamemnon, which in Gere's interpretation "elevated the Homeric epics to the status of a non-Christian origin for Western civilization, a pagan prehistory

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2 The paradigm of reading traces to uncover events hidden in the depths of time informs many human sciences at the turn of the twentieth century; Carlo Ginzburg's 1983 essay "Clues: Morelli, Freud, and Sherlock Holmes" shows how this epistemology works in art history, psychoanalysis, and detection.



for a secular modernity” (2009, 25). Reading the signs of prehistory scientifically could then map the destiny of the human species. Rudolf Virchow, a famous cell biologist and anthropologist who would work with Schliemann at Troy, declared that human remains in archaeological excavations reveal “where the road of our present development” might be “leading us and our descendants” (cited in Gere 2009, 25). Similarly, Virginia Woolf recorded in her diary this reaction to Schliemann’s excavations: “there never was sight I think less manageable . . . it . . . forecasts a remote future; retells a remote past” (in Gere 2009, 25).

Schliemann was interested in acquiring the site at Knossos and capping off his career by unearthing the Cretan labyrinth. However, he abruptly broke off his negotiations with the Turks because he was told the plot would have 2,500 olive trees but he counted only 889 (Castleden 1990, 25). The site was acquired by Sir Arthur Evans, son of an antiquarian and collector, who as a journalist covered the 1875 Bosnian uprising against the Ottomans and was indelibly marked by the atrocities he witnessed there and again during Crete’s battle for independence against the Turks. Beginning in 1900, Evans unearthed the remains of a labyrinthine architectural complex, which he believed to be Minos’s Palace. He describes the building’s “long corridors and succession of magazines with their blind endings, its tortuous passages, and maze of lesser chambers . . . its huge fresco-paintings and reliefs of bulls, grappled perhaps by men [...] the Mycenaean prototype of Theseus and the Minotaur” (1901, 110). In 1901, Evans published an article tracing the etymology of labyrinth to the Lydian/Carian word *labrys*, meaning double axe, which was the symbol of the Cretan Zeus, also symbolized as a bull. Zeus’s power was embodied in phallic symbols such as bull’s horns and stone pillars. Evans saw the site as both Minos’s palace and the Cretan labyrinth, the house of the bull and double axe, so when he unearthed at the center of the Knossos complex chambers with stone pillars in the middle on which double axes were engraved, this provided him the clinching evidence that “the great prehistoric Palace at Knossos” was in fact “the true original of the traditional Labyrinth” (1901, 110). It is interesting to note how Evans’s discovery duplicates the solving of the labyrinth by Daedalus, Ariadne and Theseus—a winding journey to the center where the bull resides.

In the narrative of Evans unearthing the traces of the past and pinning down the original building depicted in the origin myth, there is a sense that the murky depths of time are brought to the light of day. This is the lucid aspect of eotemporality: a reversible path is drawn between past and present, in which the journey into the past coincides with the past being brought into the present. But at the same time, one could extrapolate this logic to imply that the



past is alive in the present. It is thus somehow fitting that the uncanny dimensions of the eotemporal also enter the story. Evans characterized the Knossos site as a haunted place and records a sleepless feverish night when he visited the Grand Staircase and saw ghosts of Minoan lords and ladies. As contemporary historian Rodney Castleden notes in his study, “At Knossos, mystery, the occult, tragedy, and the smell of sacrifice still hang in the air” (1990, 10).

Evans’s horror with war influenced his reconstruction of the Minoan religion. Gere sees Evans as resembling Frazer in becoming “de facto theologians of modernist paganism,” and she argues that “Evans took to his priestly role with gusto, producing long, elegiac passages about the great Cretan Mother Goddess that read more like prayers or invocations than archaeological analyses” (2009, 10). In the wake of the terrible Muslim-Christian massacres in Crete’s war with Turkey, Evans employed workers of both faiths and arranged for them to dance the labyrinth dance every year on what he claimed was the original location of the “dancing floor” Daedalus had made for Ariadne (Gere 2009, 14). In this scenario, where the archaic ritual is reenacted for modern purposes, the labyrinthine line becomes a balancing of opposites rather than a dissolution of differences.

In 1935, during his final visit to Crete, Evans was honored with honorary citizenship and a bust of him was unveiled at the entrance to the palace, where he was crowned with a wreath of laurel leaves and made a speech in Greek to a crowd in the thousands. There, he proclaimed that

we know now that the old traditions were true. We have before our eyes a wondrous spectacle—the resurgence, namely, of a civilization twice as old as that of Hellas. It is true that on the old Palace site what we see are only the ruins of ruins, but the whole is still inspired with Minos’s spirit of order and organization and the free and natural art of the great architect Deadalos. [...] So far, indeed, as the explorer may have attained success, it has been as the humble instrument, inspired and guided by a greater Power. (In Gere 2009, 172).

Here, the traces of the past are assembled into a transcendent form; the mythic, buried past resurfaces as a beacon of “order”; the diabolical maze becomes an emblem of “natural art.”

Hermann Kern, whose magisterial tome *Through the Labyrinth* is widely recognized as the authoritative historical survey of the subject, concludes that the site of the excavated palace at Knossos cannot have been the labyrinth of the myth mentioned by subsequent authors. Kern refutes the notion that the Cretan labyrinth ever in fact existed as a building and points out that the Cave

at Gortyna and other subterranean formations suggested by other authors could not be the labyrinth constructed by Daedalus. He rather argues that “the labyrinth is intelligible only as an outline” and that “Daedalus, who personified ‘artistry,’ is attributed with having created both the labyrinth and the labyrinth dance” (2000, 44). For Kern, then, there is no physical or original Cretan labyrinth; the oldest trace would be a pattern that is retraced wherever a labyrinth is created. No matter whose account one trusts, a survey of the literature clearly shows that the textual and archaeological traces of the Cretan labyrinth and palace at Knossos can be assembled in several different ways. Tracing the Cretan labyrinth in this context, then, reaches a conclusion of confusion.

#### 4 The Cretan Labyrinth: Topology

The ‘Cretan’ or ‘classical’ labyrinth is a seven-circuit, unicursal pattern that has been found at ancient sites and on petroglyphs, pottery and coins around the world, dating back to at least the seventh century BCE. It has been assigned many associated meanings and interpretations by scholars, including a cosmic time map (tracing the movements of the planets onto the labyrinth), and, as a tomb and womb, a motif of death and rebirth (Kern 2000, 23-46). Kern speculatively traces the labyrinth back to a neolithic source, possibly in celestial observation rituals or in initiation rites. According to McCaffrey, “There is also a strong likelihood that the labyrinth developed out of cave cults in which winding, natural caverns symbolized the bowels of the earth or the uterus of the Earth Mother” (2003, 113).

This labyrinth shape is quite simple to trace, and the process has a certain formal and rhythmic elegance.<sup>3</sup> As shown here (figure 2), one starts with a seed pattern, a central cross, with right angles inserted between the arms of the cross, followed by a coaxial dot in each right angle. Roughly speaking, lines connecting proximate endpoints are then drawn in a series of concentric half-circles that move alternately from right to left and left to right. The design thus evokes the square and the circle, the earth and four directions (in the cross and inserted right angles) and the orbits of planets or the heavenly bodies (in the concentric circuits). Further scrutiny of drawing the design reveals that it displays a geometric sequence that embodies a generative process: drawing the shape includes setting in place a Cartesian coordinate system (the cross), and

3 For marvelous explanations of tracing the Cretan labyrinth, see the work of Jacques Hebert at <http://www.labyreims.com/e-cr.tr.html>.

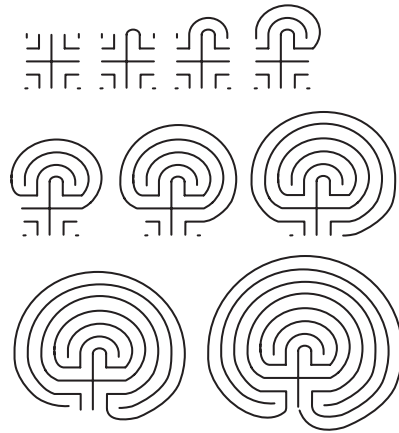


FIGURE 2

connecting 0-dimensional points (the dots) with one-dimensional lines, to generate the two-dimensional shape. Drawing the shape, one experiences and replicates the rhythmic, balanced reversals of direction experienced when one is walking the labyrinth. Humans have been tracing the labyrinth in precisely this way for a very long time; the seed pattern has been found on a pottery shard dating to 604 BCE.<sup>4</sup> It is thus no exaggeration to observe that when one draws this labyrinth, one is tracing an archetypal path and forming a design deeply ingrained in the collective memory of our species.

In the context of this essay, drawing the labyrinth immerses us in the eotemporal realm: it taps into something uncannily familiar, known intuitively or subconsciously or unconsciously; it brings us to brush up against something that represents rituals or functions dating to the Neolithic period. Drawing the shape according to a precise plan, one also finds oneself poised between anticipation (of the unfolding line's itinerary) and memory (tracing a familiar pattern), and thereby enacts the eotemporal logic Fraser characterized as "the two-wayness of time."

In topological terms, the labyrinth displays the same symmetrical balancing of oppositions found in its associated meanings (tomb/womb, death/rebirth, cosmos-heavenly bodies/earthly underworld). These oppositions are created and balanced through a series of reversals: the lines are drawn from right to left, left to right, and so on. The drawn lines, as 'positive' traces or marks, actually become unimportant as they are completed; their function is 'negative' because they invoke the path and stipulate movement through the labyrinth.

4 Cited by Hebert, <http://www.labyreims.ca/e-cr.tr.html>.



FIGURE 3

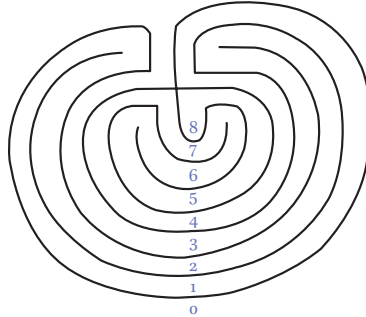


FIGURE 4

In this sense, there is a reversal of positive and negative, outside and inside, which is in turn replicated in the path of Ariadne's thread, which moves from the single opening to the center and back out again. The shift from tracing the pattern to moving through it along Ariadne's thread is also a shift from an 'outside' three-dimensional conceptualization of the labyrinth design to an 'inside' two-dimensional movement between its walls.

In similar fashion, drawing the labyrinth entails a movement from the inside-out, as one keeps adding concentric circuits from the middle to the outermost periphery, while in tracing Ariadne's thread through the labyrinth, one moves from the outside entry point to the inner center. The harmonious left-right/right-left oscillation of one drawing gradually longer arcs is replaced by one tracing a path that both oscillates left/right (by folding back on itself) and alternately moves closer/further to the center, as it fills an interior space with circuitous windings. (See figure 3.)

In fact, the path is marvelously intricate and tantalizing, for in moving from entry to center, it actually progresses further away from the center, then moves close to the center, then further away again, before finally reaching the goal. This can be seen by numbering the 8 concentric levels from outside to goal, with 0 being the entry point. (See figure 4.) Following the path through the

labyrinth produces a sequence of numbers: 0-3-2-1-4-7-6-5-8. The numbers tell us that in moving from outside entry point (0) through middle level (4) to the center (8), the path twice moves through three levels that progress away from the center (between 0 and 4, we traverse levels 3-2-1, and between 4 and 8, we traverse levels 7-6-5). The elegance and balance of the labyrinth is seen in its definitive properties: a single path runs from the outside to the center; the path traverses each of its concentric levels exactly once; the path changes direction each time it changes level. Mathematician Anthony Phillips provides further insight into the topological symmetries of the Cretan labyrinth revealed by the numerical sequence of levels:

It starts with 0 and ends with 8; odds and evens alternate; the number-line segments corresponding to an even integer and its (odd) successor in the permutation must obey the 'no-overlap' law: if two of these segments intersect, one must be contained inside the other. Similarly the number-line segments corresponding to an odd integer and its (even) successor must also obey the 'no-overlap' law.<sup>5</sup>

Thus in our sequence 0-3-2-1-4-7-6-5-8, [3,2] is inside [1,4], and [7,6] is inside [5,8]. There is a symmetrical mirroring between these two sets of pairs as well, in that they add up to the same numbers (5 and 13, respectively).

The conclusion to draw from this analysis here is that the labyrinthine line of Ariadne's thread (traversed in both directions) displays a spatial "two-way-ness" analogous to the "two-way-ness of time" specific to eotemporality. The labyrinthine line displays the general characteristics of balanced oscillations or reversals (right/left) as well as alternating eversions (turning outside-in and inside-out). If we take the line as a conceptual diagram of time, these movements back and forth and in and out correspond to a temporal "two-way-ness" that oscillates between anticipation and memory, making circuits into the future and/or the past. The fact that the path, which unwinds to a center and then rewinds back out, begins and ends at one point, correlates to a suspension of linear time. These conceptual observations mark a suggestive transition from the topological properties of the Cretan labyrinth to the phenomenological experience of labyrinth walking.

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5 Cited from Phillips's essay "The Octosphericon and the Cretan Maze" at <http://www.ams.org/samplings/feature-column/fcarc-octo-cretan>.

## 5 The Cretan Labyrinth: Phenomenology

Whatever functions the labyrinth has had historically, in various times and places, it has become a recognized and popular tool for meditative or spiritual practice.<sup>6</sup> Walking labyrinths has been part of Christian practice since at least the thirteenth century, when an 11-circuit labyrinth was built in Chartres cathedral (among many other sites).<sup>7</sup> Contemporary proponents of labyrinth walking emphasize its uses in healing from trauma, working through grief, and promoting spiritual growth.<sup>8</sup> There is extensive evidence that labyrinth walking is an exceptionally effective means of inducing deeply meaningful and even transformational experiences for individuals. But few writers ask why this would be the case. An exception to this rule is Douglas Burton-Christie, who wonders “how, in walking [the labyrinth], wisdom long forgotten or never before grasped is drawn forth from the depths.” He speculates, “Perhaps it is the movement itself. Perhaps it is the unfolding path. Perhaps it is the circular motion, the sense of being drawn toward the center” (1997, 28). The analysis of the Cretan labyrinth here offers the grounds for at least a speculative answer to this question. The specific topological characteristics of the labyrinth correspond to a particular concept of time; this concept of time may in turn be taken as a template for contemplative temporality, and the phenomenological experience of labyrinth walking can be theorized in terms of its involving and inducing a distinct mode of temporal experience.

Walking labyrinths may be done in different ways, and there is no single set of prescribed rules for the practice. In general, it is an intentional practice: one situates oneself at the entrance, pauses, and takes a deliberate, even pace in walking the winding path. The process is incremental (step-by-step) and iterative (repetitious). The turns in the path provide a rhythm that facilitates a tuning of body and space; in particular, steps taken by right foot/left foot along paths that turn back to the right/left, help entrain the oscillating rhythms of the heartbeat and breathing: “The path does not move in a straight line but rather in the rhythm of systole and diastole. Hence, much like a chest expanding to inhale [...]” (Kern 2000, 24). At the center, there is usually a pause for reflection; often, writing down thoughts is encouraged. Then, the route is retraced back out of the labyrinth.

Labyrinth walking is frequently characterized in relation to time: the space of the labyrinth itself offers a kind of temporal aporia, a clearing ‘in’ or retreat

6 See Artress (1995) for a full account.

7 See Doob (1990) for a historical survey.

8 Among the many books on this subject, the one I have found most informative is West (2000).

from quotidian time; the duration of walking is framed as a period for contemplation. People are often encouraged to use the walk from entrance to center to reflect on past events or already existing problems, consider their situation in the present in the center, and then anticipate possible future scenarios or intentions walking out from the center to the exit.

The foregoing topological analysis of the labyrinth allows us to probe more deeply the temporal aspect of labyrinth walking. The topological characteristics of balanced reversals and mirrored eversions and of tracing and retracing one route yield a spatial “two-wayness” that correlates to a notion of a suspension of linear time within which one experiences the “two-wayness” of eotemporality, a delving into the past and anticipation of the future. In other words, our topological analysis shows that it makes sense that the labyrinthine line of the meditative walk would induce a particularly rich exploration of memory/past and anticipation/future. It is no accident, from this point of view, that the primary purposes of labyrinth walking are past/future oriented: working through pain from the past, identifying paths and goals for future ‘growth’.

Labyrinth walking enables, encourages, and stimulates unusually focused contemplation in many people. Contemplation may be defined in terms of a mode of thought characterized by the two-wayness of eotemporality. A philosophical account of contemplation singularly suited to the present context is found in the work of Gilles Deleuze. In *What is Philosophy?*, Deleuze and Felix Guattari broach contemplation as a physiological experience rather than an exclusively cerebral process of intuitive thought or reflection: they frame contemplation as involving “not Ideas that we contemplate through concepts but the elements of matter we contemplate through sensation” (1994, 212). The emphasis on sensation as a ‘ground’ for contemplation resonates with the embodied aspect of labyrinth walking, the way it tunes the body’s rhythms. The labyrinth walker experiences a satisfying coinciding between external space, bodily sensations and rhythms, and internal thoughts. This resembles the state Deleuze-Guattari describe, in which the resonance of sensation coincides with the reflection of contemplation: “Sensation is pure contemplation”; sensation “fills out the plane of composition and is filled by filling itself with what it contemplates: it is ‘enjoyment’ and ‘self-enjoyment’”; “contemplating is creating, the mystery of passive creation, sensation” (1994, 212). This view of sensation as contemplation entails “a state of detachment in relation to action or even to movement and appears as a pure contemplation without knowledge” (1994, 213). This state of detachment from the practical demands of action and movement comes about when one is labyrinth walking because the path obviates the need for attention to be given to choices about where to walk or what to do. The labyrinth exemplifies what Germano Celant calls a “deprived space”



in which “participants can only find themselves as the subject, aware only of their own fantasies and pulsations, able only to react to the lowdensity signals of their own bodies” (qtd. in Tschumi 1996, 43). Giorgio Agamben characterizes the Deleuzian concept of life lived as sensation-contemplation as “potentiality, complete beatitude,” linked etymologically to *trophō*, to be nourished, “to let be,” being at rest in oneself (1999, 237). Deleuze wrote in a late work of this mode of life in terms that fit perfectly with eotemporality: it “does not itself have moments, close as they may be to one another, but only between-times, between-moments; it doesn’t just come about or come after but sees the event yet to come and already happened, in the absolute of an immediate consciousness” (Deleuze 2001, 29). Labyrinth walking, then, could be conceptualized as a process in which an “immediate consciousness” tuned by two-way topological spatial properties floats in a two-way eotemporal contemplative mode of events having already happened and those to come. The free-floating yet focused attention brought on by walking the labyrinth enables individuals to access “wisdom long forgotten or never before grasped [...] drawn forth from the depths” (Burton-Christie 1997, 28).

## 6 Conclusion

This essay’s itinerary has explored the Cretan labyrinth in terms of mythology, archaeology, topology, and phenomenology. In doing so, it has traced a common concept of time, eotemporality, at play in these contexts in different ways. In exploring how the present can connect to or access an archaic past or tap hidden powers embodied in the Cretan labyrinth, the essay has also moved from an underlying sense of disorientation to one of reorientation. A fitting resolution to this essay might be to land in the middle, with the concept of *metoikesis*, or relocation. I came across this concept at the Acropolis Museum in Athens, before the conference in Crete, in the catalogue for an exhibition by contemporary Greek artist Lizzie Calligas.<sup>9</sup> Calligas photographed statues when they were wrapped in sheets while being moved from the Acropolis to the Museum below, a move fraught with ambivalence in terms of history, relations to the past, the role of the museum, and so on. The exhibit was called “*Metoikesis*” to mark the suspended state of the statues, their being a moment of relocation, somewhere between unsettling and resettling, dissolution and resolution, leaving behind and looking forward. Perhaps the image of *metoikesis*, of the faces of the gods and the artifacts of the ancient past, being shrouded

9 Lizzie Calligas, *Metoikesis* (2010), ed. by Saragou Eleni (Benaki Museum: Cube Art Editions).

from but present with us, is a fitting place to conclude this labyrinthine tracing of the Cretan labyrinth.

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