

## The Pythagorean Pentacle

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## Historical Background



Pentagram on reverse of a small bronze coin (AE10) from Pitane, Mysia, 4th-3rd cent. BCE. Letters around the pentagram spell ΠΙΤΑΝ (PITAN).

The pentagram and hexagram were both used for protection in ancient Greece (V cent. BCE). In Babylon, five-, six- and seven-rayed stars were all used. The pentagram appears in the earliest writing of Mesopotamia (precuneiform)

pictographic writing), c. 3000 BCE, as the Sumerian sign UB. Its meaning in the cuneiform period (by 2600 BCE) seems to be a Heavenly Quarter and also the four directions (forward, backward, left, right); the fifth direction was "above." The four directions corresponded to the planets Jupiter, Mercury, Mars and Saturn, with Venus the Queen of Heaven (Schekina) above. These are the "Smaller Planets" (omitting Sun and Moon). Ishtar (Venus) was represented by the Eight-rayed Star (Elam). See [De Vogel](#) (App. A) and [Black & Green](#) (s.v. Star).

Pythagoras may have become acquainted with the Pentagram during his sojourns in Egypt and Babylon (perhaps 554-533 BCE); in any case the Pythagoreans used it as a sign of recognition (Iambl., *Vita Pyth.* XXXIII). They called the Pentagram  $\Upsilon\gamma\iota\epsilon\alpha$  (Hugieia), which is usually translated "Health," but has more the sense of Soundness or Wholeness, and, more generally, any Divine Blessing (LSJ s.v. hugieia, Suppl. s.v. hugieia). (Hugieia comes from the same Indo-European root as gives us "quick" [i.e. living], "viva," "vital," "bios" [life], "zôê" [life] and "azoth." It has been traditionally associated with "vigor", "vigil" and the Latin words "vegetus" [lively, vigorous] and "vegeo" [to quicken], which come from the same Indo-European root as "Wicca" and "Witch.") The Pentagram was still used to mean "Hugieia" in Paracelsus' time (c.1493-1541). The Pythagoreans also used "Be sound / whole / blessed!" ( $\Upsilon\gamma\iota\alpha\upsilon\epsilon$ , Hugiaine!) as their greeting or password (*Scholia in Aristoph.*, Nubes 609; Lucian, *Pro lapsu* 5). In fact Bonner (p. 177) notes that "Hugieia" is a fairly common inscription on amulets, and that Perdrizet thinks it and similar inscriptions are Oriental in origin (although the word is Greek). Hugieia (Hygeia) is also, of course, the Goddess of Health, called Salus by the Romans; She is the daughter of the God Aesculapius.

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## Labeling the Pentagram

The Pythagoreans apparently labeled the points or angles of the Pentagram with the Greek letters  $\Upsilon\Gamma\text{I}\epsilon\text{I}\alpha$  (UGIEIA). [Allman](#) (p. 26) shows them on the points arranged counterclockwise from the top thus:  $\Upsilon\text{--}\Gamma\text{--}\text{I--}\epsilon\text{I--}\alpha$  (U-G-I-EI-A). The fact that  $\Upsilon\Gamma\text{I}\epsilon\text{I}\alpha$  (UGIEIA) has six letters is an inconvenience, and Allman observes that the Pythagoreans wrote epsilon, gamma, iota, theta, alpha at the points, perhaps because an adjacent epsilon and iota ( $\epsilon\text{I}$ ) look something like a theta ( $\Theta$ ). [Charles \(1875, p. 478-479\)](#) likewise lists these five letters, quoting Alstedius (*Encyc. univ.*, 1620) and Kircher (*Arithmologia*, 1665).

Looking at the figure in Agrippa's *De occulta philosophia* (Lib. III, cap. xxi) we see an upright pentagram surrounded by two rings; between the rings and aligned with the angles between the pentagram's points are Greek letters reading clockwise:  $\Upsilon\gamma\iota\epsilon\alpha$  (UGI?A). The mysterious fourth letter is not entirely clear in my edition of Agrippa (Brill, 1992), but its appearance is consistent with a common medieval abbreviation for EI or ei (which looks vaguely like a theta, but more like a dollar sign made without lifting the pen).

Vincenzo Cartari's *Le Imagini degli Dei degli Antichi* (Venezia 1609, Padova 1626) shows a Pythagorean signet ring bearing an upright pentagram labeled with *both* Hugieia and Salus. The Greek letters  $\Upsilon\Gamma\text{I}\epsilon\text{I}\alpha$  (UGEIA) are clockwise in the points, beginning with the upper-left arm. The Roman letters SALUS are clockwise in the angles, beginning with the lower-left angle (Latin *Salus* has the same meaning as Hugieia).

So, although we can conclude that the Pythagoreans labeled the Pentagram with the letters  $\Upsilon\text{--}\Gamma\text{--}\text{I--}\epsilon\text{I--}\alpha$  (U-G-I-EI-A), sometimes we find them clockwise, sometimes counterclockwise, and either placed on the points starting at the top (Alstedius, Kircher), or in the angles starting at the top right (Agrippa). Since the historical evidence for the placement is late and inconsistent, I have developed a Pythagorean Pentacle that embodies many important alchemical, magical and astrological relationships; indeed, it

functions as a sort of alchemical computer. The pentagram is inscribed in a pentagon with the letters U, G, I, EI (or Th), A written clockwise on the points beginning in the lower left point:

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      I
    G   EI
  U   A

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## Pythagorean Interpretations

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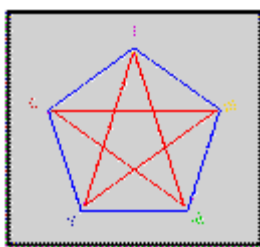
## The Elements

The letters labeling the corners of the Pentacle are the first letters of Greek words for the Elements:

Υ (U)	Ὑδωρ (Hudor)	Water	
Γ (G)	Γαῖα (Gaia)	Earth	
Ι (I)	Ἰδέα (Idea)	Form/Idea, or	Ἱερόν (Hieron) a divine, holy thing
ΕΙ (EI)	Ἑλλη (Heile)	Sun's Warmth or	Θ (Th) Θέρμα (Therma) Heat
Α (A)	Ἄρ (Aer)	Air	

Though the Theta may be explained as a joined Epsilon and Iota, we see here an alternative explanation, for either is an abbreviation for the Fiery Element. Notice how the pattern of the letters, **ΥΤ-Ι-ΕΙΑ** (UG/I/EIA) or **ΥΤ-Ι-ΘΑ** (UG/I/ThA), matches the arch structure of the Pentacle; interestingly the Greek word Hugieia (ὑγίεια) has a high-tone (acute) accent on the Iota (corresponding to Spirit), which seems appropriate.

This seems to be the *only* arrangement of the Elements on the Pentagram that generates **ΥΤΙΕΙΑ** (UGIEIA) or **ΥΤΙΘΑ** (UGITHA) - let alone both - from plausible Element names. Also I should note that the above Element names are the usual ones that appear, for example, in Aristotle, except Fire, where *Pur* is used; however Empedocles (who discovered the Four Elements) uses *Eelios* = Sun, which is described as *Thermos*, for Fire (DK 31B 21; see also Kirk, Raven & Schofield 292-3). Also, although Aristotle uses *Aither* for the Fifth Element (Quintessence), Plato clearly associates it with the World of Forms (*Ideai*). I think *Hieron* (a holy, divine thing) is also appropriate for the Quintessence (which resides in the Celestial Sphere).



To see what's going on more clearly, you might want to draw a Pentagram with a circumscribed Pentagon. It will be helpful later if you draw the Pentagram and Pentagon in contrasting colors. The lower trapezoid of the figure is then a (distorted) Square of Opposition representing the Four Mundane Elements Earth-Water-Air-Fire. Spirit stands above these, forming a pyramid over them.

First observe that the Pentacle embodies the Physical Order of the Elements; if we stay on the Mundane level we have Earth-Water-Air-Fire, and we can make it a cycle counterclockwise (as in the Alchemical Circulation) by returning from Fire to Earth across the horizontal beam of the Pentagram. Likewise, the Pentacle includes the Extended Physical Order (the Metaphysical Order), which includes the ascent to Spirit: Earth-Water-Air-Fire-Spirit by a counterclockwise circuit. Of course we get the descent Spirit-Fire-Air-Water-Earth by going clockwise.

## The Organic Cycle

Aristotle (e.g. *De caelo* 268b11-296a32; *De gen. & corr.* 329a24-331a6) showed that the properties of the Four Elements are caused by the *Four Qualities* or *Powers*, Wet, Hot, Dry and Cold. Thus Earth=Dry+Cold, Water=Cold+Wet, Air=Wet+Hot, Fire=Hot+Dry. The Four Qualities comprise two Dualities: Hot/Cold (active) and Dry/Wet (passive), usually displayed in a Square of Opposition, thus:

	Cold	
Wet		Dry
	Hot	

The Four Qualities fall into a Natural Order, which might be called the Organic Order: Wet, Hot, Dry, Cold (the preceding circle counterclockwise). I won't repeat the explanations (see Ptolemy's *Tetrabiblos* I.4-8, 10, 17, II.3), but here are some of the correspondences:

Quality	Age	Season	Moon
Wet	Child	Spring	1st Q.
Hot	Youth	Summer	2nd Q.
Dry	Maturity	Autumn	3rd Q.
Cold	Old Age	Winter	4th Q.

Note that this makes the Cold/Wet transition of the Cycle a key Transition Point: (1) it represents the Dark of the Moon, (2) the traditional start of the year (Vernal Eq.), and (3) reincarnation (the passage from death back into birth). (See [The Ancient Greek Esoteric Doctrine of the Elements](#) for more on the qualities and their correspondences.)

Since the Qualities are shared by pairs of elements, they actually fall on the lines of the Pythagorean Pentacle. For example, Wet corresponds to the line connecting Water (U) and Air (A). If we look at the Pentacle as a Pyramid, the four lines around the base represent the Four Powers in their mundane manifestation. The four sides rising above them toward the apex (corresponding to Spirit) represent the elevation or aetherialization of the Powers (at the apex they all become identical; this is the alchemical Quintessence; see "[The Rotation of the Elements](#)," *Caduceus*, Vol. 1, No. 4).

Although the Powers properly belong on the lines between the points, it is often convenient to place

them on the points, thus identifying them with the Elements. Aristotle showed that one of the two Powers constituting an Element is dominant (the first of the two given in the equations above), so Earth is predominantly Dry, Water is Cold, Air is Wet and Fire is Hot. These correspondences may not be entirely obvious (and other philosophers, such as the Stoics, have done them differently), but overall they work best, especially for alchemy. When we apply them we get the following correspondences for the points of the Pentagram:

Letter	Element	Power	Age	Season	Moon
A	Air	Wet	Child	Spring	1st Q.
EI	Fire	Hot	Youth	Summer	2nd Q.
G	Earth	Dry	Maturity	Autumn	3rd Q.
U	Water	Cold	Old Age	Winter	4th Q.
I	Spirit	Divine	Death	Terror Time	New Moon

The four elemental correspondences are the most common used through the Renaissance. The Fifth Element can be included as shown. (The "Terror Time" refers to the unnamed and unnumbered days between the years.) One might expect I=Death to fall on the Pentacle between U=Oldage and A=Child, but it does not; perhaps this is because the ascent to Spirit can occur from any stage of life. There is a different analysis, based directly on the elements rather than the qualities, which does put Death in the expected place.

## The Tetractys

The Tetractys, the sequence I-II-III-III, which together add to the Decad, was another holy symbol of the Pythagoreans, usually written:

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      *
    * *
  * * *
* * * *

      or

      I
    I I
  I I I
I I I I

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The second-century Neoplatonist Theon (*Math. Chrem. Platon. Anag.* II.xxxviii) gives a set of correspondences to the Tetractys, based on the properties of the first four numbers. For example, they correspond to the Elements in order of decreasing subtlety: 1=Fire, 2=Air, 3=Water, 4=Earth. This is also the order of the Mundane Spheres, from outside to inside (aetherial fire above the damp lower air, above the water, held by the earth).

The first four numbers also represent processes of growth or development. For example,

Num.	Elem.	Lifestage	Season
1	Fire	Child	Spring
2	Air	Youth	Summer
3	Water	Maturity	Autumn
4	Earth	Old Age	Winter
5/0	Spirit	Death	Terror Time

Here the emphasis is on Development (especially toward greater stability, gravity), whereas in the Organic Cycle it is on the periodic return of the seasons. Nevertheless, the Fifth Element naturally completes the cycle. As indicated, Spirit may be also considered the "zeroth" element, coming before

Fire.

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## The Letter Forms

The Greek letters labeling the Pentagram encode the developmental sequence of the Elements in their forms:

1	ΕΙ (EI)	Fire	five strokes
2	Α (A)	Air	four strokes (with broken crossbar)*
3	Υ (U)	Water	three strokes
4	Γ (G)	Earth	two strokes
5	Ι (I)	Spirit	one stroke

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## The Planets

Ptolemy defines the Qualities of the Five Minor Planets as follows: Venus is predominantly Wet and assigned to Air; Jupiter is Hot and assigned to Fire, Mars is Dry and assigned to Earth, Saturn is Cold and assigned to Water. Mercury is neutral in itself, but can combine with the other planets, so we assign it to Spirit. Thus we have:

	Mercury	
Mars		Jupiter
Saturn		Venus

According to Ptolemy the two Planets on the right (Jupiter, Venus) are beneficent, the two on the left (Mars, Saturn) are malevolent; Mercury is neutral.

In Babylonian astrological tablets dating back to at least the fourth century BCE, the Minor Planets are assigned to Signs of the Zodiac in the order Jupiter, Venus, Saturn, Mars, Jupiter, etc. (Rochberg-Halton). That is, they are assigned according to the descending cycle of elements: Fire, Air, Water, Earth. Therefore, Jupiter is Lord of the Aries-Leo-Sagittarius triplicity, Venus of Taurus-Virgo-Capricorn, Saturn of Gemini-Libra-Aquarius and Mars of Cancer-Scorpio-Pisces. The Fixed Signs of these triplicities correspond to the Seasons, as already enumerated: Air-Taurus-Spring-Wet, Fire-Leo-Summer-Hot, Earth-Scorpio-Autumn-Dry, Water-Aquarius-Winter-Cold. (These are not the elemental association now current in astrology, which apparently derive from Vetius Valens' *Anthologia*, although they are consistent with Ptolemy's *Tetrabiblos*; both date from the 2nd. cent. CE.)

The Greater Lamps, the Sun and Moon, do not have a place on the Pentagram, but stand above it, the Moon on the left and the Sun on the right. They govern the two Shamanic Paths: The Left-hand Path is the Way of the Moon, which descends to the Underworld by means of the element Earth and the Water below it (i.e. the Abyss). The Right-hand Path is the Way of the Sun, which ascends to the Heavens by means of the elements Air and the Fire above it (the Celestial Fire). Both Paths are valid and appropriate according to circumstances. (See Opsopaus' ["Olympic Lesser Banishing Ritual,"](#) *Caduceus* vol. 1, no. 1, and references therein for more on the two Paths.)

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## The Four Functions and the Self

Four Gods are conventionally associated with the Mundane Elements in the obvious way: Jupiter (Fire), Juno (Air), Neptune (Water), Ceres (Earth).

The Four Powers are associated naturally with Jung's Four Functions: Feeling (Wet) opposite Thinking (Dry), Intuition (Hot) opposite Sensation (Cold); the Transcendent Self (Spirit) stands above them all. The Wet/Dry functions are "evaluative," the Hot/Cold are "experiential." Four Gods correspond to the Four Functions: Venus (Feeling, love), Minerva (Thinking, wisdom), Jupiter (Intuition, the "bolt from the blue"), Neptune (Sensation, lord of the earth/physical reality). Thus we have:

Element	Deities	Function	Power	Planet
Spirit	Mercury	Self	Divine	Mercury
Fire	Jupiter	Intuition	Hot	Jupiter
Air	Hera, Aphrodite	Feeling	Wet	Venus
Water	Neptune	Sensation	Cold	Saturn
Earth	Ceres, Minerva	Thinking	Dry	Mars

The Four Functions correspond to the suits of the Minor Arcana by way of the Powers: Intuition-Hot-Wands (Jupiter), Feeling-Wet-Cups (Juno, Venus), Sensation-Cold-Pentacles (Neptune, Saturn), Thinking-Dry-Swords (Minerva, Mars). The Transcendental Self corresponds to the Major Arcana (the Archetypal Realm), associated with Mercury (the Magician), the Psychopomp (Soul-guide) who shows us the way between the worlds. (See [The Pythagorean Tarot](#) for more.)

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## The Alchemical Great Work

In accord with the Organic Cycle, the points of the Pentagram correspond to the Stages of the Great Work in Alchemy. The first stage is *Nigredo* (Blackening), corresponding to Water-Cold-Winter-Saturn; it is the stage which causes the dissolution of old structures and their reduction to *Prima Materia* (Prime Matter). The next stage is *Albedo* (Whitening), corresponding to Air-Wet-Spring-Venus; it is the purification stage, in which the *Prima Materia* is cleansed so that it is devoid of all properties and can accept the Tincture. Next is *Citrinitas* (Yellowing), corresponding to Fire-Hot-Summer-Jupiter; it is the stage in which the *Prima Materia* receives the fiery Golden Tincture. Finally we have the *Rubedo* (Reddening), corresponding to Earth-Dry-Autumn-Mars; it is a paradoxical stage, for it is associated with *Ios* or *Venenum*, the Venomous Potion. It can be the highest stage of the Alchemical Process, the *Iosis* (becoming reddish-purple) in which the Philosophers Stone is produced, which has an excess of the Tincture, and so can transmute other matter. However, it can also be a stage of excess, the *Adustio* (Rusting or Browning) which destroys the Work accomplished (returning it to dry, inanimate matter), whose only use is as the raw material for another *Nigredo*. This is why the ascent to the Quintessence occurs between the *Citrinitas* and the *Rubedo*. In a proper rotation the substance will be progressively elevated until it reaches the Quintessence at the apex of the Pyramid. (See [10.Fortune](#) in the Pythagorean Tarot for more on the rotation.)

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## Colors

In addition to the colors associated with the Elements and Powers by virtue of Alchemy (Water/Cold=Black, Air/Wet=White, Fire/Hot=Yellow, Earth/Dry=Red), there are also secondary colors, Green for Air/Wet and Blue for Water/Cold. First, Green is strongly associated with Venus-Spring-Wet-Air. Venus's epithet, "the Cyprian" derives from Cyprus, Her home, as do the word



"copper," "cuprous," etc. Further, Green is the complementary to Red, which is the color of Mars who stands opposite to Venus on the Mundane Plane (as the Red of Autumn opposes the Green of Spring). Second, Blue is associated with Saturn-Winter-Cold-Water, for Blue is complementary to Yellow, which is the color of Jupiter, who stands opposite Saturn (as the sunny Yellow of Summer opposes the icy Blue of Winter).

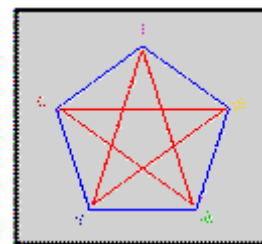
## The Directions

The points of the Pentagram correspond to the Four Directions and Up. Unfortunately, there are many ways the directions can be assigned. The assignment most commonly used in the Renaissance makes Water=West, Air=South, Fire=East, Earth=North, which makes the perspective from above toward the Northeast. Another approach, adopted by Ashmole, is to assign them on the basis of the Organic Cycle and the motion of the Sun (Air=Wet=Morning=East, Fire=Hot=Midday=South, Earth=Dry=Evening=West, Water=Cold=Night=North). (With these assignments our perspective is below the Pyramid looking toward the Northeast.) Ptolemy assigns them on the basis of the Four Winds and their Qualities (which gives Water=Cold=North, Air=Wet=West, Fire=Hot=South, Earth=Dry=East). (With these assignments our perspective is above the Pyramid looking toward the Southeast, the sacred direction of the Etruscans.)

*Tip:* If you work in Wiccan or Golden Dawn traditions, with their directional associations (East-Air, South-Fire, West-Water, North-Earth), but don't want to get the alchemical structure of the elements garbled, then use the Ptolemaic assignments. Instead of Air, think Dry East Wind; instead of Fire, Hot South Wind; instead of Water, Wet West Wind; instead of Earth, Cold North Wind. That is, you will be working in terms of the Powers, which have the correct oppositional structure, rather than the Elements, which don't.

## The Dual Pentagram

This brings us to an interesting property of the Pythagorean Pentacle (the Pentagram with circumscribed Pentagon). In mathematical terminology the Pentagram is dual to the Pentagon (one is like the other turned inside-out). To see this draw a black Pentagram in a red Pentagon, and a red Pentagram in a black Pentagon; each Pentacle is the dual of the other. For example, if we number the first Pentagon clockwise around its corners, and next trace the lines of its Pentagram and transfer the numbers counterclockwise to the corners of the second Pentagon, then our Pentacles will be labeled:



1		1
5	2	4
4	3	2

The second Pentacle has the Even Numbers, which according to Pythagorean theory are Feminine, on the left, and the Masculine Numbers on the right; since according to the Pythagoreans 1 is Androgynous (cf. Hermes Duplex), it is appropriate that it is in the middle.

Now label the Pythagorean Pentacle with the Elements as described above; I will call this the Elemental Pentacle. Next trace the lines of the Elemental Pentagram in Counterclockwise Order (Spirit, Water, Fire, Earth, Air) and lay out these elements in Clockwise Order around the corners of the second



Pentagon; they will be arranged as follows:

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    Spirit
Air      Water
Earth   Fire

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The resulting Dual Pentacle is interesting for a number of reasons. First observe that the Elements are arranged in the familiar Wiccan/Golden Dawn format, so henceforth I will call this the Golden Dawn Pentacle. Because this is the dual of the Elemental Pentacle, tracing the Golden Dawn Pentagram in Invoking Order (Spirit, Fire, Air, Water, Earth) corresponds to circumscribing the Elemental Pentagon in (descending) Physical order (Spirit, Fire, Air, Water, Earth). Tracing it from upper-right to lower-left (Spirit Banishing for Passives) spells out U/G/I/EI/A.

As is well known, Plato associates the Five Elements with the Five Platonic Solids (*Tim.* 55c-65c), and Kepler made a similar association between the Planets and the Platonic Solids. So let's lay out the Platonic Solids around the Golden Dawn Pentacle; I'll abbreviate the Solids by their number of faces:

4	Tetrahedron	Fire
6	Cube	Earth
8	Octahedron	Air
12	Dodecahedron	Spirit
20	Icosahedron	Water

This is the result:

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    12
8      20
6      4

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Notice that the Platonic Solids fall around the circumference in increasing order of number of faces. Since the Elemental Pentagram is its dual, we know that it can also produce the series 4, 6, 8, 12, 20 (by tracing the Pentagram).

So the Golden Dawn Pentacle also has some interesting Correspondences, though it loses the Directional and Organic Cycles and especially the Square of Opposition, which I think is fundamental and essential. Needless to say, they can be profound Mandalas for meditation if fully labeled with color-coded Correspondences.

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## Notes

\* See Cook (*Greek Inscriptions*, p. 46, pls. 7, 10, 17, 20, 37, 38) for the (2nd-1st cent. BCE) alpha with a broken crossbar.

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