THE LAST SANCTUM OF ARCHETYPES: RETHINKING DREAMS IN THE LIGHT OF ANCIENT KNOWLEDGE AND ARTIFICIAL INTELLIGENCE

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This is the secret of dreams – that we do not dream, but rather are dreamt. We are the object of the dream, not its maker.[1]

Introduction

In parallel with various disciplines within the humanities, the domain of dream studies has undergone significant transformation under the influence of the cultural information space, propelled by the rapid evolution of digital technology. As a result, many researchers have initiated the examination of patterns embedded within extensive compendia of dream reports – a quest that was impossible before the advent of computational processing. Projections indicate that this trajectory will continue as the large digital repositories of dreams continue to expand. Such a shift, however, requires novel or revised epistemological, ethical, and philosophical perspectives, transcending conventional dichotomies and fostering a collaborative approach and constructive dialogue within the realms of conceptual frameworks, data science and the (digital) humanities. Thus, the aim of this paper is to offer a brief examination of ancient knowledge on dreams and dreaming and understand its deep

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[1]   Carl Gustav Jung, *Children's Dreams: Notes from the Seminar Given in 1936–1940* (Princeton: Princeton University Press, 2010), 159.

epistemological foundations that will build the digitally-driven future of dream research.

Ancient Dreaming

It should be noted at the outset that dreams have not always been considered a peripheral activity of the human mind. For instance, Hughes[2] observes that dreams in ancient Mesopotamia and Egypt had a prominent role in private and public daily life. Moreover, the existence of professional dream interpreters, priests, and priestesses had far-reaching effects on dream practices such as ritualistic cleansing after a malevolent dream. On some occasions, the bad dream could be dissolved with clay and water or transferred to a reed, only to be burned afterwards.[3] Another vital practice included sleep incubation, which usually took place in a temple. The dreamers would visit temples to gain an insightful oracular or healing dream.[4]

As a large body of historical and anthropological evidence suggests, dreams were not abstracted from the waking consciousness but rather provided important insights that were otherwise unreachable through wakefulness. The ancient cultures considered both dreaming and waking minds mutually dependent and equal. Despite being ephemeral, elusive, and mysterious, dream content was not dismissed as a peripheral derivate of human consciousness, but quite the opposite: waking life decisions were often based on meticulous interpretations of nocturnal experiences.

The ancient Greek approach was no different in that perspective, as it honored previous civilizations' knowledge and traditional practices. Hughes describes how dream interpreters (*oneirokritai*) of both genders were regularly consulted by people from all walks of life:

The Greeks respected their dreams, believing that they were messages from the gods, that they foretold the future, that they were means of curing ill-

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[2]   J. Donald Hughes, "Dream Interpretation in Ancient Civilizations," *Dreaming* 10, no. 1 (2000): 7, https://psycnet.apa.org/doi/10.1023/A:1009447606158.

[3]   Hughes, "Dream Interpretation," 9.

[4]   Hughes, "Dream Interpretation," 10.

nesses, and that they enabled one to speak with the dead and witness events at great distances. These beliefs were also typical of neighboring societies, but the Greeks, more consistently than others, tried to give a rational account of dreams and dream interpretation.[5]

Dream oracles were common in Ancient Greece, and the practice of co-sleeping with the healer was considered an integral part of physical and spiritual well-being:

A statue of Oneiros, god of dreams, appropriately stood in the sanctuary of Asclepius, god of healing. Dreams were used to restore physical and mental health at centers such as Epidaurus. Each shrine had healer-seers who guided pilgrims and interpreted their dreams. They could check on the genuineness of a patient's dream by watching their own, since an important dream would occur to both patient and priest on the same night, a coincidence called *symptoma* (root of English 'symptom').[6]

The functions of dreaming in ancient civilizations, such as Mesopotamian, Greek, and Roman, were relatively straightforward: guiding, healing, encountering the divine, and—in the case of anticipatory or pre-cognitive dreams—forecasting the individual or collective future. Here, it is worth mentioning that Socrates had a dream predicting his death, while the notable example of Constantine's dreams reminds us of their predictive nature with more far-reaching implications that marked the critical historical and collective moment in ancient Europe and Christianity.

Plane and Tuttle further illustrate that in 1500, a plethora of dream theories were available to European intellectuals, mostly spanning disciplines like theology, medicine, and the *ars divinatoria*.[7]

Another profoundly mystical, if not genesic account of dreams and dreaming can be traced in the writings of Glaskin, who observes that Australian Aboriginal cosmologies draw from the idea of a creative period,

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[5]   Hughes, "Dream Interpretation," 11.
[6]   Hughes, "Dream Interpretation," 13.
[7]   Ann Marie Plane and Leslie Tuttle, "Dreams and Dreaming in the Early Modern World," *Renaissance Quarterly* 67, no. 3 (2014): 921, https://doi.org/10.1086/678778.

[i]n which ancestral beings performed various deeds that shaped the country, imbuing the landscape with their presence, inscribing it with narratives of their activities, and giving humans laws to follow. This creative epoch is now widely known to English-speakers in and beyond Australia as 'the Dreaming' or 'Dreamtime …'[8]

The Aboriginal idea of dreaming may be seen as a paradigm that provides a contrasting perspective on reality compared to our contemporary understanding. In this framework, the logical and coherent order that we often associate with wakefulness and storytelling is believed to have originated from a primordial realm characterized by dream-like states. Further examination of the concepts surrounding dreaming will reveal that the fundamental principles of Western medicine were closely interconnected with rigorous observations and study of dreams.

Revisiting Hippocrates

To further understand the relevance of dreaming, it is worth examining the Hippocratic account of the body-soul principle. The dichotomy seems to be best encapsulated in the following observation: "But when the body is at rest, the soul, being set in motion and awake, administers her own household, and of herself performs all the acts of the body."[9] According to Hippocratic writings, the dynamic interplay between body and soul is at the core of the principal understanding of human diseases, in which dreams hold a perennial role. Moreover, the dream content can be ascribed to symptomatic indications that serve as a diagnostic tool. This is particularly evident in types of dreams that thematically diverge from everyday experiences, such as disturbing nightmares: "But when dreams are contrary to the acts of the day, and there occurs about them some struggle or triumph, a disturbance in the body is indicated, a violent struggle meaning a violent mischief, a feeble struggle a less serious mischief. As to whether the act should be averted

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[8]   Katie Glaskin, "Dreams, Memory, and the Ancestors: Creativity, Culture, and the Science of Sleep," *Journal of the Royan Anthropological Institute* 17, no. 1 (2011): 45, https://doi.org/10.1111/j.1467-9655.2010.01668.x.

[9]   Hippocrates, *On Dreams*, trans. W. H. S. Jones, Vol. IV (Cambridge: Harvard University Press , 1934), 421.

or not I do not decide, but I do advise treatment of the body."[10] Moreover, Hippocrates holds the view that the severity of dream content is directly proportional to illness, implying that extremely disturbing nightmares are indicative of more severe ailments, while gentle dreams may signify a state of good health.[11]

In contrast to later psychoanalytical interpretations of dreams, which drew intensely on a metaphorical understanding of dreams and their latent meanings,[12] the Hippocratic prognosis of disease is based on analogies between waking and dreaming elements or situations. To illustrate this further, we should consider the following example: "To see the earth flooded by water or sea signifies a disease, as there is much moisture in the body. What is necessary is to take emetics, to avoid luncheon, to exercise and to adopt a dry diet."[13] It is worth pointing out, however, that the interpretation of such analogies is contingent upon the patient's health conditions. Hippocrates thus concludes: "If the dreamer thinks that he is diving in a lake, in the sea, or in a river, it is not a good sign, for it indicates excess of moisture. In this case also benefit comes from a drying regimen and increased exercises. But for a fever patient these dreams are a good sign, for the heat is being suppressed by the moisture."[14]

The spiritual component of dreams continued to play an essential role throughout history and cultures and, as many subsequent examples will demonstrate, served as a focal point between the earthly, the mundane, the corporeal, if willing, and the divine. In this context, the spiritual facet of dreaming can be compared to Ficino's philosophical concept of the soul, described as *copula mundi*, or "bond of the world", because it connects the earth and the heaven, immanence and transcendence, time and eternity."[15]

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[10] Hippocrates, *On Dreams*, 425.
[11] Hippocrates, *On Dreams*, 427.
[12] Sigmund Freud, *The Interpretation of Dreams* (New York: Basic Books, 2010).
[13] Hippocrates, *On Dreams*, 441.
[14] Hippocrates, *On Dreams,* 441.
[15] Marko Uršič, "The Gaze of the Soul and of the Angel in the Renaissance Philosophy of Marsilio Ficino," *Ars & Humanitas* 9, no. 1 (2015): 58, https://doi.org/10.4312/ah.9.1.58-75.

Dreaming as a Spiritual and
Knowledge-Transferring Experience

Multiple cross-cultural findings suggest that dreams frequently contain spiritual, mythical, and religious elements.[16] These components span a range of elements, including supernatural and fantasy entities, as well as the dreamer's capacity to wield metaphysical abilities. One prevalent set of instances is the ability to fly and levitate, to breathe underwater, or to manipulate items or the four fundamental elements. A close-reading examination of spiritual and religious dreams reveals that the fantastical entities not only exhibit a wide range of appearances, but more significantly, there is a prevalent recognition of these supernatural creatures as cognizant, sentient, and intentional. Therefore, it is not unexpected that the heightened intensity experienced in spiritual dreams leads the dreamer to infer the existence of a reality beyond ordinary wakefulness. Dreams continuously function as a passage between immediate and infinite reality. According to McNamara and Bulkeley, it is observed that: "Dreams were considered proof of the gods and a spirit realm since dreams were involuntary and emotionally vivid experiences that involved the dreamer's soul encountering other beings including long deceased relatives and so on. Dreams have therefore played a major role in the historical evolution of religions."[17] After presenting many cross-cultural examples, the authors conclude that "dreams act as a source for religious cognitions. First, for many people dreams present direct evidence of a spirit realm and of disembodied spirits."[18]

An additional observation should be included in this context. The engagement with spiritual entities and divine beings can occur beyond

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[16]   Amira Mittermaier, *Dreams That Matter: Egyptian Landscapes of the Imagination* (Berkeley, CA: University of California Press, 2010); Barbara Tedlock, ed., *Dreaming: Anthropological and Psychological Interpretations* (New Mexico: School of America Research Press,1992); Charles D. Laughlin and Adam J. Rock, "What Can We Learn from Shamans' Dreaming? A Cross-Cultural Exploration," *Dreaming* 24, no. 4 (2014), https://doi.org/10.1037/a0038437; Barbara Tedlock, "The Poetics and Spirituality of Dreaming: A Native American Enactive Theory," *Dreaming* 14, no. 2–3 (2004), https://doi.org/10.1037/1053-0797.14.2-3.183.

[17]   Patrick McNamara and Kelly Bulkeley, "Dreams as a Source of Supernatural Agent Concepts," *Frontiers in Psychology* 6 (2015): 3, https://doi.org/10.3389/fpsyg.2015.00283.

[18]   McNamara and Bulkeley, "Dreams as a Source," 4.

transitory encounters. A wealth of historical evidence suggests that such encounters have consistently offered humans deep insights, guidance, and wisdom. Referring back to Glaskin's work, it becomes apparent that Aboriginal dreamers rely on spiritual beings and ancestral figures in their dream encounters as a mechanism to protect and transmit their artistic expressions through ceremonial traditions. In essence, the act of knowledge transfer extends beyond the limitations of waking human existence, while the creative aspects of rituals have their origins in the realm of dreams. As Glaskin describes: "Another Bardi man said that 'you dream about *ingarda* [a spirit being] or an ancestor that had passed away that comes to you and brings you this *ilma* and show(s) you the song and dances, how to dance and sing."[19]

Similarly, Getsinger observes that: "We also know that American Indians of the plains and the Southwest believed that dreams gave special knowledge and power leading to growth and maturity on the part of the dreamer."[20]

Another example can be drawn from Cunningham, who observes that: "The Navajo placed great importance on dreams. It is possible that the entire understanding of divinity (spirits) as well as their methods of contacting them (religious ritual) were originally culled from dreams."[21]

Even a preliminary examination of diverse anthropological literature pertaining to dreaming suggests that dreams had a significant role in the realm of spirituality. This observation prompts an inquiry into the specific juncture at which a notable departure from the spiritual aspects of dreaming became evident. Such a major conceptual transformation can be primarily traced to the Cartesian paradigm and the rise of secularization throughout the 17th century. In addition, it is important to acknowledge that this profound division has shown long-lasting and extensive ramifications that are just now being comprehended. For instance, Getsinger extends his observations to the primarily illogical (post)modern conception of dreams. The interpretation of such a stance, he contends, originates from a broader lack of awe and mystery

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[19]   Glaskin, "Dreams, Memory," 47.

[20]   Getsinger, "Dreaming, Religion, and Health," *Journal of Religion and Health* 17, no. 3 (1978): 199, https://doi.org/10.1007/bf01597272.

[21]   Cunningham, *Dreaming the Divine* (Los Angeles, CA: Llewellyn Pubblications, 2016), 280.

– traits typically closely associated with fundamental human curiosity – suggesting that our dream life, similar to religious experience, has lost its longstanding meaning. He concludes that: "Although there is a tendency in contemporary religion and psychology to move away from the mystical and the illogical, it is my belief that unless we meet the mysterious and move through it, we will remain fragmented at the very core of our being."[22] In this view, Getsinger acknowledges the existence of the permeable boundary within the waking-dreaming continuum, where the exchange of knowledge and creativity is in a constant state of flux.

Nevertheless, Getisnger is not the only scholar to share this perspective. The sense of wonder was closely associated with spirituality *and* intellectual pursuits. For example, Lee Irwin asserts in his examination of Native American Plains dreams that dreaming holds significant importance within Native American cultural settings since it functions as a means of acquiring knowledge.[23] He further asserts that the transmission of knowledge occurs through modes that diverge from those commonly employed in Western knowledge-sharing practices. The explanation, as Irwin suggests, can be found in neuroscience. The author shares valuable insights into the significance and distinctions between the left and right brain hemispheres and their respective roles in the process of dreaming. In the case of the Plain, it has been observed that the right hemisphere has a crucial role in facilitating imagistic dreaming:

[t]he actual developmental pattern of a majority of Euroamericans appears to be emphatically left-hemisphere dominant. If we consider the centrality of dreaming imagistic experience within the Plains religious world view, it seems that Native American cultures have a strong right-hemispheric emphasis their epistemic base. Cultures outside the mainstream of Western intellectual tradition have been recognized as placing more emphasis on visual-spatial orientation and to be more emphatically imagistic and mythic in an interpretive context.[24]

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[22]   Cunningham, *Dreaming the Divine*, 200.
[23]   Lee Irwin, "Dreams, Theory, and Culture: The Plains Vision Quest Paradigm," *American Indian Quarterly* 18, no. 2 (1994): 238, https://doi.org/10.2307/1185248.
[24]   Irwin, "Dreams, Theory, and Culture," 234–235.

The observations above, which draw upon anthropological research and cognitive neuroscience, as well as Getsinger's comparative approach, not only serve as a demonstration of the academic inclination to reevaluate dreams as *copula mundi* but also to acknowledge the presence of both spiritual and intellectual aspects inside the realm of dreaming. This reassessment involves integrating philosophical perspectives on dreaming with contemporary findings in neuroscience.

The willingness to incorporate a multidisciplinary approach to dream research and science is even more critical in the digital age. It seems that the future trajectory toward achieving a comprehensive and systematic understanding of dreams is contingent upon the rapid expansion of cultural digital repositories, such as extensive online collections of dream reports and the advancement of computational power, particularly natural language processing tools.

Contemporary Approaches to Dreams and Dreaming – What has Changed?

With the advent of cognitive psychology and neuroscience, dream research shifted its focus from the content of dreams to the neurophysiological process of dreaming. One factor contributing to this significant transformation can be ascribed to the remarkable discovery of REM sleep,[25] which led to a significant transition from philosophical, religious, and spiritual discourse to the scientific study of sleep and its neurological mechanisms.

Dreaming and dream interpretation, it seems, descended from immortal and divine realms to the physiological stratum of existence. In the line of such carnal and immediate reasoning, the approach to dreams became redefined and, consequently, confined to neural firings across various parts of the human brain. With the newly acquired ability to map the occurrence of neural activities during different sleep phases, the scientific validity of dreams has been further called into

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[25]   Eugene Aserinsky and Nathaniel Kleitman, "Regularly Occurring Periods of Eye Motility, and Concomitant Phenomena, During Sleep," *Science* 118 (Sep 1953): 273, https://doi.org/10.1126/science.118.3062.273.

question. The leading neurophysiologists argued that such firings are merely random hallucinations,[26] further reducing dream content to a series of irrelevant and elusive fragments with no or, at best, speculative scientific value. While such a relocated interest added a much-needed empirical validation to the cognitive and emotional processes during dreaming, it also repositioned dream research away from traditional theological, philosophical, and psychological complexity toward scientific reductionism.

This shift is perhaps most eloquently described by Haskell as "[a] reductionism of the methodological kind, which abstracts out of data only those characteristics that are amenable to the parameters of the method, resulting in a skewed set of findings which may be factual enough, but unfortunately artifactual."[27]

It is worth pondering both approaches to gain a more precise overview of the field and its underlying paradigms. At first glance, the stark chasm between a phenomenological and empirical understanding of dreams most likely stems from the prevalent tacit assumption among scientific communities that prioritizes the study of waking consciousness over its altered states, including dreams. This gap also implies that waking and dreaming are distinct, diametrically opposed states of consciousness. While such a clear dividing line provides unambiguous starting points for two conceptually distinct lines of research, it also deviates from the collaborative interdisciplinary approach and its capacity to effectively address dreaming as a complex phenomenon. Numerous studies conducted in the fields of anthropology, philosophy, religious studies, and cognitive science, for instance, suggest that despite the inherent qualitative differences between waking consciousness and altered states such as dreaming, these two states exhibit a complementary

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[26]   J. Allan Hobson and Robert W. McCarley, "The Brain as a Dream State Generator: An Activation-Synthesis Hypothesis of the Dream Process," *The American Journal of Psychiatry* 134, no. 12 (1977): 1335–48, https://doi.org/10.1176/ajp.134.12.1335; David Kahn and J. Allan Hobson, "Self-Organization Theory of Dreaming," *Dreaming* 3 (1993): 151, https://doi.org/10.1037/h0094378.
[27]   Robert E. Haskell, "Cognitive Psychology and Dream Research: Historical, Conceptual, and Epistemological Considerations," *The Journal of Mind and Behavior* 7, no. 2/3 (1986): 133, http://www.jstor.org/stable/43853212.

relationship, ultimately giving rise to the notion of a *dreaming-waking continuum.*[28]

Similarly, Irwin observes that the "[p]opular notion is to regard dreaming and waking as two distinct types of awareness, the former being largely ignored or having its import reduced to that of a primarily pathological index."[29] Moreover, according to Irwin's observation of traditional Plains people, "[d]reaming (…), is given a strong ontological priority and is regarded as a primary source of knowledge and power."[30]

From the opposing viewpoint, the neuroscientific approach can also be considered a serious scientific effort to expand our understanding of dreaming, a phenomenon that we knew relatively little about prior to the invention of the electroencephalogram (EEG) and functional magnetic resonance imaging (fMRI). Both techniques implicitly argue against the view that dream reports could serve as a dependable primary source of scientific data. As verbal or written exhibits from the nocturnal realm, dream reports are nevertheless purely subjective experiences that have been further scrutinized under stringent scientific criteria due to their unreliability (low recall rate) and unpredictability (dreams are unverifiable and cannot be replicated under identical or similar conditions). The fact that the dreams can only be experienced by the dreamer and are thus directly unobservable by a third person has earned them the derogatory designation of secondary expressions. Hence, it is unsurprising that empirical science has largely disregarded dream reports or, at most, incorporated them as supplementary evidence. Conversely, dream research focused on dream content has introduced novel statistical methodologies to examine dream reports on a larger scale, such as Hall van de Castle's quantitative coding system of dream elements.[31] With the emergence of online cultural data (the Sleep and Dream Database, Dreamjournal and DreamBank) and state-of-the-art natural

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[28]   Irwin, "Dreams, Theory, and Culture"; Ernest Hartmann, "The Waking-to-Dreaming Continuum and the Effects of Emotion," *Behavioral and Brain Sciences* 23, no. 6 (2000), https://doi.org/10.1017/s0140525x00474029"; Evan Thompson, *Waking, Dreaming, Being* (Columbia University Press, 2015).
[29]   Irwin, "Dreams, Theory, and Culture," 236.
[30]   Irwin, "Dreams, Theory, and Culture," 236.
[31]   Calvin S. Hall and Robert L.Van de Castle, *The Content Analysis of Dreams* (New York: Appleton-Century-Crofts, 1966).

language processing tools, the statistical examination of recurring patterns in dreams has become significantly more advanced and feasible.

It could be argued, of course, that the divergences observed in anthropological, philosophical, and empirical approaches to dreams and dreaming outlined above contribute to the intricacy of the field. However, they also speak of immense human curiosity and a rather dynamic history of research into the fundamental nature of dreams, which has continued to be pertinent to the present day. What we dream about and why are among the twenty most profound scientific questions that have perplexed philosophers, scholars, scientists, spiritual practitioners, and religious figures for generations. As an essentially universal experience, dreaming is fundamental to our individual and collective experience. The latter creates an additional captivating dichotomy, wherein dreams are perceived as personal and intimately connected to our unique waking experiences in the present and past, as well as archetypal and linked to universal motifs, such as flying, falling, and being pursued, among others.[32] Again, the field appears to be at a crossroads; a large corpus of anthropological research indicates that dreams cannot be separated from their cultural domain: dreams are as much a part of the cultural and collective fiber of life as they are of the individual's. The act of forcibly segregating these domains will ultimately lead to the development of simpler and potentially distorted conceptual models that are most applicable within a single discipline but always at the cost of excluding others.

In light of the considerations mentioned above, the *epistemological* inquiry into dreaming should stretch beyond the current scientific reasoning and pursue a more inclusive, non-pathological, and integrative model of dream analysis.

To cite Irwin once more: "[t]o epitomize reason as expressive of the highest or best in human functioning is a culturally defined bias—one that demonstrates a loss of the instinctive vitality and relatedness that are necessary for crossing over into the visionary realm through empathy and human-heartedness. Reason, in both its synthetic and its analytic sense, represents only one epistemic ground and is limited by its

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[32]   Patricia Garfield, *The Universal Dream Key* (New York: Harper Collins, 2007).

frequent usurpation of other vital epistemic means, such as aesthetics, dreaming, myth-making, and visionary experience."[33]

It also seems pertinent to position dream research in the broader context of the philosophy of science, which would shed light on the field's many interdisciplinary challenges. It could be argued that the difficulty in comprehending patterned or archetypical dreams in accordance with the fundamental principles of scientific inquiry is indicative of limitations within the current scientific paradigm, rather than inherent shortcomings in dream data. In a similar vein, Haskell posits that the underlying issues stem from the methods employed rather than the data itself: "[i]f dreams are "irrational" they still exist as a valid cognitive experience that theoretically could be studied, just as the "irrational" quantum phenomena are in physics. On this basis, the impossible limits of dream data are not reached, but rather it is the limits of an inadequate framework in cognitive psychology which are reached."[34]

The Ancient knowledge and Artificial Intelligence: a Spatiotemporal Approach to Dreaming

Putting aside the more extravagant claims that have been made on behalf of the dream, it is now possible within the language and models of mainstream cognitive psychology to suggest that dream data may hold the potential for initiating an epistemological paradigm shift in the Kuhnian sense of a scientific revolution.[35]

Despite being written nearly four decades ago, Haskell's insight remains highly pertinent in today's context. This is particularly evident due to the rapid advancement of disruptive technologies like Artificial Intelligence, the proliferation of extensive dream report repositories from individuals worldwide, as well as the increasing cultural phenomenon of dream journaling that has already densely populated the digital space. How can dream research benefit from newly emergent cultural

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[33] Irwin, "Dreams, Theory, and Culture," 237.
[34] Haskell, "Cognitive Psychology and Dream Research," 134.
[35] Haskell, "Cognitive Psychology and Dream Research," 143.

data and automated tools specifically designed to detect and categorize patterns in large quantities of cultural expressions, such as dreams?

In light of these epochal cultural and technological shifts, it is reasonable to formulate a new approach that integrates established theoretical frameworks derived from cultural, religious, spiritual, mythological, anthropological, and psychological perspectives on dreaming with contemporary advancements in data analysis, ultimately resulting in new insights on global dream patterns.

Such an approach is by no means straightforward, and the abundance of multidisciplinary components renders it resistant to methodological consistency. However, it considers the many perennial dimensions of human dreaming necessary for a comprehensive and systematic understanding of dreams, especially their archetypal structures, which, by definition, already transcend spatiotemporal boundaries.

From a data science perspective, dreams may be seen as a form of psychological data that encapsulates the most introspective, private, and unfiltered contents of the human mind. As stated previously, it is not surprising that dream studies have drawn significant interest from various academic disciplines. Furthermore, with the rise of the Internet, new digitally-driven approaches to cultural data have emerged and the empirical approach to dreams has gained momentum. Dreams have become digitized, accessible, and abundant. Suddenly, these nocturnal inner workings of individual and collective sensations, emotions, thoughts, and concerns, along with other types of psychological data that we leave through our daily pursuits in the digital spheres, have also become externalized, thus becoming an integral part of the current global digital ecosystem. Such behavioral exposure, coupled with substantial privacy concerns, suggests that dream reports are amenable to empirical examination through the algorithmic lenses of data science. For the first time in the history of dream research, scholars and scientists have the opportunity to examine dream patterns longitudinally, cross-culturally, and on a population-wide scale.

It is important to note, however, that the concept of examining a vast compilation of dreams to identify archetypal patterns is not a recent development. Jung's close-reading experience, which draws from the patient's background knowledge and a plethora of humanistic dis-

ciplines, demonstrates that dream reports can be thoroughly examined through the complex multidisciplinary prism. After personally investigating some 1500-2000 dream reports per year, the founder of analytical psychology observed discernable structures in his patients' dreams, thus concluding that he "[c]an assert that typical dreams do exist"[36], and that "[t]he dream uses collective figures because it has to express an eternal human problem that repeats itself endlessly and not just disturbance of personal balance."[37]

Various archetypical elements can be identified in dreams, and the example of Spiritual Agents serves as one of many archetypical features of dreaming. Using state-of-the-art natural language processing (NLP) tools, researchers can already use algorithmic frameworks to search extensive collections of dreams for spiritual and religious references that extend beyond the traditional conception of religious figures. It can be hypothesized that spiritual entities have not entirely disappeared from our dreams; instead, they have probably undergone transformations that correspond with present-day cultural references. For instance, modern supernatural entities can be observed in nightmares about conscious, purposeful AI machines with metaphysical powers, according to the following dream from the Sleep and Dream Database:

> […] Then the dream shifts. I'm observing and a bit disembodied. I see an AI - a robot. He's on a planet and his spaceship has crashed. His AI pet is going to run off and has gotten really wild. This AI pet can morph like a transformer. It can be really huge or really tiny. It can be all kinds of things. He's trying to retain his AI pet, but also trying to fix his spaceship which has crashed on the side of a mountain. The topography is all sand and sand dunes and rocks. There is one episode where he is trying to talk to his AI pet and it's huge - it has transformed into a huge transformer size. I'm somehow partnered with him and he's fighting his pet. […] [38]

The sample of dreams suggests that the presence of supernatural entities is culturally dependent and highly contextual. Furthermore,

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[36]   Jung, *Dreams*, 33.
[37]   Jung, *Dreams*, 78.
[38]   "Rose journal 2020," Sleep and Dream Database, December 21, 2019, https://sleepand-dreamdatabase.org/response_sets/754e5dfe-73b6-4d1a-a1c8-ca40ed047b43/7be91eea-466d-40e2-93e9-999124f1656b.

it may be inferred that, in order to analyze spatiotemporal constants and variables in typical (archetypal) dreams, AI-driven analysis must incorporate various historical, mythological, religious, and cultural elements. This implies that the integration of extensive historical archives of dreams, including Ancient Egyptian dream books, dreams recorded by Aristotle and Plato, and the medieval dream diary of Swiss physician and alchemist Paracelsus, as well as ethnographic collections from various Indigenous cultures in North and South America, African dream traditions, Aboriginal Australian cultures, and Asian cultures, alongside extensive contemporary digital repositories, has the potential to provide a novel opportunity to obtain a structured, patterned, and systematic understanding of collective dreaming across cultures and time. The proposed methodological approach, which is unavoidably dependent on high computer processing power, aims to evaluate the existence of cross-cultural dream patterns empirically. Such a goal would be achieved by augmenting the archetypal model with additional layers, where the core of the typical dream (such as typical *fight or flight* dreams) and its culture-dependent variables would be more discernible.[39]

The potential for dream research to go beyond the pathological treatment of dreamed material is a further and equally important point that should be included here. Even a cursory examination of dream reports frequently implies that dreaming extends beyond the rehearsal of threatening situations. Dreams, as many researchers compellingly demonstrate,[40] often introduce us to creative and adaptive methods of problem-solving. Consequently, dreams may be examined within the framework of positive psychology.

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[39] Maja Gutman Music, Pavan Holur, and Kelly Bulkeley, "Mapping Dreams in a Computational Space: A Phrase-Level Model for Analyzing Fight/Flight and Other Typical Situations in Dream Reports," *Consciousness and Cognition* 106 (2022): 103428, https://doi.org/10.1016/j.concog.2022.103428.

[40] Deirdre Barrett, "Dreams and Creative Problem-Solving," *Annals of the New York Academy of Sciences* 1406, no. 1 (2017), https://doi.org/10.1111/nyas.13412; Katie Glaskin, "Dreams, Perception, and Creative Realization," *Topics in Cognitive Science* 7, no. 4 (2015): 664–76. https://doi.org/10.1111/tops.12157; Mihael Schredl, "Creativity and Dream Recall," *Journal of Creative Behavior* 29, no. 1 (1995), https://doi.org/10.1002/j.2162-6057.1995.tb01420.x; Michael Schredl and Daniel Erlacher, "Self-Reported Effects of Dreams on Waking-Life Creativity: An Empirical Study," *The Journal of Psychology* 141, no. 1 (2007), https://doi.org/10.3200/jrlp.141.1.35-46.

Conclusion

The ancient perspectives on dreams, spanning Mesopotamian divination practices to Greek oracles, emphasize the integral role of dreaming in guiding, healing, and connecting with the divine, but also with the inner self. These ancient frameworks, rooted in a holistic understanding of consciousness, challenge the contemporary tendency to compartmentalize dreaming as a mere neuro-physiological phenomenon.

The transition from ancient to modern interpretations of dreams, particularly with the advent of cognitive psychology and neuroscience, has witnessed a notable shift away from spiritual and symbolic analyses to a focus on neurophysiological processes. While this shift has contributed empirical rigor to dream research, it has also obscured the broader cultural and archetypal dimensions inherent in dreaming.

The integration of Artificial Intelligence (AI) and advanced data analysis tools presents a transformative opportunity for dream research. The digitization of dream reports and the computational capacity to analyze large datasets from various sources offer unprecedented insights into cross-cultural and longitudinal patterns. However, the challenge lies in reconciling the multidisciplinary nature of dreams with the methodological consistency required for scientific inquiry. The proposed spatiotemporal approach, leveraging AI to assess cross-cultural dream patterns, seeks to bridge this gap by integrating historical archives, ethnographic collections, and contemporary digital repositories.

The aim of this paper was to highlight an inclusive and non-pathological epistemological model for dream research, transcending the limitations imposed by traditional scientific paradigms. By embracing the interplay of ancient wisdom, contemporary scientific methodologies, and state-of-the-art technologies, it is possible to unlock the profound potential of the most elusive phenomenon that has captivated human inquiry for millennia, contributing not only to scientific knowledge but also to the enhancement of individual and collective mental well-being and self-awareness.

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