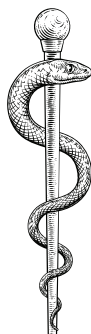

REVISITING DREAMS:
INTERDISCIPLINARY PERSPECTIVES
ON DREAM RESEARCH AND SCIENCE



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REVISITING DREAMS: INTERDISCIPLINARY PERSPECTIVES ON DREAM RESEARCH AND SCIENCE

Introduction

Throughout human history, dreams have occupied a prominent role within cultures worldwide, often serving as a portal to mythical and religious realms. Due to their extraordinary ability to reveal the workings of the unconscious mind, dreams continue to fascinate scholars, practitioners, and innovators. How have dreams been perceived throughout history, and how do we understand them in contemporary society and the digital age? How significant are dreams in our broader comprehension of spirituality, waking reality, and culture? How can we understand the nature of dreams within current scientific and technological paradigms? What is the future of dreaming?

This special double issue of *Poligrafi* focuses on an interdisciplinary understanding of dreams, with an eye toward the most exciting horizons for research in the coming years. This issue began with the intent to gather contemporary philosophical, religious, and empirical perspectives on dreaming. Additionally, it aims to inspire readers to delve into the extensive and diverse historical knowledge related to dreams and dreaming to gain a deeper understanding of the current and future situation in the field.

Like other fields in the humanities, dream studies have been shaped by the cultural information space due to the rapid growth of digital technology. This has led to the emergence of novel, computationally driven methodologies in data analysis. The process of the mass digitalization of dream data is currently underway, facilitated by the rapid advancement of processing power. As a result, many researchers have already started to map patterns within extensive collections of dream reports. We estimate that this trend will continue as the large digital repositories of dreams continue to expand. These predictions necessitate

novel epistemological, ethical, and philosophical investigations that are likely to transcend binary distinctions and promote a cooperative approach and constructive discourse across the fields of data science and (digital) humanities. The aspiration is for the area of dream studies to serve as a model discipline in which the aforementioned symbiotic relationship is not only feasible but also essential in advancing a more comprehensive, methodical, and integrative approach to one of the most enigmatic phenomena that has perplexed humanity for thousands of years.

The contributions to this special issue represent the work of leading scholars from diverse fields, including psychology, data science, the history of religions, and cultural studies. Taken as a whole, the eight articles illustrate the high quality of scholarship in the field and its methodological diversity. Of course, many topics are not covered in this collection. It is not an encyclopedia or an introductory survey. Instead, the focus here is on the newest, most important, controversial, and/or under-studied topics in the study of dreams. Each article addresses an area of dream research with special urgency and contemporary significance.

Nina Petek provides an elegant review of a lineage of classic Buddhist teachings about dreams, consciousness, and salvation. In addition to illuminating the role of dreams in this religious tradition, she raises vital questions for all forms of dream research regarding basic conceptions of mind, truth, suffering, and salvation.

Victor Krebs reflects on the fate of dreaming in an increasingly technology-saturated society. He draws on the theories of Bernard Stiegler and Wildred Bion to warn of digitally-mediated threats to dreaming, threats with both personal and collective implications.

Laura Vollmer addresses the fundamental question of how conceptions of dreams relate to differing cultural and historical contexts, and to the regimes of power embedded in those contexts. Her article takes an inspiring and important step toward a true historiography of dreaming.

Carla Mento and colleagues report on the statistical analysis of a demographic survey among Italian adults regarding sleep, dreams, and the COVID-19 pandemic. This study adds a new perspective to the growing literature of research on dreams in relation to collective events like the pandemic.

Mary Walsh investigates clinical and experimental research on the interactions between dreams, sleep, and seizure disorders like epilepsy. Treatment methods for seizure disorders rarely take any notice of dreams, yet Walsh finds the frequency and contents of dreams can be useful information in diagnosing and caring for people with epilepsy.

Sheldon Juncker presents a pioneering study of dream research and artificial intelligence (AI). He explains how AI systems, if properly understood and deployed, can function as a valuable tool in the study of dreams.

Kelly Bulkeley describes new advances in the empirical study of dreams, with the development of powerful tools for analyzing the frequency of word usage in dream reports. He shows how simple methods of analysis can yield a host of accurate insights about the underlying patterns in a set of dreams.

Maja Gutman Mušič connects historical and cross-cultural perspectives on the nature of dreaming with contemporary advances in artificial intelligence, as a way of mapping a more fruitful future for the field. She outlines an approach to data-driven inquiry that remains grounded in both traditional epistemologies and archetypal psychology.

These eight articles may be read in any order, but the arrangement we have chosen aims to provide a gentle framing and contextualizing of intellectual themes. Thus, the first article introduces the earliest roots of dream research in ancient religious belief and practice, followed by two articles taking a more broadly philosophical and historical approach. Next come three articles addressing contemporary psychological and therapeutic issues using objective methodologies. The final two articles seek to integrate dream research with new developments in artificial intelligence, drawing on the benefits of this revolutionary technology while avoiding or minimizing its dangers.

For readers interested in learning more, we encourage you to go beyond the texts and seek connections with other researchers who study dreams. As these eight articles indicate, dream research is an international pursuit in which brilliant investigators and scholarly communities are actively working all over the world. The interdisciplinary nature of dream research means that people from many different academic and cultural backgrounds can make valuable contributions. The future

prosperity of the field depends on expanding and enriching the networks of people studying dreams from all angles and perspectives. We hope you can be part of this process!

Kelly Bulkeley and Maja Gutman Mušič

IN THAT VERY BODY,
WITHIN THAT VERY DREAM:
SOTERIOLOGICAL DREAMING
TECHNIQUE IN THE
TRADITION OF BUDDHIST
YOGIS

N i n a P e t e k

Exploring the dreamscapes of Buddhism: a brief introduction

The birth of Buddhism out of a dream

In Buddhism, dreams play an essential role as they symbolize pillars of dynamic continuity within the entire tradition and its spiritual framework, simultaneously crafting an alternative history of Buddhism, running parallel to the official recorded facts found in history books. More precisely, the documented history of Buddhism actually finds its origin in dreams. Dreams could thus be defined as a catalyst for the tradition. Siddhārtha Gautama Buddha, the founder of Buddhism, was “conceived” in the dream of his mother, Queen Māyā, and his immediate family members also experienced prophetic dreams that foreshadowed significant turning points in his life, from birth to *nirvāṇa*. In these dreams, the fulfilment of what had been foretold in his mother’s dream gradually unfolded. Thus, numerous dreams in Buddha’s life

* The paper is a result of the work undertaken within the research programme “Philosophical Investigations” (P6-0252), and the research project “Buddhism in the Himalayan Deserts: the Tradition of Yogis and Yoginis in Ladakh” (J6-50211), both financed by ARiS, the Slovenian Research and Innovation Agency.



Figure 1: The Dream of Queen Maya (the Buddha's Conception); Pakistan (ancient region of Gandhara), c. 2nd century (The Metropolitan Museum of Art, New York; public domain)

served as an integral link in his quest for and attainment of the highest philosophical insights.

In early Theravāda Buddhism, prophetic dreams held a position of unquestionable authenticity and reality, as they were seen as reflections of inevitable future events, whether near or distant. This tradition of prophetic dreams has persisted throughout the history of Buddhism, revealing a universal pattern with unique expressions adapted to various cultural environments. For instance, in Tibet, this pattern continued to shape the life stories of Buddhist masters, from their conception to *nirvāṇa*.¹ Dream visions, initially confirmed for relevance by *brāhmaṇa* priests and later by Buddhist monks through skilled dream interpre-

¹ Prophetic dreams have played a significant role in legitimizing religious authorities and have consequently exerted a profound influence on broader society, culture, and spiritual tradition.

tation, were considered as glimpses into the future. This definition of dream visions aligns with the term itself, which has evolved in Buddhism to become a general term for dreaming. In both Buddhist and Hindu texts, the term *svapna*, derived from the Sanskrit verb root *svap-* meaning “to sleep”, was conjoined with the noun *darśana*, originating from the verb root *drś-* meaning “to see”, “to look at”, “to observe”. This combination resulted in the phrase “to see a dream”, which came to signify the concept of dreaming.²

In Theravāda Buddhism, the majority of dreams, excluding prophetic dreams, were regarded as an illusory amalgamation of remnants of the day, i.e. impressions and images from waking life, past mental content, *karma* and one’s character. This distorted composition creates a false representation of the self and the world, entangling individuals in ignorance and leading to suffering. For this reason, monks have diligently pursued meditation techniques to attain a state of consciousness in which all mental content, including dreams, becomes absent. During the early Buddhist period, Theravāda nuns unveiled entirely new perspectives on dreams, capturing the impermanent nature of the phenomenal world through their poetic expressions. Their verses, compiled in the collection known as *Therīgāthā*, eloquently drew parallels between the transience of all aspects of reality and the ephemeral nature of dreams. New formulations, such as *supinanteva* (Pal.³ “as in a dream”) and *supinopamā* (Pal. “as a dream”), which are also commonly found in later Mahāyāna Buddhist texts, became integral components of the Buddhist dream vocabulary. The role of dreams was thus reassessed, particularly in the context of the Mahāyāna doctrine of emptiness (Skt. *śūnyatā*), emphasizing the ontological sameness of all living beings, devoid of immutable essences, and thereby sharing an identi-

² This formulation is already found in the Pali texts (Pal. *supina passati*), e.g. in the *Milindapañha* (“Seventy-fifth Question – Dream” (4.75.33–37)). In the Vedic context, the phrase “seeing dreams” denoted the perspective of regarding dreams as occurrences external to the dreamer. Dreams were interpreted as the outcomes of external forces, be they gods, demons or spirits, over which the dreamer possessed no influence, rendering them mere passive observers (refer to Kelly Bulkeley, *Dreaming in the World’s Religions* (New York, London: New York University Press, 2008), 24–25, 36, for instance).

³ Throughout the text, abbreviations are used to indicate the language in which particular term appears, namely in Tibetan (Tib.), Sanskrit (Skt.) and Pali (Pal.).

cal nature of transience. In a manner similar to the Theravāda nuns' approach, the impermanent nature of all phenomena was depicted through diverse metaphors, including dreams, described as *svapnopama* (Skt. "resembling a dream" or "dream-like"). In the realm of ordinary experience, the world was deemed an illusion (Skt. *māyā*), and dreams served as a convenient metaphor to depict the nature of the world and our distorted perceptions of it. As a result, dreams found their place in the Mahāyāna philosophical "experiment" with illusion.⁴ Creation, depicted as a magical illusion, akin to a dream (Skt. *svapnamāyopamā*),⁵ emerged as a novel approach to describe the world within the Mahāyāna tradition. In this context, dreams transcended their role as mere metaphors and took on multifaceted significance. They became an indicator of the dreamer's spiritual progress, a realm of revelation for profound teachings and a meeting ground for various sages. The phrase "to see a dream" gained new dimensions, as sages met one another in dreams, received and assimilated essential teachings, and brought them back to the waking state, illuminating those entangled in ignorance. Dreams became integral components of the life narratives of the awakened individuals, imparting insights that, when transposed into the realm of wakefulness, enrich the comprehension of its diverse dimensions.

Waking up a dream

In this manner, Mahāyāna Buddhism departs from the realm of wakefulness, with its conventional and rigid perspectives, and turns towards dreams for insights. Through the mindful exploration of their

⁴ Skrt. *māyopama*. Vajrayāna Buddhism showcases numerous instances of illusions within its texts, encompassing phenomena such as magic (Tib. *sgyu ma*), dreams (Tib. *rmi lam*), a mirage (Tib. *smig rgyu*), a reflection in a mirror (Tib. *gzugs brnyan*), lightning (Tib. *glog*), an echo (Tib. *brag cha*), a rainbow (Tib. *ja 'tshon*), the moon in the water (Tib. *chu zla*), a city of *gandharvas* (Tib. *dri za'i grong khyer*), water bubbles (Tib. *chu bur can*), visual distortions (Tib. *mig yor*), clouds (Tib. *sprin*), miraculous apparitions (Tib. *sprul pa*), etc. See also the discussion on the twelve illusions in Buddhism: Jan Westerhoff, *Twelve Examples of Illusion* (Oxford, New York: Oxford University Press, 2010).

⁵ See, for example, *Aṣṭasāhasrikāprajñāpāramitāsūtra*, Parashuram Lakshman Vaidya, ed., *Aṣṭasāhasrikā Prajñāpāramitā* (Darbhanga: The Mithila Institute of Post-Graduate Studies and Reaserach in Sanskrit Learning, 1960), Chapter II.

content, dreams can serve as a path to spiritual progress. This progression reaches its zenith in the Tibetan branch of Buddhism, Vajrayāna, where dreams assume a central role as a fundamental soteriological technique guiding practitioners toward *nirvāṇa*. This perspective transcends the Theravāda view of dreams as distorted mental fragments that ensnare individuals in ignorance, perpetuating their involvement in *samsāra*, the cycle of birth and death. Especially within the tradition of Vajrayāna Buddhism's eremitic school, the practice of engaging with dreams is referred to as dream yoga. This technique can be seen as a form of dream meditation where the dreamer maintains awareness throughout the dream experience, enabling them to discern all dream images as constructs of the conscious mind. Thus, within Vajrayāna Buddhism, the dream metaphor of Mahāyāna Buddhism is transmuted into a distinctive practical methodology that enables individuals to directly encounter its significance. Simultaneously, the Sanskrit term *svapnadarśana*, signifying "to see a dream", assumes further layers of meaning. In the Hindu tradition, the term swiftly transcends the realm of nightly demon spectacles and ventures into the domain of philosophy. In fact, the term *darśana* has come to designate six distinct Hindu schools of philosophy, encompassing the notions of philosophical insight, the pursuit of truth and the discernment of the genuine nature of reality. The roots of this definition trace back to the revelation of the *Vedas*, sacred texts of the Hindu tradition unveiled to humanity by *ṛṣis*, visionary seers who engaged in *darśana* – the apprehension of timeless philosophical truths. However, this understanding does not stem from a linear thought process; rather, it emerges from a loftier wisdom that transcends the conceptual realm. This wisdom is characterized by intuitive insight and non-contemplative experience. In this context, *darśana* also elucidates the nature of the dream meditation practiced by Tibetan masters. By experiencing the visions within a dream, individuals gain profound insights into the essence of dream phenomena. They then seamlessly transpose these insights into their waking experiences. Just as dream images perpetually shift and evolve, so do all other aspects of reality. However, in the state of ordinary, unaware waking consciousness, where true wakefulness is absent, these elements appear as unchanging and self-contained. Thus, the encounters concealed behind

closed eyes shape a comprehension of the world, lending expression to a truth that often eludes wakefulness amid the commotion of robust yet brittle convictions. By practicing dream yoga, the sages ultimately dissolve the distinctions between wakefulness and dreams, culminating in the liberating realization of impermanence (Skt. *anitya*, Tib. *mi rtag pa*) and emptiness (Skt. *śūnyatā*, Tib. *stong pa nyid*). Thus, the conventional notion that wakefulness equals true awareness has been upended. True wakefulness is found within dreams, serving as a direct pathway to the verge of genuine enlightenment, guiding the transition from ignorance to wisdom. This form of conscious, wakeful dream practice was predominantly undertaken by Vajrayāna Buddhist male and female hermits, commonly known as *yogis* and *yoginīs* (Skt.; Tib. *rnal 'byor pa*, *mtshams pa*, also *ri khrod pa*), living in caves or small huts high in the Himalayan mountains, whose lives were intimately interlinked with the essence of dreams. This is substantiated by countless Tibetan hagiographies, which not only depict Buddhist cartography of dream realms but also trace the path of spiritual advancement, often aligning with the waking dream paradigm of early Buddhism, thus narrating a tale of spiritual growth. Furthermore, within the lives of *yogis*, there exists a distinctive phenomenon known as a “conception dream”. They were not merely conceived within the dreams of their biological parents; rather, they were conceptually envisioned within the dreams of their teachers.⁶ This occurrence took place during a phase when these *yogis* were relinquishing their past lives and readying themselves to embark on their spiritual journey. In a sequence of varied dreams, they envisioned each other, converged within dreamscapes, and effortlessly

⁶ Many Buddhist masters, including Siddhārtha Gautama Buddha, were therefore conceived in their parents' dreams, known also as prophetic. Queen Māyā's dream of the Buddha's conception is described in many texts, such as the *Mahāvastu*, the *Nidānakathā* and the *Lalitavistarasūtra*. The “conception dream” and thus the new “spiritual” birth of the *yogis* is attested in various hagiographies. The most famous such dreams are the so-called parallel dreams of *yogi* Marpa and his wife Dagmena, which are described in the fourth chapter of Milarepa's hagiography, *The Life of Milarepa* (Tib. *rje btsun mi la ras pa'i rnam thar*) (Tsang Nyön Heruka, *The Life of Milarepa*, trans. Andrew Quintman (New York: Penguin Books, 2010)). The couple's dream indirectly, through various dream events, foreshadowed the arrival of Marpa's disciple, and even if Milarepa himself did not directly appear in the dream, it predicted his new “spiritual” birth, i.e. his arrival at Marpa and thus his own initiation into the secret Tantric teachings.

transcended the borders separating them. These dreams transported them into the dream realms of masters long since departed, where they encountered the dreams of awakened predecessors, and also glimpsed into the dreams of all past and future dreamers. Even in the present day, *yogis* and *yoginīs* uphold within their dreams an imperceptible, unheard, often overlooked, yet indomitable thread of Buddhism. This thread has woven its way through countless epochs since ancient times, all the while laying the foundation for aspiring dreamers to journey towards the attainment of *nirvāṇa*.

Beyond wakefulness and dreams

Yogis developed a complex soteriological technique of dreaming, i.e. active, conscious participation in the process of dreaming, based on the recognition of dreams, the attentive observation of dream images, the assumption of power over the dream images, the influence over their content, and the maintenance of the awareness that they are all just dreams, through which the dreamer comes to deeply and directly experience the illusory nature of all dream appearances. *Yogis* thus acquired insights into the nature of dream phenomena, and these insights have been transferred to objects in waking life – such as dream images, constantly changing are also all other things, which in the ordinary state of ignorant, not really awake consciousness, are perceived as permanent and independent. Thus, experiences behind “eyes wide shut” frame their understanding of the world, giving voice to a truth that does not come out in wakefulness amidst the ordinary beliefs. In this way, *yogis*, through the technique of dreaming, have finally blurred the boundaries between wakefulness and dreaming, and arrived at the liberating experience of emptiness and impermanence. They have re-evaluated the common belief that we are awake in wakefulness – we can only be truly awake in dreams, which lead directly to the threshold of true awakening, from ignorance to wisdom.

The soteriological dream technique invites us to a place where supreme truths are revealed behind closed eyes, to the threshold of awakening that steadily slips from under our feet in wakefulness; to dreams that pour light from their worlds into the secret, darkest recesses of our

waking lives, revealing what cannot be seen in the light of day. Moreover, the soteriological techniques of dreams are also important from the broader perspective of the relevance of the doctrines of dreams in the various religious traditions because, long before the development of the sciences dealing with dreams, “religiously minded people all over the globe were studying, experimenting with and theorizing about the workings of the dreaming mind. This is where the study of dreams begins.”⁷ Segments of the ancient soteriological dream technique in the tradition of Buddhist *yogis* are now being integrated into the study of dreams in the fields of psychology, psychoanalysis and neuroscience, shedding light on many overlooked aspects of Western science and giving new meaning to their findings. While not entering into a dialogue with any of these fields, instead remaining within the framework of Buddhism, the present paper seeks to introduce the immense value of dreams for human life, something that is still nurtured in the Buddhist eremitic tradition today and which I have had the precious opportunity to experience for myself. Namely, a significant part of this paper is based on findings derived from my own field research on the tradition of Buddhist *yogis* and *yoginīs* conducted within the Ladakh federal territory in the Indian Himalayas, who are, as they themselves state, first and foremost, dreamers.

Forgotten “marginal” frontiers of philosophy:
madmen, the body and dreams

Starting from the 8th century, the vibrant inception of Buddhism in Tibet was influenced, on one hand, by organized official visits to esteemed Indian monks and, on the other hand, by informal journeys to the realm of Buddhist Tantric masters. It was from these masters’ teachings that the lineage of Buddhist eremitism gradually emerged. Tantric Buddhist hermits and hermitesses, i.e. *yogis* and *yoginīs* – also referred to as *mahāsiddhas* (Skrt., Tib. *grub thob chen po*) – engage in solitary meditation within remote hermitages, perched high in the Himalayan mountains. Due to their unorthodox way of life and their mastery of in-

⁷ Bulkeley, *Dreaming in the World’s Religions*, 4.



Figure 2: *Yogi* in his hut up in the Himalayan mountains near the Sakti village; Ladakh, India (Photo: Nina Petek)

tricate psychophysical methods, they have earned the moniker of “madmen” (Tib. *smyon pa*).⁸ From its inception to the contemporary era, the lineage of autonomous Buddhist Tantric *yogis*⁹ has forged its distinct trajectory, transcending societal and monastic hierarchies. This spirit of independence is also mirrored in their spiritual pursuits, which differ from those of monks and nuns constrained by institutional structures and rigid curricula. The endeavours of Tantric *yogis* are marked by crea-

⁸ The term was introduced by Tsangnyön Heruka, a *yogi* and Tibetan hagiography writer who emerged from the ranks of the “madmen”. However, the quintessential embodiment of a madman in this tradition is Milarepa. Milarepa exemplified the core essence of eremitism by pushing it to the extreme – a departure from conventional existence, a defiance of societal and monastic norms, and an unwavering dedication to Tantra’s hidden practices, all away from the distractions of the worldly sphere.

⁹ In the rest of the paper, the masculine form, i.e. *yogi*, is used for both genders in cases of more general references.

tivity and unrestrained freedom.¹⁰ From this perspective, the eremitism bears resemblance to Deleuze and Guattari's notion of "nomadic science". Like the latter, eremitism defies easy categorization, as it embodies heterogeneity and perpetual transformation. It stands as a form of resistance against institutional constraints, continuously shaping its identity from its unique singularity, disregarding conventional criteria and norms.¹¹ Differing from the monk, the hermit, akin to a nomad, dwells within the realm of the unpredictable, boundless expanse of the desert,¹² in contrast to the structured and enclosed environment of the monastery.

Consequently, contemporary *yogis* predominantly residing in the Himalayas continue to engage in the meditation techniques handed down by their forebears. These practices, drawn in part from the Hindu Tantric lineage, have intertwined with Buddhist philosophy, giving rise to a distinct form of Tantra known as Buddhist Tantra. Much like certain Hindu Tantric systems, Tantric Buddhism not only seeks to surpass institutionalized and normative expressions of religion and established philosophical perspectives but also draws forth and reintegrates from the periphery into the heart of religious and philosophical discourse that which has been relegated, within the established spiritual context, as utterly inconsequential, confining and "marginal" to spiritual progress – encompassing aspects such as the body and dreams. The ascent of a non-dualistic metaphysical framework within Hindu Tantric systems, founded on the negation of a dualistic view of reality, marked a pivotal transformation. This transition was underpinned by an altered perception of the body, which, in turn, played a role in the development of a novel manifestation of

¹⁰ Nina Petek, "Sopotja zgodnjega puščavništva v Egiptu in Indiji [Counterparts of Early Eremitism in Egypt and India]," in *Egiptovsko puščavništvo [Egyptian Eremitism]*, eds. Jan Ciglenečki, Franci Zore and Nena Bobovnik, 179–203 (Ljubljana: Znanstvena založba Filozofske fakultete [Ljubljana University Press, Faculty of Arts], 2021), 179.

¹¹ See, e.g. Gilles Deleuze and Félix Guattari, *Nomadology: The War Machine* (Seattle: Wormwood Distribution, 2010), 17. See also Geoffrey Samuel, *Civilized Shamans: Buddhism in Tibetan Societies* (Washington: Smithsonian Institution Press, 1993), 373, 572–573.

¹² Petek, "Sopotja", 179–180. Desert is a collective term for places defined by the absence of the hustle and bustle of the mundane, be they sandy deserts, forests or rocky Himalayan wastelands.

Tantric Buddhism. In contrast to earlier orthodox systems rooted in the Vedic spiritual realm, such as *sāṃkhya* and the affiliated Patañjali *aṣṭāṅgayoga* tradition, Tantra envisions the body in a distinct light. Rather than viewing it merely as an aggregate of gross matter, disconnected from intricate mental processes, Tantra perceives the body as a hub of refined energies. These energies, when nurtured appropriately, hold immense potential for catalysing a profound spiritual metamorphosis. Even within the context of Hindu Tantric tradition, the idea of “divinization of the body” emerges.¹³ In Tantra, matter is not perceived as a lower form of spirit, as earlier orthodox systems suggested. Rather, it recognizes that matter encompasses subtle layers, including energy centres (*cakras*) and channels (*nāḍīs*). This composition allows for its transformation from the mundane to the divine through diverse practices. This notion of “divinization of the body” is indeed inherent to the philosophy of Tantra. Hence, the body becomes an active participant in elevated spiritual endeavours, playing a role in attaining profound insights and liberation. This insight leads us to the realization that, within Tantric systems, philosophy is engendered not solely through the mind, but also through the body itself. And so are dreams.

Just as in the early Hindu philosophical systems, the body was perceived in early Theravāda Buddhism as a dwelling for old age and mortality (e.g. *Dhammapada* XI.5). It did not hold a significant, active role in the meditative pursuits that culminate in *nirvāṇa*. However, this perspective undergoes a dramatic transformation within the context of Tantric Buddhism. A distinct perception of the body within Tantra is intricately connected to a fundamental re-evaluation of the significance of dreams. Disordered dream content emerges from the consciousness (*viññāna*), and dreams, particularly those that the dreamer is acutely conscious of and that lead to profound revelations, manifest solely through the engaged involvement of the body, which exerts an influence on the cognitive processes. As the body and its latent capacities become awakened, so do dreams – simultaneously, as the body assumes a central role in philosophical discussions and prac-

¹³ See Gavin Flood, *The Tantric Body* (New York: Bloomsbury Publishing PLC, 2005).

tical methodologies, the dreaming of transformative dreams guiding toward *nirvāṇa* emerges. This process also brings forth the potential for comprehending these dreams. The “restoration” of the body and its inherent potentials within both the theoretical and practical realms of philosophical discourse, along with the simultaneous recognition of the remarkable capacities of dreams, has prompted a reassessment of the very notion of *nirvāṇa*. In contrast to the teachings of Theravāda Buddhism, which propose a gradual journey towards perfection over multiple lifetimes as the pathway to attaining the ultimate state of being, Tantric Buddhism presents an alternative perspective. According to Tantric teachings, this supreme state can be realized within a single lifetime, irrespective of past *karma*. This notion was eloquently conveyed by the *yogi* Milarepa: it can be achieved in this very body, in the present life.¹⁴ Hence, Tantric systems have been recognized as an expedited, yet simultaneously more precarious route, to *nirvāṇa*. This is because they unveil the latent mental and physical potentials within humans, possessing the profound ability to eliminate the negative repercussions of previous actions and attain the loftiest philosophical insights.

Tantric meditation practices within Buddhist eremitic tradition: the six dharmas

This preliminary notion of the body and liberation, which first germinated within the Hindu Tantric systems, found a wholly unique manifestation within the spiritual landscapes of Buddhism through the endeavours of the Bengali *mahāsiddha* Tilopa (988–1069). Recognized within Buddhism as the first *yogi* to catalyse the tradition of accomplished Tantric Buddhist masters achieving *nirvāṇa* within a single lifetime, Tilopa reimagined and implemented this concept. Drawing inspiration from early Theravāda, Mahāyāna and select Hindu Tantric doctrines, he established a framework of soteriological practices that continue to be embraced by *yogis* to this day, encompassing methods

¹⁴ This idea is expressed in several places in Milarepa's hagiography (Heruka, *The Life of Milarepa*, especially in the tenth chapter).

such as the practice of lucid dreaming. The methods, referred to as the six dharmas or six yogas (Skrt. *ṣaḍdharma*, Tib. *chos drug*), were imparted to Tilopa by enigmatic Tantric masters.¹⁵ He meticulously structured these techniques into a comprehensive system, subsequently unveiling them to his disciple Naropa (1016–1100), who undertook the responsibility of transmitting them. Given that Tilopa's teachings, akin to all Tantric doctrines, were regarded as clandestine wisdom, accessible solely to a chosen few due to their intricate nature and the earlier mentioned exploration of uncharted psychophysical abilities that necessitated skilled mentorship for their proficient development, these teachings were safeguarded within the lineage of the original Buddhist *yogis* through oral transmission (Tib. *snyan brgyud*) from teacher to disciple.¹⁶ The entirety of this tradition continues to rely on this pattern of transmission in the present day. Consequently, the original teachings of Tilopa have endured in mere fragments, collectively known as *Ṣaḍdharmopadeśa* ("Instruction on the Six Teachings"). These fragments hold the esteemed status of being an authentic source within the lineage of Tantric techniques pursued by the *mahāsiddhas*. Naropa's exposition on the six dharmas, slightly more extensive than Tilopa's fragments, has also been preserved. Within the tradition, these teachings are recognized as the "Six Dharmas of Naropa" (Tib. *na ro'i chos drug*).¹⁷ These texts have been the focus of extensive commentaries by Tantric masters, who have offered thorough interpretations of the

¹⁵ In most discussions of the meditation system, the term "six yogas" has been adopted. Both terms are used in this paper, with the term "dharma" referring to the teachings related to fragments and commentaries, and "yoga" referring to descriptions of the practical aspects of a particular technique.

¹⁶ The very nature of the doctrine is extremely complex and, as such, incomprehensible to most people; however, this method of preservation has also protected it from misinterpretation and distorted understanding. Applying theory to practice and verifying what one has learned within their own experience is the most important method of progressing towards liberation, since it is impossible to acquire ultimate insight through discursive knowledge conveyed in language alone.

¹⁷ It is noteworthy that while lesser-known than the renowned male figures, *yoginī* Niguma played a significant role in their propagation as well. Niguma is believed to have studied Tantric practices alongside Naropa. Some accounts even suggest that she might have been his sister or ex-wife (for further details, refer to Nina Petek, *Na pragu prebujenja. Svetovi sanj v budizmu* [On the Threshold of Awakening: Worlds of Dreams in Buddhism] (Ljubljana: Beletrina, 2022), 273).

meditation techniques within the framework of Buddhist philosophy. They have also furnished these teachings with meticulous practical instructions. Naropa and the *yoginī* Niguma transmitted *dharmas* to their disciple Marpa Lotsawa (1012–1097), who became the initial Tibetan proponent of the tradition. Marpa subsequently imparted these teachings to Milarepa (1052–1135), who, in turn, recognized Gampopa (1079–1153) as the most fitting successor. Gampopa authored comprehensive commentaries on the six dharmas, which were initially compiled and published in 1520 as *Dags po'i bka' 'bum* (*The Manifest Sayings of Dags po*)¹⁸ in xylograph print format. Furthermore, Gampopa skilfully amalgamated teachings and Tantric practices into the monastic framework of the *bka' gdams pa* (transliterated as *kadam*) lineage. This integration, in turn, shaped the monastic order of *bka' brgyud* (transliterated as *kagyu*), which absorbed the practices of the earlier *yogis* into its structure. Simultaneously, running alongside the monastic order, the tradition of self-contained eremitism persisted and remain vibrant even today in the Himalayan regions. Incorporating an unfettered form of eremitism within the monastic order has facilitated the conservation of the ancient secret practices of *yogis*. These practices were originally transmitted orally but eventually led to the creation of an array of commentaries and practical guidance for successive generations of *yogis*. In addition to the existing fragments of *yogis'* writings and discourse on their practices, a wealth of hagiographies (Tib. *rnam thar*) exists. These hagiographies are composed of factual depictions of the lives, teachings and practices of hermits, offering invaluable insights into the concealed realms of this esoteric tradition. This genre of literature presents a unique perspective, akin to a portrait, capturing the spiritual evolution within the life of a *yogi* who aspires toward *nirvāṇa*. Occasionally, the hagiographies resemble records of dream diaries, as they encompass a treasure trove of dream-related content encompassing diverse dream

¹⁸ The book is named after Gampopa, whose middle name was also Dakpö Lhaje (Ulrich Timme Kragh, *Tibetan Yoga and Mysticism. A Textual Study of the Yogas of Nāropa and Meditation Mahāmudrā in the Medieval Tradition of Dags po* (Tokyo: The International Institute of Buddhist Studies, 2015).

encounters, techniques and experiences among *yogis*.¹⁹ Namely the pursuit for a guru was often shrouded in mystery – prior to disciples actually encountering their teacher, they were often guided within the realm of dreams, ultimately leading them to the master. In their dreams, they also encountered significant teachers from the past, who imparted vital teachings to them.

Therefore, the subsequent segment focusing on the conscious dreaming technique entails an examination of Tilopa's fragments compiled as *Ṣaḍḍharmopadeśa*,²⁰ along with chosen commentaries from Gampopa's *Dags po'i bka' 'bum*, specifically the chapter *Dags lha sgam po* (abbreviated hereafter as DK.A.),²¹ and findings derived from my own field research conducted within the Ladakh federal territory in the Indian Himalayas. This research was underpinned by various methods, including extensive and in-depth interviews with Ladakhi *yogis* and *yoginīs*.

The six dharmas, encompassing an array of meditative psycho-physical practices, consist of the subsequent techniques: inner mystic heat (Skrt. *cāṇḍālī*, Tib. *gtum mo*), illusory body (Skrt. *māyākāya*, *māyādeha*, Tib. *sgyu lus*), dreams (Skrt. *svapna*, Tib. *rmi lam*), radiant light (Skrt. *prabhāsvara*, *ābhāsvara* Tib. *'od gsal*), intermediate state (Skrt. *antarābhava*, Tib. *bar do*) and transference (of consciousness) (Skrt. *saṁkrānti*, Tib. *'pho ba*). Each of these techniques embodies a dynamic synthesis of various Tantric elements, rooted in the concept of an intrinsic link between the body and the mind. Within each of these techniques, the subtle body, comprising the *cakras* and energy channels known as *nāḍīs*, which facilitate the flow of energies, assumes a highly significant role. Additionally, the incorporation of breathing techniques

¹⁹ See also Bulkeley, *Dreaming in the World's Religions*, 100–107, and hagiographies of *yogis*: Tsang Nyön Heruka, *The Life of Marpa the Translator. Seeing Accomplishes All*, trans. the Nalanda Translation Committee under the direction of Chögyam Trungpa (Boulder: Prajñā Press, 1982), Fabrizio Torricelli and Ācārya Sangye T. Naga, trans., *The Life of the Mahāsiddha Tilopa* (New Delhi, Dharamsala: Library of Tibetan Works and Archives, 2003) and Jampa Mackenzie, Stewart, trans., *The Life of Gampopa. The Incomparable Dharma Lord of Tibet* (Ithaca, New York: Snow Lion Publications, 1995).

²⁰ The paper draws upon a compilation of fragments as presented in Fabrizio Torricelli, "The Tibetan Text on Tilopa's *Ṣaḍḍharmopadeśa*," *East and West* 46, no. 1/2 (1996): 145–166.

²¹ The paper is based on Gampopa's comments collected in Kragh, *Tibetan Yoga and Mysticism*.

(*prāṇāyāma*), guru-dedicated prayers, visualizations and a spectrum of psychophysical methods are integral. These techniques find their origins in the Hindu Tantric tradition and bear relation to the practices of *haṭhayoga*. The practices undertaken by *yogis* and *yoginīs* in solitude, following rigorous preliminary techniques and guided by their teachers, are structured hierarchically. This signifies that mastery of each successive technique is contingent upon complete proficiency in the preceding one. Furthermore, familiarity with the other practices becomes indispensable for a comprehensive grasp of a particular technique. Thus,



Figure 3: Hermitage, where Ladakhi *yogis* practice various meditation techniques; the Leh area, Ladakh, India (Photo: Nina Petek)



Figure 4: Meditation cave in Saspol; Ladakh, India (Photo: Nina Petek)

prior to examining the soteriological technique of dreaming, a concise overview will be provided for the two preceding practices: inner mystic heat (*gtum mo*) and illusory body (*sgyu lus*).

Before dreaming: the techniques of inner heat and illusory body

a) Yoga of mystic heat and other preliminary practices

The practice of inner mystic heat serves to arouse the energies of the subtle body within the realm of the so-called gross physical body. The very essence of the practice is encapsulated in its name, *gtum mo*. Here, *gtum* conveys the notion of “heat”, while *mo* signifies “mother”. “Heat” symbolizes the fervour, the flame, the potency of ascetic endeavour that incinerates obstacles to enlightenment, such as patterns of wandering thoughts. “Mother” aptly portrays the role of this technique as the cor-

nerstone, the quintessence, from which all ensuing practices emanate. Fervour and flame also symbolize the illuminating radiance that dispels darkness – namely, ignorance – ushering in enlightenment. Beyond the symbolic connotation, this practice effectively generates bodily heat within the *yogi*, a tangible manifestation of its impact.²² Prior to commencing the inner mystic heat technique, the *yogi* should have received training in *guruyoga* (Skt., Tib. *bla ma'i rnal 'byor*) – the practice of venerating the guru – wherein one directs all thoughts towards their teacher. Additionally, proficiency in *mahāmudrā*, which entails meditation on emptiness, is also crucial. Some sources also mention deity yoga (Skt. *devatayoga*, Tib. *yiḍ kyi dam tshig*, contr. *yiḍam*), a practice akin to *guruyoga*, albeit centring on a specific deity. In this practice, meditation is paired with diverse visualizations of the chosen deity, aiming for a profound identification between the *yogi* and the deity.

By immersing themselves in a visualization of the selected deity, the meditator establishes a deep connection, gradually adopting the deity's identity and consequently, harnessing its associated powers. However, the practice of deity yoga requires prior initiation by a knowledgeable teacher or *guru*. During the initiation process, as observed in Hindu Tantra, the teacher embeds the deity within the individual's body through *mantra* recitations. This significant act lends a sacred quality to the meditator's physical form. In the ritual of initiation, mere approval from the teacher is insufficient; confirmation of initiation by the deity themselves is also required, often occurring within a dream. Instances have arisen where a deity, appearing in a dream, declines to initiate a disciple, signalling that his readiness for the process has not yet fully matured. Hence, dreams play an integral role within the initiation process, serving as either a fundamental component or the ultimate af-

²² In this manner, the technique's spiritual objectives align with practical outcomes, a revelation I encountered through the *yogis* of Ladakh. In the contemporary tradition of Ladakhi hermits, *gtum mo* belongs to the category of so-called winter techniques, meaning that it is practised mostly in winter, as the production of heat in the body enables them to survive the harsh Himalayan winters. Simultaneously, the *yogis'* practice is also collectively conducted within the parent gumpa Hemis, the central monastery of the Drukpa Kagyu school in Ladakh. During winter, accompanied by the head yoga teacher, *guru*, and head *lama* of Hemis, they embark on a journey to Tso Moriri Lake in the bitterly cold eastern Ladakh region of Changthang, where temperatures plummet to as low as –25 degrees Celsius.



Figure 5: Visualisation of Buddhist deities, a mural in the secret temple of Lukhang, Tibet, 17th century (Wikimedia Commons, public domain)

firmation, marking the true commencement of the disciple's spiritual journey.

Within the realm of preliminary practices, the method of thought analysis holds significance. Here, the *yogi* engages in analysing the essence of thoughts, striving to perceive them in their authentic, bare state and devoid of any sense of permanence. Immediately prior to engaging in *gtum mo*, the *yogi* is required to undertake a sequence of preliminary physical exercises. Notably, within this sequence, the practice of breathing techniques (*prāṇāyāma*) and the visualization of sacred *mantras*, *cakras*, and *nāḍīs* assume vital roles (Tilopa [*gtum mo* 6–8]). The *gtum mo* technique is linked to the navel *cakra*, facilitating the equilibrium and flow of vital energies throughout the body (Tilopa [*gtum mo* 9]). This serves as the foundational cornerstone for all subsequent psycho-physical practices.²³

Consequently, the body becomes infused with the dynamic engagement of consciousness through visualization, eliciting responsive reac-

²³ The technique is also related to *karmamudrāyoga* (Skt., Tib. *las kyi phyagrgya*), which is based on sexual union with a partner or simply on the visualisation of this union, which stimulates the awakening of energies in the body and a feeling of bliss.



Figure 6: *Yogis* practising various meditation techniques; Milarepa (bottom left) practising *gtu mo* and the transference of consciousness; mural in the secret temple of Lukhang, Tibet, 17th century (Wikimedia Commons, public domain)

tions to these mental images and giving rise to a generation of inner warmth. The method of invigorating energy and warmth circulation within the body facilitates a revitalization of its latent potentials, concurrently serving to neutralize adverse *karmic* imprints like animosity, instincts, physical cravings and attachments. This paves the way for the emergence of a sensation of joy and compassion towards all sentient beings (Skt. *karuṇā*, Tib. *snying rje*). Consequently, the outcome of the inner mystic heat technique is also referred to as the experience of blissful warmth (Tib. *bde drod*). As per various sources, once the *yogi* attains complete mastery over the practice, they encounter shimmering effects before their eyes. Visions encompass smoke, flames, unclouded skies, radiant sun and moon beams, the harmonious convergence of the sun and moon, and even rainbows.²⁴ Following a fruitful technique session,

²⁴ Herbert V. Guenther, trans., *The Life and Teaching of Naropa* (Massachusetts: Shambala 1999), 60.

the *yogi* engages once more in the practices of *guruyoga* and *mahāmudrā*. Mastery of the inner mystic heat yoga serves as a strong foundation for commencing the practice of the illusory body (Tib. *sgyu lus*).

b) Illusory body yoga and meditation on the impermanence of phenomena

Before embarking on the second phase of the Tantric soteriological system, the *yogi* is required to engage in supplementary preliminary practices rooted in Theravāda Buddhism. These practices include meditations on impermanence and mortality (such as *maraṇasati* and *asubha bhāvana*). This deepens the *yogi's* grasp of the theoretical doctrine concerning the impermanent nature of all phenomena, highlighting that notions of autonomy and enduring permanence are but illusions stemming from the misperceptions of an unenlightened consciousness confined within dualistic thought patterns. This technique shares a profound connection with the Mahāyāna doctrine that underscores the illusory essence of both external phenomena and one's individual existence. It further aligns with the illusory quality attributed to dreams and the surreal nature of the *bar do* experience. In certain commentaries, the practice of dreaming is even recognized as an integral facet of the illusory body technique, for it serves to profoundly enhance the realization of the fleeting essence inherent in one's psychophysical continuum and all phenomena within the world.

Prior to engaging in this practice, the *yogi* assumes a meditation posture and situates an object before them, one that serves as a reminder of their own body or reflects it, much like a mirror. Subsequently, the *yogi* begins audibly critiquing himself while attentively observing whether feelings of sorrow or ease arise. The objective of this practice is to attain a state of equanimity. Therefore, it should be diligently pursued until all emotions have ceased to exist. In doing so, the practitioner acknowledges the illusory nature of all emotions and proceeds to delve into the examination of other objects. In this process, the practitioner contemplates and engages in meditation on the dreamlike, illusory quality of objects as they manifest in everyday perception (Tilopa [*sgyu lus* 16–18]). Furthermore, he focuses on exploring the nature of the twelve examples of illusion (Tilopa [*sgyu lus* 22]), which may involve scruti-

nizing phenomena like the structure of an echo or one's own reflection in a mirror.²⁵ Consequently, by acknowledging the authentic essence of external phenomena, the *yogi* shifts his focus to his own body, comprehending its composition along with the sensations of pleasure and discomforts that course through it. This realization leads to an understanding of the impermanent nature that underpins all facets of his existence. Subsequently, the *yogi* initiates the visualization of his body transforming into the likeness of the selected deity's form. This mental transformation is further intensified by positioning an image of the deity before him or aligning it in a manner that allows its reflection to appear in the mirror placed in front. The latter practice embodies a form of deity yoga, wherein the *yogi* offers praises to the reflected image in the mirror and attentively monitors for any arising emotions. The absence of emotions signifies the attainment of practice's perfection, as the *yogi* recognizes the emptiness inherent in all things, including his own body and the bodies of the deities. This marks the realization of the genuine essence underlying all illusory manifestations, namely the Buddha-nature or *śūnyatā*, while simultaneously initiating the profound exploration of the Mahāyāna Buddhist concept of the equivalence between *saṃsāra* and *nirvāṇa*. The practice culminates with the recontemplation of illusions (Tib. *sgyu ma maya*) while in a seated meditation posture.²⁶

²⁵ This technique, as evidenced in the Tilopa fragments (Tilopa [*sgyu lus* 19–20]) (Torricelli, “The Tibetan Text on Tilopa’s Śaḍdharmopadeśa.”), is performed using a mirror and the image of the deity Vajrasattva. It is practiced in this way by Ladakhi *yogis* even today, using a bowl of water and placing the image of Vajrasattva so that it is projected onto the surface of the water in the bowl through a mirror. Then *yogi* begins to meditate on the image in the water until he realises that the nature of this image is identical with all that has been created, through which he identifies with it.

²⁶ Yoga of the illusory body is extremely important for all subsequent practices, including *bar do* and yoga of the transmission of consciousness, because it enables *yogis* to direct consciousness towards enlightenment, *nirvāṇa*, and thus to escape rebirth in *saṃsāra*. Moreover, at the time of death, the separation of the subtle body from the gross body is easily accomplished due to training in the practice of the illusory body, while during the lifetime of *yogis*, the latter separation is deepened in dreams.

The soteriological method of dreaming: awakening the veiled waking consciousness within the realm of dreams

The intricate soteriological technique of dreaming (Tib. *rmi lam*), involving purposeful and conscious engagement within the dream state, relies on the method of identifying dreams as dreams. This involves closely observing dream images, exerting influence over their narrative, and sustaining the awareness that they are mere manifestations of the dream realm. Through this process, the dreamer gains profound and immediate insight into the illusory essence of all dream phenomena. This understanding is then carried over to the state of wakefulness upon awakening.²⁷ In conjunction with the succinctly introduced role of the body, which, when appropriately nurtured, impacts the dynamics of conscious dreaming, the theoretical, philosophical and practical dimensions of the dreaming technique are rooted in the teachings of a prominent Mahāyāna Buddhist tradition. Specifically, these principles draw upon the philosophical framework of the *yogācāra* school, particularly Vasubandhu's elucidation of the nature of consciousness (*viññāna*). Certain concepts from this school will be introduced as we delve into the analysis of the four stages encompassing the lucid dreaming process.

The progression of dreaming encompasses three distinct phases: (1) slumber (Skrt. *nidrā*, Tib. *gnyid*), (2) dream (Skrt. *svapna*, Tib. *rmi lam*), and meditative immersion within the dream (Skrt. *samāpatti*, Tib. *snnyoms 'jug*), comprising four stages, and ultimately, (3) awakening from the dream (Skrt. *prākṛta*, Tib. *tha mal*). The onset of lucid dreaming and the capacity to introspect within dreams, as highlighted earlier, necessitate sufficient sleep and the establishment of conducive conditions for it. This, in turn, demands a rigorous and unavoidable preliminary regimen. Consequently, prior to delving into the examination of the four phases of the dreaming technique, a concise overview of the “pre-dreaming training” is presented.

²⁷ Even in regular dreaming, it is often the case that we suddenly experience a flash of lucidity at the centre of a dream, i.e. we become aware that we are dreaming, but this is not a matter of being trained in the control of our own dreams; the practice of lucid dreaming is an extremely complex technique, linked to other meditation techniques.

Adequate sleep and preliminary “dream training”

The notion of surpassing chaotic dreams, leading to the emergence of lucid dreams, as underscored in fragments attributed to Naropa, was subsequently continued in the evolution of the tradition. This development was accompanied by a series of guidelines outlining the preparations for sleep.²⁸ The importance of preparing for sleep has been emphasized in Gampopa’s writings and numerous other commentaries. Provided below is a succinct summary of certain instructions sourced from Gampopa’s commentaries (Tib. *Dags po’i bka’ bum*) as well as insights shared by Ladakhi *yogis* who persistently adhere to these guidelines in the contemporary era.

a) Waking up a subtle body before dreaming

Prior to commencing the lucid dreaming technique, ensuring a restful night’s sleep holds paramount importance. The duration of sleep should not be excessively prolonged; instead, it is advisable to incorporate several shorter intervals of slumber. A significant portion of the discourse surrounding this topic also delves into the inquiry of which segment of the night is most conducive for facilitating a fruitful dream process. If a *yogi* does not experience issues related to fatigue or sleep troubles, he has the flexibility to engage in the practice at any point during the night. However, if such challenges are present, the optimal time is during the period between dawn and sunrise. This interval is characterized by a well-rested body, a clear mind, and complete digestion of consumed food. *Yogis* are advised to opt for a tranquil and isolated sleeping environment. Aside from considering the external factors of timing and location, the crux of a prosperous dreaming technique lies in the preparations for dreaming. These preparations are most effectively conducted during the daytime or in the moments preceding sleep. Before going to sleep, *yogis* ought to strengthen their devotion to their teacher, avoid heavy meals, embrace solitude and maintain a keen

²⁸ In his commentary, Tsongkhapa calls the preparation for sleep “the clear light of sleep yoga”; see Glenn H. Mullin, *The Practice of the Six Yogas of Naropa* (Ithaca, New York: Shambala Publications, Snow Lion Publications, 2006), 138.

awareness of all sensations and thoughts. This involves meticulously observing everything perceived in the waking state, encompassing sights, sounds, sensations and scents. Such attentiveness augments the likelihood of being able to discern dream images more distinctly during the night. This underscores the continuity between perceiving images in the waking state and within dreams. Subsequently, they ready themselves for slumber by reclining on their right side and reaffirming the purpose of the impending sleep: to endeavour to discern the dream with utmost clarity during the dream process. Following that, they envision a five-petaled lotus within the throat *cakra* region, centring their attention on these five petals containing the sacred syllables of a luminous *mantra*. They gradually shift their focus from one syllable to the next in a deliberate manner. During the visualization practice, they concurrently engage in breathing techniques (*prāṇāyāma*), sourced from the Hindu *hathayoga* tradition, focusing in particular on holding the breath for as long as possible. By means of controlled breathing, they direct the body's energies towards the throat *cakra*, thereby establishing a stable foundation for the practice of lucid dreaming. Dreams are intricately tied to the throat *cakra*, and the dream experience materializes through the skilful manipulation of energy, a technique interwoven with the concept of the subtle body as mentioned earlier. As they transition into slumber, *yogis* envision a sphere of white light (Tib. *thig le*) positioned between their eyebrows.²⁹ This concluding practice at the threshold of wakefulness facilitates a gentle descent into light sleep and aids in the evolution of typical dreams into lucid dreams – those in which they possess a distinct awareness of the dream nature. Upon entering sleep, they remain poised for dreams to unfold, and as the dreams commence, they meticulously acknowledge each and every image that materializes. If *yogis* encounter difficulties with this technique, they are advised to thoroughly analyse the underlying reasons while awake. Subsequently, they can either reattempt the process, or engage in additional preparation for the practice. Various challenges and hindrances (Tib. *bar chad*, Skrt. *antarāya*) often manifest for adept *yogis* engaged in diverse practices, originating from a multitude of factors.

²⁹ Segment DK.A.Tsa.4, in: Kragh, *Tibetan Yoga and Mysticism*, 383.

b) A few more obstacles in the dreaming process

Outlined below are succinct descriptions of some of the more prevalent hindrances. Fatigue results in profound, unbroken sleep, impairing dream recall, while the lack of drowsiness poses an even more prevalent challenge. In such instances, *yogis* can choose to visualize either a luminous red *om* syllable, radiating throughout the expansive throat *cakra* region, or a gentle, softly glowing white sphere, approximately the size of a thumb, positioned between their eyebrows within the crown *cakra* area. Through this approach, *yogis* induce a state of drowsiness, causing their consciousness to blend with the luminosity, and gradually descend into the realm of dreams. While doing so, the emphasis on the luminosity should not be overly intense, as it could potentially divert their attention away from slumber. When faced with challenges in recollecting dreams, they should maintain wakefulness by closely observing their immediate surroundings. They should envision that all the elements of their surroundings are akin to those in a dream. Afterward, they can endeavour to return to sleep. Another frequent issue is the lack of dreams, for which the same techniques as those suggested for difficulties with sleep and absence of drowsiness are recommended. If, despite practicing the exercises, a *yogi* still cannot recall the dream or fails to distinctly recognize the dream images, he should retreat into profound solitude. Engaging in activities such as jumping, dancing or running while exclaiming “This is a dream, this is a dream!” at the highest volume possible can also be employed as an approach.³⁰

The *yogi* can also venture to a place that invokes fear or danger, such as the brink of a precipice, gaze into the abyss and affirm to himself that everything before him is merely a dream. As he prepares for sleep, he should emphatically affirm that this time he will achieve success, experiencing lucid dreams wherein he recognizes every detail of the content. Even for those who, despite undergoing such additional training, struggle to identify the dream, there remains a remedy. They should cultivate a sense of humility.³¹ Moreover, a solution exists even for those facing such challenges: they should devote themselves to daily prayers direct-

³⁰ Segment DK.A.Tsha.9, in: Kragh, *Tibetan Yoga and Mysticism*, 394.

³¹ Segment DK.A.Tsha.9, in: Kragh, *Tibetan Yoga and Mysticism*, 394.



Figure 7: *Yogi* jumps and screams: “This is a dream, this is a dream!”; mural in the secret temple of Lukhang, Tibet, 17th century (Wikimedia Commons, public domain)

ed towards their teacher and the Buddha. Following this, within the throat *cakra* region, they can visualize sharp blades slicing their body into fragments. Subsequently, in their mind, they offer these pieces as a sacrifice to the Buddha and all sentient beings. This is followed by the *mahāmudrā* practice.

Additional instances of challenges are also detailed in the commentaries. For example, if a *yogi* experiences bliss within lucid dreams but becomes entangled in attachment, giving rise to emotions, this situation can turn “the whole practice into a *samsāric* affair”.³² In this context, failure arises as he is unable to achieve an experience of emptiness due to his emotional entwinement. When confronted with such challenges, the *yogi* should place both hands over their eyes and gently turn them upward, while simultaneously easing the mind’s turmoil by directing attention towards the heart *cakra*. This technique is meant to induce a robust sensation of both bliss and emptiness on a physical level. When merged with the concurrent practice of the illusory body technique, it culminates in a heightened comprehension of

³² Segment DKA.Tsha.9, in: Kragh, *Tibetan Yoga and Mysticism*, 395.

all phenomena as manifestations akin to dreams, originating from consciousness (*viññāna*), as frequently elucidated in Vasubandhu's teachings concerning consciousness (e.g. *Vimśatikāvijñaptimātratāsiddhi* 16, 17). Through this *process*, the *yogi* also transcends various forms of attachment and fear, encompassing even the apprehensions of practice failure and the consequent cycle of rebirth in *saṃsāra*. To further dispel this type of fear, he should repeatedly remind himself of the concept of the equivalence between *saṃsāra* and *nirvāṇa*, a theme found in numerous Mahāyāna Buddhist *sūtras*, and frequently emphasized within the *madhyamaka* school (as seen in Nāgārjuna's *Mūlamadhyamakakārikā*, XXV. *Nirvāṇaparīkṣā*).³³ *Nirvāṇa* is equal to *saṃsāra* as perceived by Siddhārtha Gautama and innumerable other buddhas. Insight into their equality is a redemptive revelation and a novel mode of existence within *saṃsāra*. Hence, within the perspective of the enlightened, the world assumes a different guise. What is regarded as fiction by ordinary

³³ The doctrine of emptiness in Mahāyāna Buddhism had implications for the very concept of *saṃsāra* and *nirvāṇa*. In Mahāyāna Buddhism, *nirvāṇa* does not mean ontological transcendence as it was conceived in Theravāda Buddhism, namely as the thirty-second stage of reality, which is absolutely beyond all *saṃsāric* realms (although it was neither spatially nor temporally defined, but was defined as beyond). There is no ontological difference between *saṃsāra* and *nirvāṇa*, because *nirvāṇa* is not a transcendence, a supreme state beyond *saṃsāra*, but an infinite linearity, an immanence, without any trace of anything metaphysical. All the transcendence we are so diligently seeking is already here, in front of us. The radical transformation of ways of perceiving the world has also had consequences for the validity of metaphysical truths; metaphysics thus becomes a fictional, delusional construct. With Buddhist Mahāyāna *nirvāṇa* thus "loses" its transcendent character and becomes immanent. It is present in everything, omnipresent in *saṃsāra* as a latent potential; we all carry within us our potential *nirvāṇa*, which is only awakened at the moment of enlightenment. The shift from *saṃsāra* to *nirvāṇa* is therefore merely an epistemological shift, not an ontological one; it is a shift in the way the world is perceived, an awakening to emptiness. Everything is actually the same, remaining as it was, but at the same time so radically different – through the glasses of emptiness. *Nirvāṇa* is simply the realisation that *saṃsāra* is empty, accompanied by a feeling of bliss. The difference between *saṃsāra* and *nirvāṇa*, from the conventional, empirical point of view (*saṃvṛtisatya*), is merely this: to be in *saṃsāra*, i.e. to be involved in the mechanism of rebirth and death, is to see the world as a collection of separate and autonomous entities that are solid, unchanging, whereas to be in *nirvāṇa* is to see things as impermanent and empty. When an individual perceives the emptiness of *saṃsāra* instead of its fullness (in the sense of substantiality, solidity, impermanence), *saṃsāra*, in this sense the whole phenomenal world, is transformed into *nirvāṇa*, which in turn also takes the individual out of *saṃsāra* as a cycle of birth and death, fuelled by ignorance, in which both the epistemological and the ontological aspects are intimately intertwined (Petek, *Na pragu prebujenja*, 164).

individuals takes on the mantle of reality, while the reality perceived through conventional modes of cognition assumes the semblance of fiction. Conversely, this has also impacted the preconceived understanding of the connection between dreams and wakefulness. The illusory frameworks that shape both states are fashioned by the same, as Vasubandhu terms it, a “magic wand of consciousness” (as evidenced in his treatise the *Trisvabhāvanirdeśa*). This explains why wakefulness does not inherently possess a superior epistemological status compared to dreams. Within the eremitic tradition of Buddhism, this correlation is elevated to the point where dreams, due to their heightened ability to dissolve discursive thought patterns compared to wakefulness, are ascribed a greater soteriological significance than mental processes occurring in the awakened state. The internalization of the concept of the ontological equivalence between *saṃsāra* and *nirvāṇa* holds paramount importance in surmounting the fear of death, a fear that is further attenuated through the practice of conscious dreaming.

An issue frequently highlighted by commentators and *yogis* themselves is the occurrence of premature awakening from dreams. The *yogi* might wake up just as they commence observing the dream images. For instance, if awakened during the night, they should refrain from opening their eyes. Instead, with unwavering resolve, they should re-enter their dream realm, resolute that on the next occasion, they will not abruptly awaken from their dreams. When waking up in the morning, they should look closely at the reasons why they woke up too early – which can include external circumstances such as noise, heat or cold, too heavy clothes, etc. – and do their best to eliminate them the next time they go to sleep. With every awakening, it is essential for them to contemplate the essence of their dreams and whether they have effectively recognized them. Throughout the day, they should fortify their conscious intent to distinctly identify the images within their dreams. Additional concerns pertain to the manifestation of fragmented and disorderly dream images, stemming from the aggregation of distorted mental contents engendered by consciousness during wakefulness. The *yogi* overcomes these by engaging in breathing exercises and maintaining a resolute commitment to lucid dreaming.

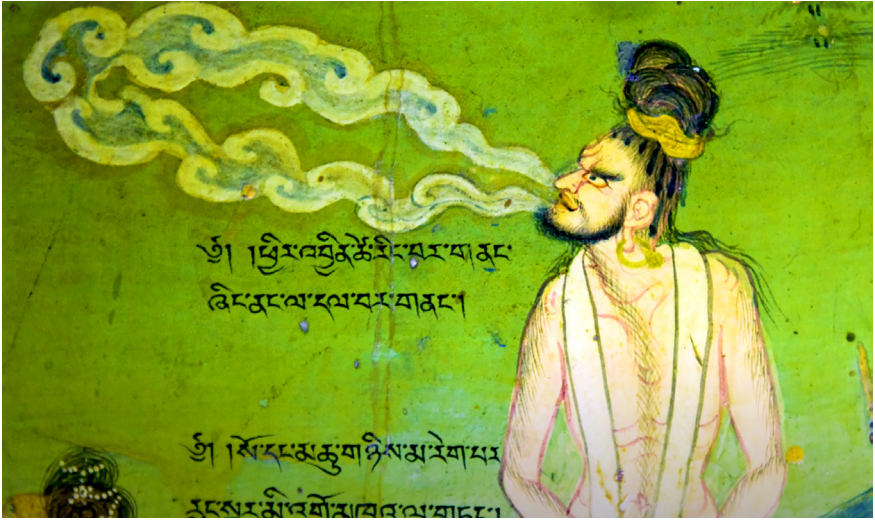


Figure 8: A *yogi* practising breathing techniques; mural in the secret temple of Lukhang, Tibet, 17th century (Wikimedia Commons, public domain)

Apart from the resolute conscious determination, the practice of the yoga of radiant light plays a vital role in fostering the occurrence of lucid dreams. While described in the Tilopa and Naropa fragments as a practice conducted subsequent to the dreaming technique, the notion of its utility as a prelude to the actual dream practice is also indicated in numerous commentaries. Prior to contemplating the dream during wakefulness, *yogis* should exert themselves to “seize the radiance” (Tib. *’od gsal zin par bya*),³⁴ subsequently directing their attention towards visualizing the five syllables within the heart *cakra*. This method is also recognized as the “*mahāmudrā* practice for the dream state” (Tib. *phyag rgya chen po rmi lam du bsgom pa*).³⁵ Hence, it is typically practiced before sleep, often while lying down. During this time, *yogis* centre their focus on envisioning the sacred syllable *hūm* within the heart *cakra*. This syllable radiates a powerful light, and they shift their attention sequentially from one syllable to the next. Through

³⁴ Segment DK.A.Pa.8, in: Kragh, *Tibetan Yoga and Mysticism*, 353.

³⁵ Segment DK.A.Pa.8, in: Kragh, *Tibetan Yoga and Mysticism*, 353.

the consistent application of this technique, *yogis* are poised to swiftly transition into a dream state. The practice of radiant light yoga aids in intensifying the clarity within dreams and concurrently sustains a heightened awareness even during profound sleep. Furthermore, upon waking, their thoughts remain impeccably lucid. If they awake during the darkness, their surroundings become vividly apparent, and the recollection of their dreams remains distinct.

The four stages of dream yoga

The efficacy of the lucid dreaming technique is hence contingent upon the preliminary groundwork delineated earlier. The actual practice of lucid dreaming encompasses four distinct stages. The initial stage involves recognizing the dream, often termed as “capturing, seizing the dream” (Tib. *rmi lam bzung ba*). In this phase, *yogis* become aware that they are within a dream and maintain consciousness throughout the dream sequence. The second stage encompasses the creation of dream images and the acknowledgment of their illusory essence (Tib. *rmi lam yongs su sbyang ba*). The third stage pertains to comprehending the illusory character of dreams (Tib. *rmi lam sgyu mar shes par bya ba*), while the fourth stage involves contemplating the authentic nature of dreams (Tib. *rmi lam gyi de kho na nyid bsgom pa*). The concluding stage entails awakening into wakefulness, wherein the *yogis*, leveraging a sophisticated dream technique, perceive this state through an entirely distinct lens, viewing it “with the glasses of the emptiness” experienced within the dream.

a) Capturing the dream

The initial stage of the dream process involves the distinct recognition of the dream as being just a dream. *Yogis* immerse themselves within their own dream realm, akin to veiling dream images like images on a screen. Through this process, they come to recognize themselves as both the dream’s creator, originating from their consciousness (*vijñāna*), and as an observer of the dream’s contents simultaneously. This aspect is also mirrored in the fragments attributed to Tilopa:

When you recognize dreams as dreams,
 you always attend (*bhāvanā*) to [their] deep sense.
 Tilopa [*rmi lam* 25–26]³⁶

The following part of the fragment already alludes to the second stage of the technique, which involves attentively deciphering the significance of dreams and delving into their contents.

b) Mastery in recognising the illusory nature of dreams

This stage of deepening lucid dreaming is also referred to as dream purification, as its essence lies in intensifying the recognition that all dream images are indeed illusory. To grasp this technique, it is worthwhile at this point to briefly delve into the doctrine of consciousness, the origin of all mental contents in both wakefulness and dreams, as well as the birthplace of liberation.

- The nature of (dream) consciousness

Vasubandhu (320–380), one of the main exponents of the *yogācāra* school, specifically dedicated his efforts to deliberations concerning the diverse manifestations of consciousness (*viññāna*). The fundamental philosophical foundation of the school is the doctrine of “consciousness only” (*viññaptimātratā*), signifying that everything we perceive, whether in the external realm or within our own inner self, originates from consciousness and its cognitive processes. Hence, there exists solely the reality of consciousness, and objects outside of consciousness lack independent existence from it. It is essential to underscore that the doctrine of consciousness alone does not negate the presence of the external world; rather, it implies that the encounter with objects in daily experience is essentially a creation of consciousness. This concept emphasizes that the phenomenal world does not exist in the manner it perceives itself. The apprehension of conscious phenomena hinges upon the circumstances of its “storehouse consciousness” (*ālayaviññāna*), a reservoir of imprints amassed across all preceding lifetimes. These imprints carry forward into subsequent existences and, under specific circumstances,

³⁶ All translations of the Tilopa fragments from Tibetan into English are given in Torricelli, “The Tibetan Text on Tilopa’s Śaḍdharmopadeśa,” 145–166.

mature or trigger in the subsequent life, shaping mental contents. This establishes a connection between the past, present, and future within the realm of human experience. Serving as the foundation for mental processes, it holds the residues of the past that influence the present, thus shaping the future. Concurrently, it acts as the repository of consciousness and the birthplace of dreams.

Vasubandhu characterizes the objects within the phenomenal world, as perceived by consciousness, as illusions (*Vimśatikāvijñaptimātratā-siddhi* 1). He further elucidates the origin of all mental representations that arise in both waking and dreaming states through the doctrine of the evolution of consciousness known as *vijñānapariṇāma*. The term *pariṇāma* signifies progression and transformation, denoting a departure from the prior state. It pertains to the inherent character of consciousness, a concept discernible within Abhidhamma Buddhism, wherein consciousness is conceived as an array of fleeting occurrences that shift from one moment to the next. Consciousness is not a static and immutable entity; rather, it emerges anew in every moment and simultaneously varies in each instance, carrying latent imprints from its preceding states. This unceasing stream of transformation embodies its essential ontological essence through interaction with the senses and the external world, consciousness constructs representations that encompass dream content. This content emerges from *karmic* imprints stored within the storehouse consciousness, interwoven with the impressions from waking experiences, all amassed within the same storehouse.³⁷ Vasubandhu elucidates the essence of consciousness by drawing upon the *trisvabhāva* doctrine, which outlines the three facets of consciousness' nature. In its typical, unilluminated state, consciousness embodies conceptualization (*parikalpitasvabhāva*), denoting an imaginative quality. This conceptualization serves as the foundation for

³⁷ The storehouse of consciousness could be compared to Carl Jung's concept of the collective unconscious, a place where various memory traces and archetypes are stored, but *ālayavijñāna* only includes the personal unconscious, as it is merely a collection of one's past *karmic* history and varies from person to person. What is universal, according to the teachings of Buddhism, is that which arises from the accumulated traces in the storehouse of consciousness, i.e. ignorance, which causes suffering; therefore, the main technique of human meditation efforts is to purify the storehouse of past impressions.

its dualistic thought patterns, fostering a divide between itself and the external realm. Consequently, consciousness perceives objects as autonomously real, while concurrently sensing its own distinctness from the rest of existence. The second alteration in consciousness, known as *paratantrasvabhāva*, surpasses the deceptive notions of objects existing autonomously. It emerges from perceiving the interconnectedness of phenomena that unfold within consciousness. This understanding acknowledges the causal relationships between mental constructs and also recognizes the seamless continuum between mental experiences in both wakefulness and the dream state.

In the same manner that waking consciousness engages with the world based on its *karmic* potentials and the stored predispositions within the storehouse consciousness, dream consciousness follows suit, as there exists a seamless connection between these two states. Negative *karma* also extends its reach into dreams, mirroring the ethical condition of the dreamer. These adverse effects are encapsulated by the term *upaghātava*, which can also be understood as a seminal outpouring within a dream triggered by encountering an unreal dream image. In line with Buddhist philosophy, encountering such an occurrence within a dream is construed as a manifestation of negative moral disposition, characterized by intense emotions, and carried over from the waking life into the realm of dreams. Suffering is engendered by consciousness itself through its representations, and it is in alignment with this process that individuals make choices, consequently finding themselves situated within a particular realm of reality. Vasubandhu asserts that the perception of an object can emerge even in the absence of an actual external object (*Vimsatikāvijñaptimātratāsiddhi* 16). He draws a comparison to dreams – just as in dreams, a phenomenon materializes before us for a brief moment and then vanishes, similarly, such transience can occur with an object in the waking state. The fleeting essence of the object causes its dissolution, yet its imprint persists within consciousness. Even amidst diverse circumstances, an individual can continue to envision its presence. Instances of perception without actual objects encompass a range of dream visions, encounters, and journeys.

The third transformation of consciousness, *pariṇiṣpannasvabhāva* (“perfected nature”), represents a state of consciousness that unveils its

inherent dynamics, beholding both the world and itself in their genuine form – emptiness.

When dissecting the dynamic framework of consciousness, Vasubandhu employs several analogies that draw parallels between wakefulness and dreams, as well as the objects we perceive within each of these states. In its typical condition, consciousness engages in perception through the lens of impressions and memory, unaware that these do not truly reflect reality; much like a dreamer in an ordinary dream remains oblivious to the fact that the images witnessed are mere illusions (*Vimśatikāvijñaptimātratāsiddhi* 17). One comes to recognize this upon awakening, drawing an analogy between two forms of enlightenment – just as a dreamer emerges from slumber and comprehends that the images were mere phantasms, born of their dream-consciousness, similarly, in wakefulness, by engaging in meditative practice, they awaken from their misconceptions and apprehend that all representations are simply products of their consciousness. According to the teachings of Tantric Buddhism, however, consciousness can solely attain its ultimate and genuine modification (*pariṇiṣpannasvabhāva*), namely its emptiness, within dreams, subsequently transferring these insights into the realm of wakefulness.

- The creative activity of consciousness

Prior to reaching the ultimate stage, which involves the conclusive transformation of consciousness and the subsequent transference of insights into wakefulness, *yogis* assess the potency of their boundless consciousness through testing within dreams.³⁸ Through the diligent practice of inner heat and illusory body techniques, they attain complete mastery over their consciousness, preventing them from generating dream images based on accumulated impressions. The latter could be defined as a technique of managing or controlling one's own dream process. Ordinary dreamers, or those who remain in the first, clouded modification of their own consciousness, cannot choose what to dream about or change the content of their dreams, but merely indulge in

³⁸ Vasubandhu illustrates the potent power of consciousness with the example of the story from *Rāmāyaṇa* about *ṛṣi*, the seer who burnt down a forest by sheer force of his consciousness (GRETIL, “*Vimśatikāḥārikā*,” accessed July 22, 2023, http://gretil.sub.uni-goettingen.de/gretil/corpustei/transformations/html/sa_vimzatikAkaArikA.htm, 20).

watching what is conjured up on the night-screen, with no possibility of getting up, turning off the screen and leaving the “bad film” behind, while *yogis*’ training in Tantric techniques enables them to do extreme things in their dreams that are not possible in the waking state. As an illustration, if a *yogi* dreams of water, he possesses the capacity to wilfully transmute it into fire; if his dream entails something diminutive, he can morph it into something substantial, or even replicate a single entity into an infinite multitude. This technique relies on delving into the dynamic framework of consciousness that gives rise to dream imagery and the associated emotions. It entails a meticulous examination of the emergence and dissipation of dream constructs, allowing *yogis* to perceive that all dream manifestations are illusory and devoid of inherent substance. Consequently, this practice helps *yogis* transcend attachment to these manifestations.

This technique is also known as “illusory dream actions” and, as *yogis* of Ladakh taught me, encompasses two categories: mundane and supra-mundane acts. In the mundane aspect, *yogis* are capable of engaging in ordinary tasks, visiting commonplace locations or executing actions within a dream that remain beyond reach in waking life. For instance, they can journey to revered terrains or transfigure diverse entities, including themselves, into different forms. This practice facilitates the insight that the constituents of the dream realm lack autonomous existence, as they are intricately interwoven, each imbued with the quality of emptiness. The technique of controlling one’s dream process encompasses the act of imbuing dreams with a specific reality from within the dream itself. This entails a deliberate choice within the dream to embark on journeys to uncharted domains – traversing detailed landscapes, such as a voyage around the world or venturing into celestial realms.

In these ethereal expanses, one engages in conversations with deities, absorbing their teachings and counsel, while experiencing an overflow of bliss and an ecstatic quiver throughout the body. Moreover, they have the ability to journey to diverse Buddha’s realms, where the dreamer frequently assumes the guise of a Buddha.³⁹ Gampopa’s commentary,

³⁹ Projection of dreams into the realms of celestial or Buddha’s realities is a common technique used by many *yogis* as well as lamas; for example, Lama Wonton Kyergangwa projected

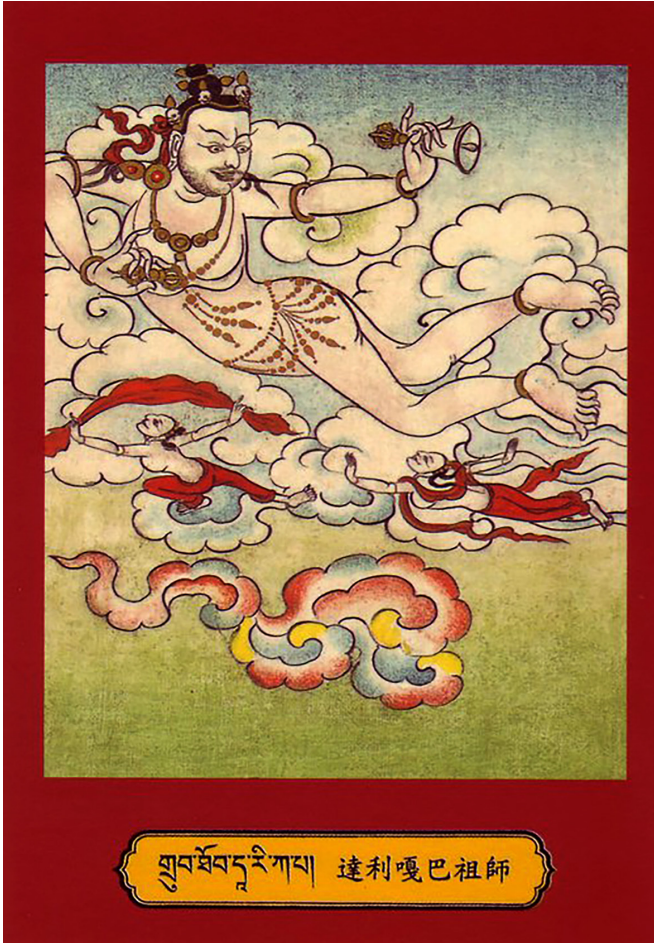


Figure 9: *Yogi Darikapa* (9th century) flying in his dream
(Wikimedia Commons, public domain)

along with the accounts of Ladakhi *yogis*, narrates dream voyages to Amitābha's Pure Land. Here, trees bedecked in gold grace the landscape, rivers exude intoxicating fragrances as they flow, and a cascade of

himself in a dream into the reality of Guru Padmasambhava, where he received the teachings of *Hayagrīvanātra* (Skt., Tib. *tam drin*).

flowers and lotuses shower down, radiating exquisite luminance. Within this realm, the dreamer offers homage and attunes to the Buddha's prayers. Within such dreams, it is imperative for the *yogi* to recognize that all these celestial dimensions are akin to illusions, akin to rainbows or the moon's reflection upon water. This recognition further reinforces the concept of the equanimity between *saṃsāra* and *nirvāṇa*.

Another significant method employed for what are often referred to as dream journeys and encounters with Buddhas is the practice of visualization. Prior to engaging in the actual *gtum mo* technique, *yogis* undergo training in the following visualization approach:

The seed-syllables (*bīja*) of the five families (*pañcatathāgatagotra*), are [taken as visualisation] supports (*ālambana*). Then, [in sleep] the *buddha*-fields (*buddhakṣetra*) and the *buddhas* will be seen.
Tilopa [*rmi lam* 28–30]

Yet another prevalent method involves the metamorphosis of *yogis* into *maṇḍala* deities, characterized by distinct body hues and numerous limbs. This practice is preceded by preliminary visualizations of a *maṇḍala* that portrays the entire universe, centred on Mount Meru. Consequently, within a dream, through deliberate intent and conscious manipulation, *yogis* have the ability to transmute themselves into various forms: a bird, a lion, a king, a house, a mountain, even a Buddha, altering the scale of these images. They can soar through the sky, bound onto the moon or sun, or plunge into a profound abyss without sustaining harm. They can summon the sun or the moon to the earth with a single step, traverse through flames unscathed, explore profound depths and expand their presence across the entire expanse of the universe.

- Illusory body yoga and dream body

The effectiveness of mastering the technique of executing illusory actions within dreams is shaped not solely by visualization, but also by the practice of the illusory body yoga. This facet involves altering one's own dream body, thereby enhancing the perception of the transient nature of the psychophysical continuum, alongside recognition of the impermanence inherent in all phenomena. For instance, this practice

entails the ability to purposefully transform external objects, like transmuting water into fire, earth into the moon, or even converting a bird into a tiger. The yoga of the illusory body constitutes an essential component within this overall practice. The practice of acknowledging the ever-changing nature of both entities and oneself, the perpetual process of emergence and transformation, holds significance not only during life but also during the dying process and the intermediate state of *bar do*.⁴⁰ Hence, the illusory body technique and dream practice complement one another, synergistically guiding towards the transcendence of discursive thinking and dispelling the myriad of illusions that stem from it. The capacity to embark on these journeys is intertwined with the unique and refined dream body that *yogis* assume, effectively disengaging from the gross physical form. In this context, the physical techniques for awakening dormant energies hold a significant role, aiding in this separation process. It is important to highlight the distinction between typical dreams originating in the unawaken, “gross” body of an ordinary dreamer, and those stemming from the deliberate manipulation of energies within the subtle body. In the latter case, the subtle body undergoes transformation within the dream itself, resulting in a nuanced dream experience. The subtle dream body similarly becomes evident in the *bar do* state, drawing parallels to the shamanistic concept of a dream soul disentangling itself from the material realm to manifest remarkable phenomena. This notion finds resonance, for instance, in the *Bṛhadāraṇyakoṇiṣad* (4.3.11), emphasizing that during a dream, an individual momentarily departs the physical form to adopt the dream body, enabling the soul to forge a dream realm distinct from the material entities within the phenomenal world.

The cultivation of diverse supernatural abilities and the practice of dream journeys serve to fortify the recognition of dreams’ illusory essence. Ultimately, these endeavours aim to culminate in their cessation, ushering in the dissolution of all conceptual constructs. This transformative process leads to the transition of con-

⁴⁰ The recognition of the four emptinesses is also crucial, whereupon the consciousness of the fourth emptiness projects the illusory body into the *maṇḍala*, after which there is the disappearance of both the dreamer, the Buddha, and the *maṇḍala*.

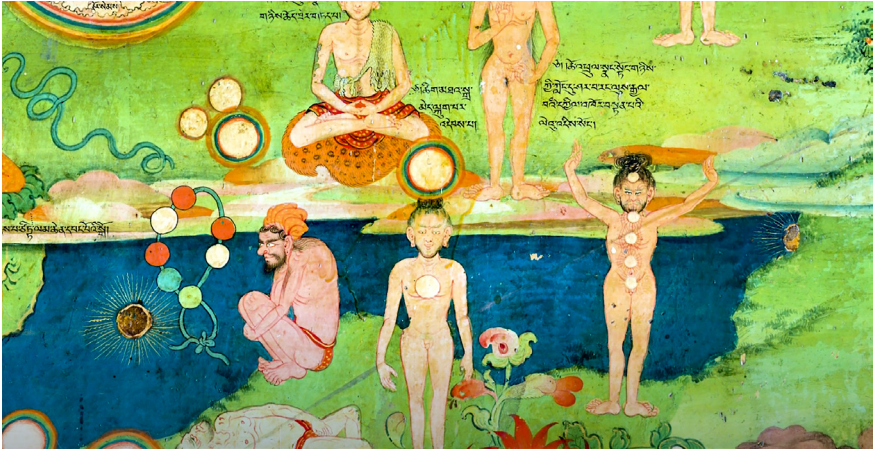


Figure 10: A subtle, illusory and dream body; mural in the secret temple of Lukhang, Tibet, 17th century (Wikimedia Commons, public domain)

ceptual modification *parikalpitasvabhāva* into *viññāna*'s pristine state (*pariṇiṣpannasvabhāva*),⁴¹ marking the culmination of the dreaming journey.

c) Awareness of the illusory nature of dreams

Upon mastering the aforementioned techniques, *yogis* advance to the third stage of acknowledging and deepening the understanding of the illusory nature of dreams. This phase encompasses meditation that perceives all phenomena as enchanting illusions and dreams (Skt. *svapnamāyopamā*, Tib. *rmi lam sgyu ma lta bu*). This practice is also called training in *māyā* (Skt., Tib. *bslab pa*), i.e. illusion, the most important part of which is the practice of overcoming any kind of fear.⁴² A method to further enhance this practice involves the induction of unsettling dreams, wherein *yogis* must discern the dream's true nature

⁴¹ See for instance »Vasubandhu: *Trisvabhāvanirdeśa*« (GRETEL, accessed July 22, 2023, https://gretel.sub.uni-goettingen.de/gretel/corpus/transformations/html/sa_vasubandhu-trisvabhAvanirdeza.htm).

⁴² It is therefore also referred to as the recognition of illusion and the overcoming of fear (Tib. *sgyu mar bying gyis brlab cing yang ba spang ba*), Segment DK.A.Pa.9, in: Kragh, *Tibetan Yoga and Mysticism*, 354.

as a mere illusion. This process serves to intensify the realization of the dream's illusory essence. This method primarily revolves around generating deliberate actions within the dream to assess one's adeptness in surmounting fear. For instance, deliberately engaging in unsettling acts within the dream, confronting formidable entities, walking into flames or descending into an abyss, all while maintaining the awareness that these events have not genuinely transpired. Through this process, *yogis* arrive at the realization that dreams remain mere illusions, dispelling the necessity for fear, as everything within them is a product of imagination. Whenever a thought emerges within the dream, suggesting that the dream's authenticity might be plausible – such as when fear takes hold of a *yogi* – he should promptly examine the fear's essence within the dream context itself. This process leads them to reaffirm that the cause of the fear is completely void of reality, rendering all apprehensions redundant. Hence, *yogis* maintain a distinct awareness within the dream itself, acknowledging that they cannot be scorched by the fire, carried away by a flood or torn apart by a dog.⁴³ This form of dream-guidance, underscoring the illusory essence of both dreams and waking experiences, ultimately fosters an understanding of the inherent non-existence of the substantial nature within all existence. *Yogis* comprehend that dreams constitute nothing more than a deceptive and illusory manifestation of consciousness (*parikalpitasvabhāva*). The entirety of the phenomenal realm reveals emptiness, and consciousness itself bears resemblance to a dream-like image. *Samṣāra* and *nirvāṇa*, akin to the unreal mirage enticing a thirst-driven deer (Skt. *mṛgaṭṛṣṇā*, lit. “deer-thirst”),⁴⁴ are recognized as unreal appearances. Consequently, nothing is genuinely bounded, thus, there exists naught to liberate.

In this manner, *yogis* employ a form of vigilant contemplation of dream images, akin to the meditation *satī*, a detached observation of thoughts within Theravāda Buddhism. However, in this instance, the

⁴³ Segment DK.A.Pa.9, in: Kragh, *Tibetan Yoga and Mysticism*, 354.

⁴⁴ *Mṛgaṭṛṣṇā* is the name given to a Fata Morgana, an optical phenomenon in the atmosphere. The term was coined on the basis of the specific situation in which the phenomenon mostly occurs, namely in a vast desert where the sun mercilessly scorches the sand beneath it, creating the illusion of water, which drives the thirsty deer to make an hour-long run to get some refreshment.



Figure 11: *Yogis* observe dreams and discover their creative potentials; mural in the secret temple of Lukhang, Tibet, 17th century (Wikimedia Commons, public domain)

practice unfolds within the dream state itself. Through this practice, *yogis* unveil the illusory essence of these images, surmount the imaginative transformation of consciousness and consequently eradicate negative *karmic* imprints even within the dreaming process. However, it is important to emphasize that at this stage, they have not yet attained the ability to directly perceive emptiness as the foundational essence of all phenomena. They remain within the domain of what could be called the conceptual dream universe. This parallel can also be drawn to experiences in the waking state – when we observe a reflection in a mirror, we recognize its illusory nature, yet we are still incapable of grasping its true nature directly, free from any conceptual blending.

d) Contemplation on the true nature of dreams

In the ultimate phase of dream yoga, having achieved proficiency in deciphering the authentic essence of dream images, eradicating emotions within the dream and concurrently surpassing all attachments, a state of non-dualistic awareness is reached. This entails a non-conceptual understanding (Tib. *rigpa*), where consciousness undergoes a metamorphosis into its fundamental and pure state (*pariniṣpannasvabhāva*).

Consequently, *yogis* perceive solely the serene and unblemished luminance of consciousness – the primal Buddha nature – characterized by emptiness, devoid of dream narratives and without the presence of the dreamer. This state is precipitated by a preceding examination of the *yogis'* dream consciousness, culminating in the revelation that all exists within a consciousness that is uncreated and boundless, akin to an unfathomable ocean or an endless cosmos. Thus, a shift occurs from a consciousness comprised of conceptual frameworks (*parikalpitasvabhāva*) to a consciousness which understands the interconnectedness of mental phenomena (*paratantrasvabhāva*) and finally to a consciousness devoid of any mental constructs (*pariniṣpannasvabhāva*), akin to the vacant expanse of the sky. At this stage, the dream progression undergoes a metamorphosis into a non-conceptual contemplation, specifically a meditation on suchness – the genuine essence of the dream. This practice concurrently fosters an awareness of the suchness inherent in wakefulness (Tib. *chos nyid*, Skt. *tathātā*, also *dharmatā*). The obscured conceptual consciousness (Tib. *kunzhi namshe*) inherently generates duality and engages in the play of dualism. In truth, the foundational element of consciousness is the boundless interplay of dualistic perceptions of the world. This incessant interplay consistently generates novel experiences, meticulously storing them within the repository of consciousness known as *ālayavijñāna*. In the final stage of dream yoga, *ālayavijñāna* undergoes complete purification, allowing *yogis* not only to comprehend the mechanism of consciousness but also to perceive it in its true form – as empty. The emergence of non-dual awareness within the dream realm signifies a manifestation of enlightenment within the dream itself. This awakening not only unveils the emptiness inherent in all things but also reveals the Buddha-nature – the fundamental essence of all phenomena.

At the end of the dream: journeying towards waking consciousness and the end-of-life dream

In the final phase, *yogis* extend these dream revelations into wakefulness, where they perceive all phenomena and encounters as devoid of inherent substance, possessing the illusory quality akin to dream im-

ages. They perceive the entirety as a dream and dreams themselves as nothing but dreams.⁴⁵ Consequently, dreams guide *yogis* towards the realization of the “dream-like” nature inherent in everyday existence and lead to authentic awakening. This journey encompasses a transition from illusory wakefulness and ignorance to a comprehension of wakefulness’s mechanisms and thought processes. This progression ultimately surpasses ordinary experiences, bringing forth the recognition that there exists no absolute separation between dreams and wakefulness. The reason being, the inherent nature of objects as perceived in our ordinary consciousness during wakefulness aligns with the nature of objects within dreams, as they both stem from the same consciousness. In this manner, the correlation between wakefulness and dreams mirrors the ontological unity, the absence of any differentiation, which aligns with the Mahāyāna Buddhist perspective that characterizes all phenomena. Both states, like all else, bear the profound imprint of emptiness, the great seal that defines them. The practice of dream yoga is intricately intertwined with the doctrine of emptiness, representing a means of deepening one’s experiential understanding of emptiness, which is an enduring supreme wisdom.

a) Dreams and *bar do*

Through scrutinizing dreams as inherently dream-like, illusory, and transient, *yogis* discern not only the character of mental states and phenomena in wakeful existence but also those that emerge within the intermediate state between death and rebirth (*bar do*). In addition to its impact on the final technique, dream yoga also assumes a pivotal role in the subsequent practice known as radiant light yoga. Notably, this practice is engaged prior to dream yoga, and concurrently, the proficiency gained in dream yoga augments the adeptness in training for radiant light yoga. Both techniques, dream yoga and radiant light yoga, hold immense significance during the process of dying. They empower *yogis* to sustain awareness and identify the illusory character of consciousness-generated images even in the moments of dying or the subsequent post-death phase, specifically within the intermediate state between

⁴⁵ Segment DK.A.Ki.5, in: Kragh, *Tibetan Yoga and Mysticism*, 524.

death and rebirth (*bar do*). Within the Vajrayāna Buddhist tradition, six distinct intermediate states are recognized: firstly, the *bar do* during the transition between death and rebirth; secondly, the *bar do* to the luminous phase that promptly ensues death; thirdly, the *bar do* of becoming, encompassing the journey towards rebirth; fourthly, the *bar do* of birth and death, signifying existence within a reality contingent upon one's *karma*; fifthly, the *bar do* of dreaming, encapsulating the states of slumber and awakening; and finally, the *bar do* of meditation. Within the framework of the six dharmas, the term *bar do* denotes the distinct practice associated with the interval between life and rebirth,⁴⁶ epitomizing *yogis'* accomplishment in spiritual pursuit and proficiency in the six yogas during their lifetime. Hence, the consciousness experienced in wakefulness, dreams and death remains identical – the very consciousness that engenders illusions. The *yogis'* task lies in further cultivating this understanding, even within the intermediate state.

Discussions concerning the six dharmas and the *Bardo Thödol* (*Liberation in the Intermediate State Through Hearing*, more commonly known as *The Tibetan Book of the Dead*) encompass elaborate depictions of the process of dying and the encounters within the dying phase. Death and the act of dying are frequently likened to the condition of dreaming. However, it is important to note that this comparison is more than just a metaphor. In truth, the very essence of the dying process mirrors the efficacy of the dream practice itself. Throughout their lifetime, before nearing the threshold of death, *yogis* can, through the potency of their consciousness, even access the state of *bar do* within their dreams. Entering *bar do* through dreams during life further deepens their terminal lucidity. The discussions centred around the six dharmas also encompass the delineation of associated techniques practiced by *yogis* within dreams. These include recognizing all images as illusory dream manifestations, cultivating extraordinary capacities like telepathy, envisioning potential future incarnations, embarking on diverse dream expeditions to both familiar and unfamiliar realms. In these journeys, *yogis* engage with individuals and entities unable to perceive or hear them, initially evoking a sense of trepidation. However, they swiftly discern that they

⁴⁶ This *bar do* occurs seven weeks before a new birth.

exist within an intermediate state, realizing that everything they encounter stems solely from their own consciousness. Within Gampopa's writings, the notion is conveyed that those with the capability ought to engage in the practice of *mahāmudrā*. This is because the efficacy of *mahāmudrā* within the *bar do* state is equivalent to a hundred years of meditation conducted throughout one's lifetime.⁴⁷

The transitions between death and new life or liberation, depending on the success of the *bar do* and training in other yogas, are also described. During the process of dying, *yogis* retain a physical form, with the initial stage being the observation of the dissolution of this corporeal body. Through the practice of deity yoga, a subtle body emerges, akin to the dream body, comprising alterations within consciousness (Tib. *yid kyi lus*, Skt. *manodeha*, also referred to as *manomanakāya*).⁴⁸ In this state, the perception of deities manifests, which *yogis*, akin to the practice of dream yoga, acknowledge as manifestations of an illusory nature, all the while sustaining the awareness of their own demise.⁴⁹ As the dissolution of the dream body, or *manomanakāya*, commences, it transforms into *sambhogakāya*. Following the dissolution of the latter, it merges with radiant light, culminating in the emergence of *dharmakāya* – the embodiment of the Dharma, also referred to as the body of bliss (Tib. *de ba chen po'i sku*, Skrt. *mahāsukhakāya*). This signifies the attainment of Buddhahood, i.e. *nirvāṇa*.

The sequence of elemental dissolution during the dying process is likened to the progression of descending into slumber. Similar to how *yogis* progressively “relinquish” their physical form and adopt the termed body of consciousness or dream body, they then encounter these bodies – manifestations of consciousness – within dreams, taking shape as dream images. The dissolution that unfolds during the moment of death comprises two distinct processes: the disintegration of the gross elements and subsequently, the disintegration of the subtler elements. Thus, the dissolution of the bodies is analogous to the dissolution of conceptual systems of consciousness (*paratantrasvabhāva*). In the end, all

⁴⁷ Segment DK.A.Pa.13, in: Kragh, *Tibetan Yoga and Mysticism*, 360.

⁴⁸ *Manomanakāya* is actually a kind of dream *nirmāṇakāya*, a body of transformation.

⁴⁹ Torricelli, *The Tibetan Text on Tilopa's Śaḍdharmopadeśa*, 155.

that is left is the subtle state of pure awareness (*pariniṣpannasvabhāva*), the “radiant light”, in which *yogis* have been trained in the course of their life. Pure light represents the purity of *yogis*’ consciousness and the absence of mental impurities. Individuals approaching death without prior meditation training do not perceive this light; instead, they lapse into a state of unconsciousness where their amassed *karma* unexpectedly triggers a succession of dream-like hallucinations in the intermediate state. Consequently, the individual once more succumbs to the “sleep of ignorance”, takes residence in the womb, and awakens in a subsequent life in a different embodiment. On the contrary, adept *yogis*, through the discernment of unblemished light, sustain this condition and liberate themselves from the cycle of rebirth. In the pursuit of the intermediate state practice, it is imperative for *yogis* to maintain awareness of being within this state. Achieving this awareness is contingent upon the prior practice of dreaming. Dreams essentially serve as a preparatory arena for death and the ensuing liberation. Those who have undergone dream yoga training, who have consistently remained conscious during dreams and identified dream images as illusory and void, will carry this awareness into the intermediate state. There they will recognize the state for what it is – as illusory as everything else – as the ultimate perspective dismantles rigid divisions between life and death.

b) Overcoming emotions through dream yoga

Nevertheless, the proficiency acquired through dream yoga training is equally vital for regulating emotions and discerning their illusory essence within the intermediate state. Throughout the process of dying, *yogis* transcend the array of emotions classified as the three mental poisons (Skrt. *triviṣa*). This capability is honed through their involvement in dream yoga practice, allowing them to discern these emotions as illusory. This awareness triggers a shift toward non-conceptual contemplation (Tib. *mi rtog pa*, Skrt. *nirvikalpa*), ultimately culminating in an embrace of emptiness. The consciousness of individuals approaching death who have not undergone dream yoga training grapples with a diverse range of sensations. The dominance of one of these sensations, categorized under the three poisons, determines the realm of their subsequent rebirth. For instance, greed and avarice result in the birth of

hungry demons (Tib. *yi dags*, Skrt. *preta*), while anger leads to the experience of hellish realms (Tib. *dmyal ba*, Skrt. *naraka*), and delusion (Tib. *gti mug*, Skrt. *moha*) leads to birth within the animal realm (Tib. *byol song*, Skrt. *tiryāṇc*). In this context, the discussions on the six dharma-s emphasize that *yogis* must exercise caution against becoming attached to the bliss derived from transforming all images and emotions into emptiness. Failing to do so might hinder the attainment of *nirvāṇa* and instead lead to a return to the cycle of *saṃsāra*. During the process of dying, the practitioner also gains proficiency in the sexual practices of *karmamudrā*,⁵⁰ which serve as a means for *yogis* to transcend anger, carnal desires and sexual frustration. For instance, during this phase, visions of the father and mother engaged in sexual intercourse may arise. In these visions, an ordinary individual or an untrained dreamer might encounter intense anger and jealousy towards their father and a yearning for their mother.⁵¹ Such emotions could be seen as a latent Oedipus complex even preceding birth, while a contrary emotion could lead to rebirth within a female body. Driven by anger, the person in the process of dying enters his father's body through the anus, thus undergoing a cycle of *saṃsāric* rebirth. Due to his training in the six yogas, skilled *yogis* successfully overcome the temptations of such visions, remaining calm and unemotional at the vision of his future parents, who will not become that because of his perfection. A less skilled *yogi* might be confronted with a latent desire, for example, for his mother, and struggle with the elimination of that feeling; as a guideline, texts suggest that one should imagine the mother as his Tantric partner, thus transforming sexual desire into sensual and spiritual devotion. If he fails, he can try imagining his father and mother as two deities, and if he is still unable to dispel the otherwise not-so-strong emotion, he is advised to contemplate what he has seen as an image from his dream, and to deepen the idea that it is merely a projection of his consciousness. In the event of repeated failure, other tips are added, including visualising oneself as a deity and meditating on light and emptiness until the *yogi* has banished all emotion and thought. These techniques are also

⁵⁰ Segment DK.A.Khi.16, in: Kragh, *Tibetan Yoga and Mysticism*, 571.

⁵¹ Segment DK.A.Pa.13, in: Kragh, *Tibetan Yoga and Mysticism*, 360.

called “closing the womb door”, because if they are successful, the *yogi* prevents his *samsāric* rebirth.

c) The transference of consciousness

Bar do is followed by a transmission of consciousness, which, depending on the level of spiritual progress, leads either to a rebirth or liberation. Similar to the *bar do*, this practice is further enriched by *yogis* throughout their life and even within the context of dream yoga. Preparations are equally important for this technique, and alongside *mahāmudrā*, the visualization of the syllable *hūṃ* within the heart *cakra* is advised. Following this, a luminous image emerges, radiating from within to the external world. Subsequently, *yogis* perceive celestial realms and divine beings, all of which are eventually integrated into the syllable *hūṃ*.

As an alternative, *yogis* can engage in the practice of consciousness transference within a dream, envisioning their consciousness journeying to higher realms, like the celestial realm of Buddha Vajradhara. Here, they can engage in the practice of *mahāmudrā* even within their dreams. It is important that they see the celestial realm clearly, which is why they need to imagine this kind of journey continuously during the day, leading to a clear vision in their dreams.⁵² In dreams, *yogis* can utilize visualizations to contemplate the dissolution of both the physical and subtle body elements that occur at the time of death. By envisioning the elements of the subtle body and incorporating sacred syllables, this practice can be further enriched through various breathing techniques. In their dreams, they may try their hand at transferring their consciousness to one of the celestial realms, where they appear in the disembodied, completely empty form of one of the chosen deities, much like a reflection in a mirror. Hence, *yogis* can undergo the transference of consciousness into the realm of Buddhahood even within the realm of dreams. During the practice of *prāṇāyāma* techniques, they envision the process of death and visualize the heart *cakra* syllable moving between their mind and dreams, symbolizing the transference of consciousness to an elevated state. At this point, breath becomes in-

⁵² Segment DK.A.Pa.11, in: Kragh, *Tibetan Yoga and Mysticism*, 356.



Figure 12: Visualisation of sacred syllables; mural in the secret temple of Lukhang, Tibet, 17th century (Wikimedia Commons, public domain)

tertwined with light, signifying the fusion of consciousness with the utmost state. Gampopa's commentaries also allude to a technique reminiscent of Hindu *haṭhayoga*, as evident from its meaning, i.e. "strong, forceful transference" (Tib. *btsan thabs kyi 'pho ba*). The Tibetan term *btsan thabs* corresponds to the Sanskrit term *hatha*, signifying "power" and "force". *Yogis* can also engage in these practices with a dying person. There have also been techniques involving the visualization of consciousness transfer to another body within one of the *samsāric* realms. These methods are primarily employed by those who are less adept and may not achieve Buddhahood upon death. However, mastery of the six *yogas* leads to the unconditioned state, rendering such practices unnecessary. Fragments of Tilopa's teaching also describe the practice of entering a new body after death, whereby *yogis* direct their consciousness from their body into another body (Tilopa, [*'pho ba* 61]). This practice of transference can be undertaken during one's lifetime by directing consciousness towards a recently deceased individual, whose body is still in a fresh state.

d) Dreams on the way to *nirvāṇa*

The connection between dreams and death is apparent in various early Hindu and Buddhist texts, where comparisons between deep sleep and dying are frequently drawn. In both deep sleep and death, individuals encounter a state of darkness devoid of mental activity. Within the context of the Tantric tradition of Buddhist hermits, the process of dying is likened to an enchanting dream realm. This dream world, adorned with forests of illusory images, serves as a final test of the dying person's spiritual preparation, ultimately guiding them towards the realm of the unconditional. Death itself is thus replete with dream-like images, and the efficacy of this process hinges on proficiency in the art of dreaming. As elucidated in the preceding sections, dreaming serves as a crucial foundation not only for itself but also as a pivotal "training ground" for other techniques like *bar do* and the transference of consciousness.

In contrast to early Hindu and Buddhist texts where dreams were associated with leading to death, within the Tantric eremitic tradition, dreams lead beyond death. A proficient dreamer, even in the intermediate state, can unveil the illusory character of all manifestations, guiding them towards the unconditioned state beyond the realms of life and death – *nirvāṇa*. Dream yoga, a practice that purifies consciousness to such a degree that it sustains lucidity even in the intermediate state, can be seen as the ultimate method of salvation, guiding individuals towards a supreme and unconditional state of existence. In accordance with the Mahāyāna Buddhist teachings and the practices of Tantric *yogis*, *nirvāṇa* is inherently present within us all, existing in a dormant state. This latent state reveals the paradoxical nature of our true essence, its immediate presence that is simultaneously the most intricate spiritual realization. The potential to achieve this state perpetually lies ahead of us, offering the opportunity for its attainment. Indeed, in this context, Milarepa's resounding exhortation carries profound significance. In that very body, within that very dream – when, if not now?

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DREAMING IN THE DIGITAL AGE: THOUGHTS ON THE TECHNOLOGICAL PHARMAKON

V i c t o r J . K r e b s

Technological evolution

The artefact is the mainspring of hominization, its condition, and its fate.
(Bernard Stiegler)

Prelude

Whether it be in paintings, the written word, or cinematic images, through microscopes, telescopes, telephones, or televisions, technology has always been the means by which we articulate and give form to reality. Digital technology is the most recent way of modulating and making sense of what we experience, and it has brought, in its tow, the virtual world, an unprecedented aesthetic and existential dimension that subverts our ways of seeing and perceiving and, hence, of what we conceive as real and important. Moreover, the increasing intertwinement of natural and digital environments, the inexorable flow between virtual and real that we are experiencing in our present day-to-day, is literally transforming our human form of life and raising deep and urgent ethical, aesthetic, and religious questions for our posthuman condition.

Now, as the Greek myth tells us, it is an archetypal feature of technology to possess us with the unconscious recklessness and irreverence of the titans. But it is also archetypal of technology to inspire us to po-

etic reverie, to dream beyond our limits, providing thus, also, the creative impetus that has sustained our engagement in the vital flow of the cosmos. Technology is a remedy to our original precariousness, but it is also a poison. As Bernard Stiegler puts it, “it is at once a human power [pouissance] and the power for humanity to destroy itself”.¹

The Greeks named this paradoxical condition the *pharmakon*.²

Pharmacology and disavowal

At the very heart of human being resides the technological *pharmakon*. It is perhaps our greatest power, though it also involves the risks and perils of its pharmacological nature. We are burdened by an impulse that can be both creative and self-destructive, but instead of acknowledging the paradox at the center of our being, and dealing with its complexity – especially when it shows its poisonous aspect – we naturally tend to disavow and to polarize. As Stiegler points out, when the *pharmakon* reveals its toxicity, we immediately look for a *pharmakos*, a scapegoat, rather than collectively change our relationship towards the *pharmakon*.³

We are blessed with the theoretical capacity of reason but also burdened by its dissociative power, and so, perennially haunted by its dichotomizing. We have learned to see (and can't help seeing) everything in polarities: black or white, good or bad, male or female, homosexual

¹ Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus* (Stanford: Stanford University Press, 1998), 85.

² *Pharmakon* (φάρμακον) referred for the Greeks to what was both a poison and a remedy. In Plato's Dialogue on Phaedrus, *Pharmakon* is described as a drug containing both the power of the poison and the power of the remedy. Also, *Pharmakos* was a scapegoat, a slave, or a criminal, sometimes a foreigner, who was chosen to be expelled from the city and apparently beaten, stoned, or even executed in a sacrificial ritual to purify the city and protect it from any misfortune such as invasion, famine, war, or plague. In the 20th century, Jacques Derrida reinstated the double meaning of *Pharmakon*, which had tended to be polarized and separated in the tradition, in his idea of the binary oppositions that underpin the Western way of thinking. Bernard Stiegler makes the *pharmakon* central to his reflection on technology, advocating a pharmacological attitude whose main point is to hold the tension and realize that in considering technology we must keep in mind its irreducible ambivalence and paradoxical character.

³ Bernard Stiegler, *What Makes Life Worth Living: On Pharmacology* (Cambridge: Polity Press, 2013).

or heterosexual, biological or cultural, human or machine? And when it comes to technology and nature, we are binary as well: it is either nature or technology, so we defend nature and scapegoat technology, or vice versa, ignoring that they are merely two *inseparable* aspects of the same phenomenon. For us humans, there is no nature preceding technology, and no technology that's not already natural. As Daniel Ross writes, "history cannot be thought according to the idea that humanity is the 'subject' of this history and technology simply the object. When it comes to the relation between the human and the technical, the 'who' and the 'what' are in an undecidable relation".⁴

We must deliberately begin to think of the relation between nature and technology as a complex and dynamic unity about which we need to acquire perspective, acknowledging the intrinsic relation of technology, its nature, use, and purpose, with (our own) nature. This means, however, also acknowledging the fact that not only our ideals and aspirations but also our shadows are all projected on technology, so that unraveling its complexity is dealing with our own.

Criticizing those that think of technology as an external tool aimed at garnering power and control, Walter Benjamin contended that "technology is not [for] the mastery of nature, but *of* the relation between nature and man".⁵ If technology is to be mastery over anything,

[I]t would have to be over our relation to the world, over how to manage or live with the new nature that [technology] opens around us. [...] We should learn to see [...] technology as an event of life that speaks to (and from) the deepest levels of human consciousness. Understood in this way, any event in the world [...] insofar as it involves our technological presence in the world, becomes a sign from which to learn.⁶

The polarization of technology and nature into which the world drifts more and more as we advance into this century – some trium-

⁴ Daniel Ross, "A Summary of Bernard Stiegler, *Technics and Time*, 1: The Fault of Epimetheus," *Academia*, August 23, 2019, https://www.academia.edu/20136235/A_Summary_of_Bernard_Stiegler_Technics_and_Time_1.

⁵ Walter Benjamin, *One Way Street and Other Writings* (New York: Harcourt Brace, 1979), 104.

⁶ Richard Frankel and Victor J. Krebs, *Human Virtuality and Digital Life: Philosophical and Psychoanalytic Investigations* (London & New York: Routledge, 2022), 17.

phantly hailing technology, others gloomily warning about the approaching doomsday – ignores the pharmacological facts and makes us victims of our own (in this case, digital) unconscious. What we need is rather to be awake and take these facts on. We need to learn to think pharmacologically and avow the underlying paradox.

That, of course, requires a radical change in attitude. We need to collectively change our relation to the technological pharmakon. We must begin to see it not as something outside us, not as a tool external to us, but as something that grows out of the human psyche and demands, therefore, not just intellectual but also psychological acuity. Indeed, it demands a deliberate introversion and careful introspection. The matter is of fundamental import, for, “[A]t this moment when humanity’s power increases in an unprecedented and incalculable way, the world appears to be becoming more dehumanized, destructive, and denaturalized [...] the question becomes, once again: What is the human?”⁷

Beyond binaries

Not so much a special type of animal, as a deficient god.
(Daniel Ross)

Outside the familiar polarizing dualism, we might more accurately characterize the relationship between technology and nature as one not of interaction but of “intra-action”, adopting Karen Barad’s coinage. Whereas in “interaction” there are separate individual agencies that precede their encounter, “the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action.”⁸ Technology⁹ emerges simultaneously with human conscious-

⁷ Ross, “A Summary of Bernard Stiegler.”

⁸ Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007), Kindle.

⁹ I am using ‘technics’ and ‘technology’ as synonyms here, though it is important to keep in mind that ‘technology’ refers to the “specific amalgamation of technics and the sciences in the modern period” (Stiegler, *Technics and Time*, I, 280–81), while Stiegler uses ‘technics’ to refer to what he calls “organized inorganic matter.” For him, it is the preservation of epigenetic experience (epiphylogenesis) in technical objects, that marks the break with genetic evolution. As he puts it, as a ‘process of exteriorization,’ technics “is the pursuit of life by means other than life” (Stiegler, *Technics and Time*, I, 17).

ness. According to Leroi-Gourhan, “it is the tool, that is *tekhne*, that invents the human, not the human who invents the technical [...] the human invents himself in the technical by inventing the tool, by becoming exteriorized techno-logically”:¹⁰

Interior and exterior are consequently constituted in a movement that invents both one and the other: a moment in which they invent each other respectively, as if there were a technological maieutic of what is called humanity [... that] produces the illusion of succession.¹¹

Without technology, Stiegler adds, “there could be no mind, no recall, no memory of a past that one has not personally lived, no culture”.¹² Technology, we could say, is the prosthesis of human consciousness that externalizes and objectifies it, making us self-conscious and accessible to other consciousnesses. All technical or technological artifices have served from the beginning of human history as traces that help us construct a collective memory, an artificial past that is not one’s own but that must become one’s own, must be “inherited” as one’s own history. Whether those traces are tools, works of engineering, words written on tablets, creations of architecture and art, cinematic images, etc., these traces (of whatever nature they may be) serve our technical evolution. They function as material supports, mnemotechnics, upon which human consciousness and memory are extended beyond individual experience. These mnemo-technical traces, or tertiary retentions (as Stiegler calls them, alluding to Husserl’s phenomenological analysis of temporal consciousness), include more than just technical artifacts. Stiegler thinks of them as an “associated milieu”,¹³ which comprises the entire human habitat, all the structures and dimensions that constitute our forms of life and provide human beings with the external organs needed for survival and evolution. As Sebastian Olma explains, we are talking of an “‘organological’ infrastructure”, of objects, artifices, tools,

¹⁰ Bernard Stiegler, *Technics and Time*, 1, 141.

¹¹ Bernard Stiegler, *Technics and Time*, 1, 141.

¹² Bernard Stiegler, *Technics and Time*, 3: *Cinematic Time and the Question of Malaise* (Stanford: Stanford University Press, 2011), 39.

¹³ Couze Venn, Roy Boyne, John W. P. Phillips, and Ryan Bishop, “Technics, Media, Teleology: Interview with Bernard Stiegler,” *Theory, Culture & Society* 24, no. 7–8 (2007): 335, <https://doi.org/10.1177/0263276407086403>.

but also social institutions through which human beings relate to themselves, each other and the world, thus making us who we are in the most basic sense.¹⁴

The technical form of life, as Stiegler points out:

[B]reaks with evolution as Darwin had taught us to understand it, for it changes the conditions in which life evolved prior to the rise of humankind, this promethean race. The moment the first tertiary retention was invented, be that a tool to carve stones or a brush to paint, a spear or the wheel, evolution no longer followed merely natural causality.¹⁵

This vision of the place of technology in human consciousness tears down the wall that splits technology and nature and stresses instead the original hybridity of our species. It stresses technology's emergence from our very being, constituting it and everything that surrounds us. Our evolution is not only biological but also technical, not just genetic but also memetic. It is the unfolding of a form of life "that is no longer just the endosomatic evolution of the biological life of the biosphere, but rather technical life, which produces organs that extend outside the body of the organism, without which the organism cannot survive."¹⁶

Exosomatic evolution is the process whereby external technologies – such as writing tools, and digital media – become extensions of human cognition and memory, means by which we come to apprehend and constitute our world. Technological artifacts and systems become integral parts of our cognitive processes and affect how we experience and understand the world around us. They modulate our perceptions, shape our modes of thinking, and contribute to the formation of our identities. By storing and transmitting cultural and cognitive content across generations, they spatialize temporal consciousness, transforming the temporality of our memories and expectations into the spatiality of the

¹⁴ Sebastian Olma, *In Defence of Serendipity: For a Radical Politics of Innovation* (New York: Random House, 2016), 115.

¹⁵ Bernard Stiegler, *The Age of Disruption: Technology and Madness in Computational Capitalism* (Cambridge: Polity Press, 2019), 159.

¹⁶ Daniel Ross, *Psychopolitical Anaphylaxis: Steps towards a Metacosmos* (London: Open Humanities Press, 2021), 10.

intersubjective, which enables their repetition and exteriorization",¹⁷ and the formation of collective experience and memory.

But in that new freedom we are confronted with the paradoxical nature of technology that condemns us to the perennial risk of self-annihilation epitomized by what Stiegler has called the Fault of Epimetheus: a radical obliviousness at the core of our technological being, the cursed seed Prometheus planted in our hearts, that always comes to haunt us.¹⁸ Therein lies the pharmacological danger, whereby our evolution may turn against itself. Indeed, as Karen Barad observes, "the recent convergence of biotechnologies, information technologies, and nanotechnologies reconfigures the human and its others so rapidly that it is already overloading the circuits of the human imagination."¹⁹

Dreaming

This world is but a canvas to our imagination.
(Thoreau)

How the world is constituted and becomes an object of consciousness and judgment is a fundamental problem that has occupied the human intellect from its origins. It must indeed be a mysterious power of the mind that is able to assemble, out of the perplexing array of sensible stimuli, a meaningful unity before our awareness. For our whole philosophical tradition, since at least Aristotle, the imagination is at the root or base of all cognition. Kant (1787/1965) called that power *the transcendental schematism* or *synthesis of the imagination*, and described it as "an art, hidden in the depths of the human soul, whose true modes of action we shall only with difficulty discover and unveil".²⁰ However, in its tendency to over-intellectualize, Kant and the philosophical tradition disembodied and subordinate the imagination to reason, demoting it to a lower kind of knowledge; hence, aesthetics is tradi-

¹⁷ Stiegler, *The Age of Disruption*, 159.

¹⁸ Stiegler, *Technics and Time*, 1.

¹⁹ Barad, *Meeting the Universe Halfway*, location 716.

²⁰ Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (New York: MacMillan, 1965), B180–B181.

tionally seen as secondary to epistemology.²¹ But psychoanalysis rather delves into those hidden depths by introducing the unconscious and hence the body into the equation. Wilfred Bion's theories of dreaming broaden the epistemological perspective and turn it around.²² Rather than making it derivative, Bion makes the imagination fundamental. And whereas for Kant, the imagination mediated between pure reason and sensible impressions (what he called intuitions), for Bion, the matter also involves the imaginative articulation of affect and emotion; in other words, not just of sense-perception and the understanding, but also the unconscious. Kant disavowed the emotional and unconscious dimension of experience, except perhaps to name it and then disinherit it as the noumena – the unknowable things-in-themselves.

Bion ascribes the task of Kant's transcendental imagination to what he calls the alpha function (or dream work alpha), which is not merely a symbolic processing – as one might expect from the work of the understanding – but an emotional and material metabolization. The alpha-function works on the raw (unmetabolized emotional) materials of experience (Bion's 'beta' elements) by dreaming them. The alpha function constitutes what we could call with Stephen Asma "an embodied improvising imagination",²³ that transforms emotional experiences into assimilable (Bion's 'alpha') elements, accessible to recall and synthesis, and capable of generating dream thoughts and/or unconscious phantasies. Strung together and articulated, they become the precursors of memory, feelings, and thoughts-about-thoughts (cf. Grotstein).²⁴

In bringing in dreaming, Bion provides psychoanalytic depth to the epistemological and transcendental understanding of experience articu-

²¹ It is, of course, not the entire philosophical tradition that falls into this category. One sometimes overemphasizes in order to bring out something that is otherwise taken for granted. It is fair, however, to take the main thrust of Western thought to have assumed the transcendental critique of knowledge developed by Kant; our generalized prejudice in favor of scientific rationalism resulting from it has had the effect we are outlining in what follows.

²² Wilfred Bion, *Learning from Experience* (London: Karnac Books, 1984).

²³ Stephen Asma, *The Evolution of Imagination* (Chicago and London: University of Chicago Press, 2017), 6.

²⁴ James S. Grotstein, "Dreaming as a 'curtain of illusion': Revisiting the 'royal road' with Bion as our guide," *The International Journal of Psychoanalysis* 90, no. 4 (2009): 733–752, <https://doi.org/10.1111/j.1745-8315.2009.00155.x>.

lated in Kant's schematism, acknowledging the psychic complexity of the constitution of experience and highlighting the impact of unconscious processes upon it. To dream is to work via the alpha function, from the formlessness of impressions, i.e., beta elements waiting for metabolization, to alpha elements.

For Bion, dreaming happens not only during sleep but also while awake.²⁵ Alpha elements cohere as they proliferate to form what Bion calls the contact-barrier, which serves as an 'active and living filter'²⁶, continuously in process of formation, that keeps reality separate from fantasy, consciousness from the unconscious, while at the same time connected, so that fantasy continues to nurture consciousness.

We dream, not just to protect sleep, but to be able to create a contact barrier between the realms of consciousness and the unconscious. Further, we dream – by day and by night – in order to transform (process) the moment-to-moment flow of our experiences of ourselves and others. [...D]reaming is the obligatory beginning of thinking.²⁷

The alpha function contains in the unconscious those affective aspects of our experience that would interfere with our ability to distinguish reality from fantasy, grounding us thus in the actuality of the world (cf. Bion).²⁸ But, at the same time that it guarantees their separateness, it maintains the flowing interchange of consciousness and the unconscious, alphabetizing beta elements, from which it is then able to project and materialize the dreams out of which we construct reality.

Like Hermes, the alpha function is a creator of new spaces; it gives form to the inchoateness of sensibility and draws a boundary between the formlessness of vital life and the new order of consciousness. While we sleep, dreaming performs an internal depth-processing of our daily experience, where the raw affective material is contained and then

²⁵ Wilfred Bion, *Cogitations* (London: Karnac Books, 1992), 43.

²⁶ Paulo Sandler, *The Language of Bion: A Dictionary of Concepts* (New York and London: Routledge, 2010), 158.

²⁷ James S. Grotstein, "'We Are Such Stuff as Dreams Are Made On' – Annotations on Dreams and Dreaming in Bion's Works," in *Dreams in Group Psychotherapy: Theory and Technique*, eds. Claudio Neri, Malcolm Pines, and Robi Friedman (London and Philadelphia: Jessica Kingsley Publishers, 2002), 111.

²⁸ Bion, *Learning from Experience*, 15–16.

transformed into dream contents, into psychic events from which we are able then to construct the world. Dreaming thus lays down the ground for the constitution of external reality – not just its form but also its content, not just its epistemological structure, but also its psychological texture. It therefore constitutes reality from a logic that is not only causal but also ludic and serendipitous, a logic that regulates the flow behind the spontaneity and surprise that allows for creativity to happen.

An organology of dreams

Bion's alpha function, then, propels what Stiegler conceives as the exosomatic extension of human being, transforming the raw data of sensory experience into elements that are fit for thought. But, as we have seen, it is the technological artifacts, acting as tertiary retentions, that enable the transformation of *the temporality of subjectivity* into a public space of *memories and expectations*. It is the tertiary retentions that make possible the projection and adoption of collective dreams.

In a general way, all technical production of the technical form of life, by the desiring and dreaming beings that we are, constitutes such a spatialization of experience and thereby also enables its inter-generational transmission.²⁹

Just as in Bion, with Stiegler we construct the world through our own projections and based on the memories of what we have previously perceived and processed, which alter, enrich, and deepen our perception with every new experience. But Stiegler stresses the fact that we cannot think of the process that is going on in the psyche unless we have already constructed an external prosthesis, which makes that thought possible. In the perception of any temporal object, it can never be purely or simply constituted by primary and secondary retentions alone, but only through a process of imaginative selection made possible by an external memory (a tertiary retention). In other words, without the intervention of the imagination through a tertiary (external) retention, we could not talk of primary and secondary retentions

²⁹ Bernard Stiegler, *The Neganthropocene* (London: Open Humanities Press, 2018), 159.

because “it is not perception which makes possible memory and the artefact but the artefact that makes possible both primary and secondary retention.”³⁰ In the flow of sensible perception, we notice something because we have retained previous impressions that now become the criteria by which we discriminate what we perceive. For example, when a background melody that has been playing without our barely noticing it suddenly becomes more sharply noticeable because of a familiar melody, our attention has been called by our memory of that previous experience, which serves as criteria for selection (and determines our greater sensitivity) of the new experiences. Technological extensions, acting as tertiary retentions, analogously provide criteria whereby we constitute publicly shared experiences.

We find here something very similar to what Bion is after with dream-work alpha, although in a different register. In dreaming, as we have seen, we extract from the unconscious to create a narrative in our perception; beta elements are alphabetized in the unconscious and then released as the precursors of thoughts and feelings in consciousness, in terms of which we can categorize and then recognize what we perceive. Bion supplements psychoanalytically our understanding of how the mind constitutes reality; Stiegler adds a technological dimension also absent from Kant and modern philosophers: the conception of technology as a necessary condition and extension of our cognitive apparatus. Those technological extensions become “*the vector of fantasies, hallucinations, collective retentions and pretensions of every kind*,”³¹ which end up constituting every epoch according to its particular technological advances. Perception is always imaginative projection, and tertiary retentions feed Bion’s alpha function like the images of the day feed the dream upon which, subsequently, imagination can work. Whether they help strengthen or weaken the contact barrier will determine whether the technological pharmakon is therapeutic or toxic.

³⁰ Ben Roberts, “Cinema as Mnemotechnics: Bernard Stiegler and the Industrialisation of Memory,” *Angelaki* 11, no. 1 (2006): 55–63, <https://doi.org/10.1080/09697250600797864>.

³¹ Stiegler, *The Neganthropocene*, 137.

Arche-cinema

Just as Derrida coined the term “arche-writing” to refer to a fundamental, originary form of writing that precedes and underlies any specific written or spoken language and encompasses the broader notion of trace, inscription, and the dissemination of meaning, Stiegler coins the concept of “arche-cinema” to refer to the foundational, primordial gesture of audiovisual inscription that constitutes the human mind. In fact, dreaming is, for Stiegler, the arche-cinema of the unconscious, so the structure of consciousness has always been engaged in cinema without knowing it.

[C]onsciousness is already cinematographic in its principles of selection for primary memories, a selection that relies on criteria furnished by the play of secondary memory and associated tertiary elements, the combination forming a montage through which a unified flux is constructed (as “stream of consciousness”), but which is identical in form to the cinematic flux of an actual film, as a temporal object and as the result of a constructed montage.³²

Temporal and perceptual flows of all kinds are rendered discrete and reproducible through being spatialized (what Stiegler calls ‘grammatization’), so we can take the history of human consciousness as a history conditioned by the sequence of tertiary retentions through the centuries. In fact, grammatization extends back in time to the ‘arche-cinematic’ productions of “rupestral mnemo-technical supports, cave paintings, which constitute tertiary retentions that initiate a process by which the mental temporal flows experienced by the psychic individual are recorded, reproduced, discretized and spatialized”³³. Starting with “the grammatization of the manual gestures of the worker or the craftsman that are spatialized in being programmed into the machinery of the industrial revolution, and finally to what is unfolding right now: the grammatization of ‘everything’ made possible by the inscription of binary code into central processing units composed of silicon.”³⁴

³² Stiegler, *Technics and Time*, 3, 17–18.

³³ Stiegler, *The Neganthropocene*, 154.

³⁴ Stiegler, *The Neganthropocene*, 21.

With the appearance of each tertiary retention, new regimes of individuation and new modes of collective consciousness result, leading to new attentional forms. With every fresh piece of experience, we add to the sum of the experiences we have had. These may be experiences that conform to our expectations and so reinforce them, adding to the sense of an individual's and the collective's stability. But there may be experiences that defy established expectations and therefore require that they be worked on. These experiences – that Bion considers beta elements – will be contained in the unconscious to be worked on by the alpha function, to eventually be projected as dreams and incorporated into consciousness.

Stiegler calls the experiences that conform to our expectations “stereotypical”, and those that defy established expectations – and must first be contained in the unconscious to be metabolized and made useful for thinking – “traumatypical” experiences:

Traumatypical experiences are diachronic rather than synchronic, inaugurating an individuating movement rather than reinforcing apparent stability, and amount to the possibility of the experience of significance. The difference between the stereotypical and the traumatypical is the difference between experience of the same and experience of the other.³⁵

It is only insofar as tertiary retentions leave or open room for, rather than block, the traumatypes and their disruptions, that dreaming, and the transcendental imagination can operate to generate novelty and new life. In other words, the tertiary retentions can become therapeutic rather than toxic by leaving open the possibility of new ways of seeing, instead of perpetuating the sedimented concepts and expectations that numb the imagination and lead us into a zombie-like repetition of the same.

³⁵ Daniel Ross, “Politics, Terror and Traumatypical Imagery,” in *Trauma, History, Philosophy*, ed. Matthew Sharpe, Murray Noonan, and Jason Freddi (Cambridge: Cambridge Scholars Publishing, 2007), 234.

Technological disruption

Digital Dreaming

We are asleep. Our life is a dream. But we wake up, sometimes, just enough to know that we are dreaming.

(Ludwig Wittgenstein)

Stiegler's conception of exosomatic evolution and the role of tertiary retentions highlights the significant role of external technologies in the constitution of reality and hence, in the processes of individuation, perception, cognition, and meaning making. It also raises important questions about the potential impact of technological mediation – especially considering its pharmacological nature – on our ability to distinguish reality from fantasy, truth from illusion, etc. Freed from the safe causality of Darwinian evolution, our organological evolution opens us to the Pandora's box of the technological pharmakon, which threatens us with titanic excess. Barad talks of the “overloading [of] the circuits of the human imagination”,³⁶ which is perhaps what may be seen behind the many sorts of social madness we are witnessing globally nowadays. The organological perspective considers how the arrangements of psychic collective memories and expectations (retentions and protentions) generate specific future possibilities made possible by the artificial mnemotechnical organs of each epoch – writing, analog media, digital imaging, etc. In other words, it can help us understand the constitution of the collective dreams (and nightmares) generated by the technological (tertiary) retentions. In particular, it helps us analyze and understand the paradigmatic forms of seeing, the horizons of expectation which mold the wills and desires of the culture in each new technological period.

All tertiary retentions are memories of recorded experience, and they are part of the history of consciousness. They define the criteria by which consciousness assimilates and transindividuates in each era. We can trace the history of tertiary retentions, then, as the history of the collective dreams we construct in our exosomatic evolution, where

³⁶ Barad, *Meeting the Universe Halfway*, 28.

each new technological development inaugurates new ways of seeing, “*new attentional forms*”, “*new empathic possibilities*”,³⁷ in other words: new realizations of our dreams. But that history of tertiary retentions advances also through crises, broken paradigms and periods of generalized confusion. The danger is that the traumotypical will not be allowed, and so will not give the alpha function the work it needs to do to construct the contact barrier that holds the distinction between illusion and reality.

That danger becomes marked by the technology of cinema and its digitalization. The structure of consciousness is, Stiegler (2011) argues, thoroughly cinematographic, for “it unfolds through a montage of temporal objects, objects constituted through their movement”.³⁸ The cinematic image, because it so sharply reproduces the phenomenology of the human mind, manages to fuse our experiences with its technical register, our real memories with its virtual stories and memories, in ways that end up diffusing the boundary between real and imaginary, making the contact barrier that separates consciousness from the unconscious too porous, and so confusing the distinctions of fantasy and reality, confusing real desire with digital-virtual wishing, generating the whole post-truth phenomenon, fudging not only truth and falsehood, but also virtual and empirical temporality, dreams, and actual (or virtual) experiences.

The danger is found where the alphabetization of the beta elements (the projection of our dreams) is realized no longer by the alpha function, by the human (embodied and improvising) imagination, but directly by the technological tertiary retention operating in the form, for instance, of algorithmic automatization. When the schematization of the imagination is performed by algorithms and not by the spontaneous imagination of human agents, the understanding (as an analytical formalism) is split from reason (as the capacity for interpretation) (cf. Stiegler).³⁹ In other words, reason finds itself degraded, turned into automation by calculation, and, finally, into its destruction as a synthetic

³⁷ Stiegler, *The Age of Disruption*, 156.

³⁸ Stiegler, *Technics and Time*, 3, 26.

³⁹ Bernard Stiegler, *Automatic Society, Volume 1: The Future of Work* (Cambridge: Polity Press, 2016), Kindle, 53.

function (cf. Stiegler).⁴⁰ And in the destruction of reason as a synthetic function, we may identify the symptoms of a compromised contact barrier, for it is in its preservation that the balance is kept that allows us to distinguish dream from fantasy and madness from sanity.

Dreaming Madness

When it is no longer the spontaneity coming from the unconscious (in the alphabetized beta elements) but from the data provided by the algorithm – already tied to specific interests that are stereotypical – the process of transindividuation and interiorization is short-circuited and, I would like to suggest, the contact barrier is compromised. Because of its ability to turn fantasies so easily into realities, especially due to its cinematic character, the digital easily smudges the line that separates them. Just think of how often we are no longer sure whether we have dreamt something, lived it empirically, or experienced it virtually.

Stiegler imagines consciousness as a “post-production center”:

A control room assembling the montage, the staging, the *realization*, and the direction, of the flow of primary, secondary, and tertiary retentions, of which the *unconscious*, full of potential possibilities (including the speculative), would be the producer. “Post-production” occurs when the “rushes” and the montage are out of sync: this is the phenomenon of the dream. Direct control occurs when consciousness “builds” such that it is “captured”: This is the waking state. Cinema is of the order of the dream.⁴¹

Cinema is taking over the function of the dream. Instead of generating the contact barrier we are allowing it to be imposed from outside, by algorithms and cinematic representations that dissolve the separation between their productions and reality. Artificial dreams, in other words, are taking over and seeping into reality as unconscious beta elements.

What Stiegler calls “the phenomenon of the dream” is what happens when the raw data of experience is out of sync with the “montage”, which is exactly what happens when the alpha function contains and

⁴⁰ Stiegler, *The Age of Disruption*, 249.

⁴¹ Stiegler, *Technics and Time*, 3, 28.

alphabetizes the beta elements, which are indeed raw data that are affectively problematic and out of sync with the established in consciousness. The alpha function is what allows us to function in normal waking life, while at the same keeping contact with the “madness” of dreams – what Stiegler refers to as “the potential possibilities of the unconscious”⁴² – that generates creativity in their eventual exteriorization.

The soundness of the digital depends on the preservation of the dreaming function, and hence in finding ways to generate the space where automatization is blocked and radical bifurcation can appear, where spontaneity irrupts and takes things in novel directions. The algorithm makes all repetition repetition of the same, so leads to entropy. What we need is that repetition be a repetition of difference, which always involves an element of novelty, the radical bifurcation that makes it possible. Dreaming madness is involved where automatization takes over and any deviance from the (automatic) norm is blocked. Spontaneity dies, and the repetition of the same becomes our daily bread while the dreaming function wanes.

To the extent that the virtual world enters into an intense dynamic with empirical experience, we begin to dream more on our screens than psychically, more according to the images forwarded automatically by the algorithm than from our own experience. Digital dreaming, thus sequestered, does away with the hermetic play between consciousness and the unconscious where creativity and novelty may happen. Instead of the dream function piloted by the inner needs of individuals in their constitution with others of a human society, it is more and more overriden by the algorithms that weave experience together into meaningful bits according to values and interests that may come in tension with the collective welfare.

We have always been surrounded by screens upon which we screen our projections (in the totem, the transitional object). As we have said, we constitute the world by projecting from the dream-work that arises from the spontaneity of the unconscious. But algorithms drastically affect our ability to distinguish reality from fantasy, truth from lies, madness from sanity, thus leading us into the labyrinths of post-truth,

⁴² Stiegler, *Technics and Time*, 3, 28.

conspiracy theories and, in general, the crises of conscience that we experience everywhere and at all levels in today's world. Rather than metabolization, what we witness is psychic evacuation in the form of hallucinations, excessive projective identifications, manic defenses, and paranoid delusions. Words, too, become vehicles of evacuation rather than conveyers of meaning, as in bullying and trolling. It is because one cannot suffer one's experience, that the resulting unmetabolized (beta) elements can only be dealt with by violent action toward the world and social madness. As Daniel Ross observes, it is "the negative pharmacological automatism of the screen itself",⁴³ which contribute significantly to the feelings of generational abandonment, global negligence, and the impending, catastrophic ecological apocalypse that constitutes our present global social madness.

Short-circuit

Adorno and Horkheimer argued that an era of barbarism had begun when the culture industries took over the power of schematization that Kant had ascribed to the transcendental imagination. For them, the industrialization of the imagination constitutes a reification or "an alienating 'thingification' of knowing consciousness"⁴⁴ (Stiegler (2016), p. 68). But, as we have seen, Stiegler argues that individual consciousness is formed in and by circuits of intersubjectivity that already include the externalization of memory. Consciousness, in other words, is always already exteriorized into its technical supports. So, Adorno and Horkheimer failed to take into account that Kant's syntheses presuppose what Stiegler calls the technological synthesis of the imagination, in other words, the tertiary retention.⁴⁵ But this means that the transcendental schematism of the imagination has always involved the technical, so not all exteriorization can be harmful. In fact, Stiegler argues,

⁴³ Daniel Ross, "For a Neganthropology of the Cinematic," *Academia*, August 19, 2015, https://www.academia.edu/15142703/For_a_Neganthropology_of_the_Cinematic_2015/.

⁴⁴ Stiegler, *Automatic Society*, 68.

⁴⁵ Stiegler, *The Neganthropocene*, 158.

[T]hat the schematism, as projection by the transcendental imagination [...] presupposes schemas that are themselves constituted through tertiary retention – and on the basis of sensorimotor schemas. The consequence of this point of view is that so-called ‘transcendental’ imagination presupposes a primordial exteriorization of memory *and therefore* of the imagination itself, that is, of anticipation and temporalization, such that, passing through artefactual schemas configured by technical organs as tertiary retention, it is supported by a spatialization.⁴⁶

If the intersubjective constitution of individuals – through their interactions with others, the collective processes, and their environment – arrives at a dynamic equilibrium, the tertiary retentions become a form of therapeutics rather than a poison. But the fact is that the tertiary retentions are now dominated by interests that tend to short-circuit that equilibrium:

The very heart of the issue of the culture industries is that they comprise an industrial, and thus systematic, implementation of new, technological tertiary retentions and through them, criteria of selection of a new kind, which are, as it happens, totally subjected to the logic of the marketplace, and thus to shareholders.⁴⁷

The bogeyman, we could say, is not the digital technologies but the capitalism that controls them, which subjects the synthetic function of the imagination to the stupefying effect of homogenization, “radically alienating what should be the freely reasoning subject whom it subjugates – by de-subjectifying”.⁴⁸

The channelling of the drives through the application of mathematical algorithms to automatized social control can do nothing but push these drives to a highly dangerous level, by dis-integrating them [...] With the advent of reticular reading and writing via networks made accessible to everyone through [...] the technologies of the world wide web, digital technologies have led hyper-industrial societies towards [...] the hyper-industrial age [that] becomes the era of systemic stupidity, which can also be called functional stupidity.⁴⁹

⁴⁶ Stiegler, *The Neganthropocene*, 159.

⁴⁷ Stiegler, *Technics and Time*, 3, 39.

⁴⁸ Stiegler, *Technics and Time*, 3, 37.

⁴⁹ Stiegler, *Automatic Society*, 23.

The issue is therefore more complicated than envisaged by Adorno and Horkheimer. They failed to see that the problem “is not *exteriorization*, which has always already begun, but rather the *short-circuit* in that process of individuation that inevitably results from the hegemony of de-symbolizing, disindividuating, and imagination-destroying cultural consumerism, because it reinforces stereotypes and represses traumatypes”.⁵⁰ It is not so much that dreams have become more homogenized in their content due to the *short-circuit* phenomenon, but rather that the dreaming function as a whole is being affected in its metabolizing role, and hence affecting the capacity of human thought to occasion the radical bifurcation necessary for creativity. As Stiegler stresses,

[A]s noetic individuals we are, in the first place, *knowing* beings, and there is no form of knowledge that is reducible to the computational treatment of information (which is only an extension of the analytical faculty of understanding *without reason*).⁵¹

The algorithm, which gains more and more ground every day in constituting our reality, reinforces the synchronic stereotypes, especially through the audiovisual media that flood our digital consciousness and so mute the traumatypes that guarantee the continuous counterflow that makes change possible. Sequestered by the logic of the market and the imperialism of the algorithm, matters are certainly worsened in the digital era.

These cognitive technologies (from the television to the telephone, including the computer and GPS guidance systems) to which we confide a greater and greater part of our memory, cause us to lose an ever-greater part of our knowledge. [...O]ne must ask if the industrial and massive development of mnemotechnologies does not represent a structural loss of memory, or, more precisely, a displacement of this memory: a displacement whereby it can become the object of a control of knowledge.⁵²

⁵⁰ Stiegler, *The Neganthropocene*, 168.

⁵¹ Stiegler, *Automatic Society*, 146.

⁵² Bernard Stiegler, “Anamnesis and Hypomnesis,” *Ars Industrialis*, accessed October 16, 2023, <https://arsindustrialis.org/anamnesis-and-hypomnesis>.

Equilibrium, sanity, depends on how the relevant technologies are assumed and practiced. Tertiary retentions (writing, analogue, and digital audiovisuals) and their exteriorizations can also open positive pharmacological possibilities, capable of generating new attentional forms. The cinematic pharmakon as art, for example, is what makes it possible to struggle against the cinema as toxic pharmakon, which short-circuits the play of traumatypical secondary retentions and protentions by reinforcing their stereotypical secondary retentions and protentions.⁵³

Coda

When Prometheus stole the fire of the gods for human beings, he planted a cyborg seed in our hearts that germinates in the virtuality of the mind and gives substance to the technological pharmakon, with which we are always in existential struggle. Though technology elevates us and puts us one foot on Olympus, we nonetheless live divided within ourselves: half of us titans disavowing death and half of us mortal bodies hauling towards it. It is precisely around that struggle, watchful of its field of force, that we must guard against the perils of technology.

The virtual flow taken over by algorithmic clones is spectacularized. In the instantaneity and non-dilatory nature of the digital, there is no transitional state, no potential space where dreaming can do its task of weaving together the stash of yet unprocessed affections. It becomes nearly impossible today to distinguish – as the source of psychological animation and meaning in our lives – the psyche from the digital. So, the digital becomes our sole source of psychic vitality, singularly generating novel pathways of spontaneity, passion, and meaning. But what feels so enlivening and exciting can suddenly mutate into psychic claustrophobia and deadness.

While dreams function psychically to define the boundary between reality and fantasy, the digital – with what we may call its virtual dreams – is intervening at that boundary and affecting our ability to distinguish reality from fantasy. We open our computer and see images of war, horror, degrading sexual acts, etc. Their sheer volume and intensity clog up

⁵³ Stiegler, *The Neganthropocene*, 158.

the dreaming function, clog up the process of selection. We can go to sleep and ‘dream’, but no psychic work is happening, there is no possibility for mental renewal. In the breakdown of the digital, dreaming fails in its function of offering something regenerative space. Whereas with dreaming there is a replenishing cycle of falling asleep, dreaming, and then waking, that replenishment is foreign to the digital. And a person who cannot dream is unable to generate differentiable conscious and unconscious experience and, consequently, lives in a state of stupor and automatization, a psychic state where perceiving and hallucinating, external reality and internal reality are indistinguishable, where, in a sense, they cannot fall asleep nor wake up (cf. Ogden⁵⁴).

In the digital era, we could conclude, Hermes is in danger of losing his wings.

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TOWARD A HISTORIOGRAPHY OF DREAMS: A DISCURSIVE PERSPECTIVE

Laura J. Vollmer

The State of the Art and a New Direction

Historical overviews of dreams beyond religious or natural scientific perspectives are rare and limited to specific issues, time periods, and geographical areas with the exception of a few works that discuss a more nuanced history of dream theory and the evolution of dream studies in different fields.¹ As restricted as the history of dreams is, the historiography of dreams is even worse off. Astonishingly, Google Scholar searches for “historiography of dreams” and “historiography of dreaming” only give fourteen total results!² There are many key historiographic changes

¹ Such as the edited volume *Dreams and History* by Daniel Pick and Lyndal Roper (London: Routledge, 2004).

² Both accessed September 6, 2023, from the United States. The total number of results was the amount of hits minus duplicate results (different authors from the same edited volume were considered one result) and minus non-English results (which only “hit” because of references to these other results). The best treatment of the historiography of dreams that I have found is the volume edited by Giorgia Morgese, Giovanni Pietro Lombardo, and Hendrika Vande Kemp entitled *Histories of Dreams and Dreaming* (Cham: Palgrave Macmillan, 2019), but with a narrow focus on the late nineteenth to the mid-twentieth centuries and the science of dreaming. And others with any significant degree of discussion (which is still very limited), three edited volumes, are restricted to the ancient and early modern periods and to the locales of the Byzantine and the Atlantic world. These include Ann Marie Plane and Leslie Tuttle’s *Dreams, Dreamers, and Visions: The Early Modern Atlantic World* (Philadelphia: University of Pennsylvania Press, 2013); George T. Calofonos’s *Dreaming in Byzantium and Beyond* (London: Routledge, 2014), <https://doi.org/10.4324/9781315578064>; and Bronwen Neil and Eva Anagnostou-Laoutides’s *Dreams, Memory and Imagination in Byzantium* (Leiden, Boston: Brill, 2018).

that have yet to be addressed in the study of dreams that are worthy of consideration as they reflect wider intellectual developments underlying academic thought that often appear as tacit knowledge. It is our premodern to post-postmodern epistemes³ that have impacted the history of dream research via the varying constructs of the “dream” that I will mainly discuss here in a primarily exploratory way to suggest how a historiography of dreams might develop. In order to create a more self-reflective history, these epistemes should be brought to the fore.

Following the thought of Michel Foucault, I examine discourses through a “genealogy” of dream research, which demonstrates dominant epistemes underlying shifts in intellectual thought. “Genealogy” is defined by Foucault as “a form of history which reports on the constitution of knowledge, discourses, fields of objects, etc., without having to relate to a subject which transcends the field of events and occupies it with its hollow identity throughout history,” which has been systematically applied in the field of discourse analysis.⁴ Therefore, I will not be defining the term “dream,” which might convey a misleading red thread in history, but rather I will look at how the concept has been historically discursively constructed in dream history and research. Discourses “are to be treated as practices which systematically form the object of which they speak.”⁵ This emphasizes the role of language, which, in this article, is English and its historical context in the Western world. Epistemes, according to Foucault, refer to that which “defines the conditions of possibility of all knowledge.”⁶ Epistemes are the implicit rules of what counts as legitimate knowledge, such as the dictate of naturalism in order to be considered scientific, which change through time. Of course, there have been different narratives within dream history. However, here, I am concerned with *dominant* discourses in historical perspective, which should be kept in mind when I speak in some generalities. And though more complex approaches have developed in dream

³ The periodizations of intellectual history are mainly heuristic, of course. The premodern through post-postmodern epistemes simultaneously exist in past and present discourse.

⁴ Quoted in translation in Siegfried Jäger, “Discourse and Knowledge,” in *Methods of Critical Discourse Analysis*, eds. Ruth Wodak and Michael Meyer (London: Sage, 2001), 37–38.

⁵ Foucault quoted in translation in Jäger, “Discourse and Knowledge,” 39.

⁶ Michel Foucault, *The Order of Things* (New York: Vintage Books, 1970), 168.

studies than those outlined here, these discourses still impact a lot of research today. The line of inquiry is: How has the “dream” as an object of study been constructed in the history of dream research? What are some important dominant epistemes that have impacted these discourses?

The Localization of Dreams: Internal/External and Subjective/Objective

The ascription or denial of the significance of dreams appears in many historical discussions and primary material. This is closely related to whether dreams are constructed as stemming from external or internal sources and whether those sources are fashioned as objective or subjective forms of knowledge. The external/internal in terms of (meta) physical space (relative to the self) is not consistently mapped onto the objective/subjective in terms of epistemological status, so these things must be considered separately. The localization of dreams and how this is connected to legitimation discourses is the first historiographical aspect that I will explore.

Among the primary ways that dreams have been constructed in historical accounts is in terms of external supernatural causes. This is because, from ancient to contemporary times, people have often framed dreams as prophetic, carriers of omens, or as messages from supernatural beings. In these contexts, a dream was “received” rather than “had.” Dreams were taken as legitimate sources of knowledge precisely because there was thought to be some external force beyond the self that was operative in their manifestation that gave them a privileged place as knowledge. This is evidenced by the fact that most societies have differentiated between their own, unimportant dreams and significant dreams originating outside the self.⁷

Like externalizing dreams, localizing dreams in the internal is a discourse found throughout time. In modern Western discourse, internalization occurred via localizing dreams first primarily in the mind, associated with the subjective, and then in the body as the objective,

⁷ Patrick McNamara, *Dreams and Visions* (Santa Barbara: Praeger, 2016), 41.

which fed the delegitimation of dreams as religiously significant. This is intimately related to wider discourses on legitimate knowledge and the modern construction of “science” in the nineteenth century and the establishment of the scientific episteme, placed in a cosmic order of natural, material, and objective knowledge.⁸ And this, in turn, was part of a larger process of the secularization of society, which has historically been understood as a separation from religion.⁹ As religion and science first became conceptually differentiated, between approximately 1620 and 1830, they were discursively assigned the realms of the subjective and objective, respectively (even though, historically, this is not always so clear cut). This was by no means a given; it was part of a purposeful and self-aware movement to carve out intellectual, political, social, and cultural space for science in a world dominated by religion. And methodological objectivity “became generalized, not only as science, but as *fact* and *truth* and *reason*,” while religion was placed in the conceptual space of internal subjectivity, falsehood, and irrationality, that is, as epistemologically insignificant.¹⁰

Dreams were first internalized in the psyche, which involved an emphasis on the subjective mind over the objective body on the part of early psychologists. Meanwhile, the physical world was increasingly associated with the “real world,” which was rhetorically situated as the sole domain of science at this time, while the mental portion became not only metaphysically but also epistemologically subjectivized, increasingly thought to have tenuous connections to reality. The rhetorical and discursive reaction on the part of early psychologists was to frame psychology as more scientific, to use more rigorous empirical study, and to objectify the mind localized within the physical world of causal laws (meaning, at this point, that the internal/external division

⁸ For a discussion on how the “cosmic order” or “symbolic universe” serves legitimation, see Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality* (New York: Anchor Books, 1967), 92–128.

⁹ Giorgia Morgese and Giovanni Pietro Lombardo, “History of Dream Research,” in *Histories of Dreams and Dreaming*, eds. Giorgia Morgese, Giovanni Pietro Lombardo, and Hendrika Vande Kemp (Cham: Palgrave Macmillan, 2019), 3–4.

¹⁰ Raymond Williams, *Keywords* (New York: Oxford University Press, 1976), 235. Emphasis original. For an extensive discussion, see Laura J. Vollmer, [working title] *The Relational Structure of Discourse: The Case of Religion and Science* (Leiden: Brill, forthcoming), chap. 2.

was muddled, and subjectivity/objectivity became the more operative discourse).¹¹ Dreams were localized in the physical spaces of the brain, the overall nervous system, and sleep posture, for example.¹² The localization of dreams in physical space became particularly salient with Sigmund Freud's publication *The Interpretation of Dreams*, appearing in English in 1913. "Freud's revolution may be viewed as the discovery of a way of locating in the mind objective entities which can be studied like physical things."¹³ That said, this was part of the earlier, broader nineteenth-century movement mapping all mental processes onto neural or other physical processes. And demarcating the physical processes of dreams (and other mental phenomena) as mutually exclusive with religious understandings helped the field of psychology gain objectivity and respectability.¹⁴

This is because scientific advances in the nineteenth century were largely communicated as negations of religious beliefs in order to frame science as authoritative, reacting to the premodern religious episteme.¹⁵ As for dreams, a considerable amount of scientific research has its origins in translating psychological states to physical ones in a direct attempt at refuting "superstitious" and "popular" beliefs,¹⁶ labeling that stigmatizes and delegitimizes religious notions. Correlations between internal, often physical, understandings of dreams and a negation of religious notions (though not always religion in total) can be found in Walter C. Dendy's *On the Phenomena of Dreams and Other Transient Illusions* (1832) and Robert Macnish's *The Philosophy of Sleep* (1834), for instance. In another example, W. Newnham, in *Essay on Superstition* (1830), states that dreams (and other "morbid states") "consist not in variety of spiritual essence, but of the material medium through which

¹¹ Doris Kaufmann, "Dreams and Self-Consciousness," in *Biographies of Scientific Objects*, ed. Lorraine Daston, (Chicago: University of Chicago Press, 2000), 70; Vollmer, *The Relational Structure*, chap. 3.

¹² Kaufmann, "Dreams," 75, 80, and passim.

¹³ Lawrence Friedman, "Reasons for the Freudian Revolution," *Psychoanalytic Quarterly* 46, no. 4 (1977): 623, <https://doi.org/10.1080/21674086.1977.11926818>.

¹⁴ On dreams as such, see, e.g., Morgese and Lombardo, "History," 248. On religion and science conceptualized in this way, see Vollmer, *The Relational Structure*, chap. 3.

¹⁵ Vollmer, *The Relational Structure*, chap. 2.

¹⁶ Morgese and Lombardo, "History," 248.

*its manifestations are made.*¹⁷ These correlations continued through the nineteenth century and into the early twentieth until religious explanations of dreams did not feature in general scientific discussion so often. Freud, for example, explained his view on dreams in specific contrast to “pre-scientific” concepts of dreams in terms of the supernatural and spiritual.¹⁸

Ian Hacking notes that “dreams are made ‘objective’ (...) by embedding them in place,” and via this discursive construction, “dreams are ruthlessly excluded from real life, and cease to be signifiers at all.”¹⁹ Of course, the premodern religious episteme and religious takes on dreams did not disappear from mainstream society overnight, and books on revelatory and other spiritual dreams—like Mrs. Blair’s *Dreams and Dreaming* (1843)—appeared alongside scientific ones. Situated in this tension between a declining religious episteme and a rising scientific one, nineteenth-century people “considered dreams to be meaningless and meaningful, mere physiological artifacts and messages from the great beyond.”²⁰ By the twentieth century, psychological factors were largely regarded as “explaining away” religion and dreams as “illusions”; Freud positioned both as forms of wish fulfillment, for example.²¹ As the naturalist, objective paradigm came to dominate interpretation, dreams were denied the religious import that they had previously enjoyed. The scientific episteme set the rules for what counted as legitimate knowledge, guiding the historical construction of the “dream” in a particular direction: localized in internal processes, associated with the natural, objective, and physical, and communicated as a refutation of religious understandings. This discourse systematically formed the object labeled “dream.”

¹⁷ William Newnham, *Essay on Superstition* (London: J. Hatchard and Son, 1830), 146. Emphasis original.

¹⁸ E.g., Sigmund Freud, *The Interpretation of Dreams* (London: Allen and Unwin, 1931), 5.

¹⁹ Ian Hacking, *Historical Ontology* (Cambridge, MA: Harvard University Press, 2002), 228 and 254.

²⁰ Jonathan C. Glance, “Revelation, Nonsense or Dyspepsia,” Mercer University, April 29, 2001, http://faculty.mercer.edu/glance_jc/files/academic_work/victorian_dream_theories.htm.

²¹ On religion as wish fulfillment, see Sigmund Freud, *The Future of an Illusion* (New York: W. W. Norton & Company, 1961), 30–31, 35, 42–43, 52; on dreams, see Freud, *The Interpretation*, *passim*.

The Imagined Spaces of Dreams: Communication Models and Social Realms

The objectification of dreams places dreams in an impersonal social and communicative space, and this and other imagined spaces of dreams make up another evolving discourse that has shaped the “dream.” Hendrika Vande Kemp, for instance, notes particular historical phases of dream studies based on the spaces of the “transpersonal/superpersonal,” placing the cause of dreams as supernatural; the “interpersonal/extrapersonal,” in which dreams are thought to originate with others who are sending a message; the “impersonal/nonpersonal,” with dreams constructed as an epiphenomenon reducible to physiological and objective factors; and the “intrapersonal,” with the dream understood as a message from the self.²² We can consider these imagined spaces as they relate to source/cause and “communication forms” (as in the field of communication studies), similar to what Vande Kemp does, but also as metaphysical, epistemological, and/or social spaces. As I have already discussed the philosophical spaces of the internal/external and objective/subjective above, I am primarily thinking of these dimensions as social here, which are sometimes communicative and sometimes simply thought to “occupy” social realms or other imagined spaces. I use “imagined space” to refer to a discursive representation of space experienced through the world of ideation, a subjective demarcation, such as in Benedict Anderson’s “imagined communities” or Edward Said’s “imagined geographies.”²³ The imagined space of dreams is the perceived place they occupy, such as the communicative space of the impersonal when scientists “distance” themselves from the object of study or the social realm of religion or the religious world as such where the transpersonal dream is sometimes located.

²² Hendrika Vande Kemp, “The Dream in Periodical Literature,” *Journal of the History of the Behavioral Sciences* 17, no. 1 (1981): 88–113, [https://doi.org/10.1002/1520-6696\(198101\)17:1%3C88::AID-JHBS2300170111%3E3.o.CO;2-W](https://doi.org/10.1002/1520-6696(198101)17:1%3C88::AID-JHBS2300170111%3E3.o.CO;2-W). I discuss Vande Kemp’s more recent research in the conclusion.

²³ There are many, varying uses of the term “imagined space” and related ideas, typically drawing upon Henri Lefebvre’s *The Production of Space* (Oxford: Wiley-Blackwell, 1992) and/or Edward W. Soja’s *Thirdspace* (Cambridge, Mass.: Wiley-Blackwell, 1996).

The transpersonal space of dreams involving the spiritual or supernatural realms evident in religious reflections has, as already mentioned, occupied a lot of historical accounts of dreams. The impersonal space has also received disproportionate attention in the history of dream studies as it relates to natural scientific studies. As we have seen, the religious and scientific epistemes dominated how the dream was constructed in terms of metaphysical and epistemological space, and the same can be said of these social and communicative spaces.

However, psychoanalysts also ascribed significance to dreams because they offered internal insight, an intrapersonal exchange between the conscious and unconscious mind. Even though psychology distanced itself from ideas of religious significance, as discussed above, the notion of intrapersonal dreams was enthusiastically taken up in the New Age and is a theme that still appears in many new religious movements. The importance placed on the intrapersonal space of dreams could be read as a reflection of the rise of “spirituality” as an alternative discursive form of “subjective religiosity,” and New Age religion certainly exhibits this tendency to relocate the sacred at the individual level, often invoking discourse on “spirituality,” as well as positioning dreams as sources of intuition.²⁴ “Spirituality,” as a term, has historically emphasized interior and experiential knowledge to situate it in a world that rationalized and naturalized religion, as seen in Romanticism and Transcendentalism and continuing as an important discursive strand in contemporary religion. We might interpret the spiritual turn to constitute an episteme of its own in the sense that it has its own rules for what is considered legitimate knowledge, an “epistemological mode” that attributes meaning to life and finds personal significance when scientific epistemology fails, as some have argued.²⁵ In this way, placing dreams in an intrapersonal, spiritual space serves to relegitimate dreaming in the form of

²⁴ Stef Aupers and Dick Houtman, eds., *Religions of Modernity* (Leiden: Brill, 2010); Wouter J. Hanegraaff, *New Age Religion and Western Culture* (New York: SUNY, 1998).

²⁵ See Simone Schröder, *The Nature Essay* (Leiden: Brill, 2019), 111 for the quote and 111–73 for a discussion; and Michal Izak, “Spiritual Episteme,” *Journal of Organizational Change Management* 25, no. 1 (2021): 24–47, <https://doi.org/10.1108/09534811211199583>. Spirituality is also increasingly considered an important discourse in the post-postmodern episteme, also positioned as a reaction to scientific materialism. Alan Kirby, *Digimodernism* (New York: Continuum, 2009), 25.

self-knowledge as distinct from universal scientific knowledge, which is in line with New Age emphasis on antiauthoritarianism and its critique of reductive epistemology found in the sciences.²⁶ This discursive reading is supported by the many popular publications exhibiting this New Age vibe that position dreams in terms of personal and spiritual growth while drawing upon the natural sciences but ultimately challenging the hegemony of their materialist philosophy, such as Andrew Holecck's *The Lucid Dreaming Workbook* (2020), Julie Loar's *Symbol and Synchronicity* (2021), and Athena Laz's *The Alchemy of Your Dreams* (2021), to name but a few from recent years.

Some other imagined spaces that deserve historiographical consideration relate to “dream engineering” (techniques that alter dreams). Dream engineering—through drug use or lucid-dream-induction techniques, for instance—has been around since antiquity or earlier and can involve various communicative spaces. In contemporary times, this has taken a novel, interpersonal direction in oneirology. In this context, dream engineering sometimes occupies interpersonal space not only because of an exchange between the scientist inducing the state in the dreamer but also because it is used as a tool for social change via creative production, healing, and even advertising. Regarding drugs, there is active research in medicine and quantitative science on the effect of various pharmaceuticals on dreaming.²⁷ And marketing specialists are testing the modification of purchasing behavior through “targeted dream incubation” and other dream hacking, such as Xbox's Made from Dreams project aimed at inducing dreams about video games.²⁸ Dream engineering is a relatively new natural scientific approach to

²⁶ Stef Aupers and Dick Houtman, “Silicon Valley New Age,” in *Religions of Modernity*, eds. Aupers and Houtman (Leiden: Brill, 2010), 165; Aupers and Houtman, *Religions of Modernity*, passim.

²⁷ E.g., Alain Nicolas and Perrine M. Ruby, “Dreams, Sleep, and Psychotropic Drugs,” *Frontiers in Neurology* 11 (2020), <https://doi.org/10.3389/fneur.2020.507495>; and Kamalanand Krishnamurthy and Mannar Jawahar Ponnuswamy, “A Mathematical Exploration into Manipulation and Control of a Bifurcative Dreaming Process,” *International Journal of Dream Research* 6, no. 2 (2013): 110–13, <https://doi.org/10.11588/ijodr.2013.2.9977>. For the history of dream-related drug use, see Gianluca Toro and Benjamin Thomas, *Drugs of the Dreaming* (Rochester, VT: Park Street Press, 2007).

²⁸ Dustin Marlan, “Branding Dreams,” Bill of Health, Harvard Law, October 4, 2022, <https://blog.petrieflom.law.harvard.edu/2022/10/04/branding-dreams/>.

dream studies, which can be seen, in part, as a product of the technological epistemic turn, constituting a technology itself in the sense of applied knowledge. In this context, the historical object “dream” is not “received” nor “had” but “made.”

Current directions in intrapersonal dream engineering also display a technologizing turn. The MIT Media Lab has developed a device called a Dormio to not only induce dreams but direct them according to words or images selected by the dreamer “to augment human creativity,” displaying the personal-growth trope.²⁹ In this intrapersonal context, the dream is democratized by placing the power of its making in the hands of the individual. While dream engineering has been around for a long time in general history, in the scientific study of dreams, these new developments constitute a shift from a focus on theory and analysis to application that involves reshaping the historical *scientific* object “dream” from impersonal to interpersonal and sometimes intrapersonal spaces.

Another interpersonal aspect contributing to the “dream” construct is dream sharing, used for self-assertion, building a persona, and forming social connections.³⁰ This has displayed a technologizing turn as well with dream sharing occurring in a new imagined space—cyberspace—which provides further opportunities for such individual and group transformation.³¹ Joseph B. Walther’s research on virtual space led him to develop a new communication model, referred to as the “hyperpersonal.”³² This is characterized as strategic development and editing for optimiz-

²⁹ MIT, “Dormio,” accessed September 21, 2023, <https://www.media.mit.edu/projects/sleep-creativity/overview/>.

³⁰ Ann Marie Plane and Leslie Tuttle, “Introduction,” in *Dreams, Dreamers, and Visions*, eds. Plane and Tuttle (Philadelphia: University of Pennsylvania Press, 2013), 8; Jacques Le Goff, *The Medieval Imagination* (Chicago: University of Chicago Press, 1992), 229.

³¹ E.g., see Shulamit Geller et al., “Dreams Shared on Social Networks During the COVID-19 Pandemic,” *International Journal of Environmental Research and Public Health* 20, no. 4 (2023): 3534, <https://doi.org/10.3390/ijerph20043534>.

³² Joseph B. Walther, “Computer-Mediated Communication,” *Communication Research* 23, no. 1 (1996): 3–43, <https://doi.org/10.1177/009365096023001001>. The hyperpersonal is considered a form of interpersonal communication here, but given that reciprocal communication may be delayed or removed altogether (as not every electronic communication receives a response) in addition to the fact that there is the intrapersonal aspect of identity building, it might be considered its own communicative mode.

ing self-presentation, specifically enabled by computer-mediated communication. Research is scarce, however the hyperpersonal has assuredly constructed the dream in a new way, the potential for revision and selective presentation making the hyperpersonal dream specifically mutable, destructible, and biased. That is, a dream shared online can be edited, deleted, or censored for the purposes of self-image, self-promotion, or other self-serving motives that skew presentation, making for a dream that is largely unique to electronic communication. Indeed, online dream sharing has been shown to fulfill such individual goals as bonding, coping, and belonging, with the motives—among other things—of emotional relief, entertainment, to “make oneself more interesting,” or self-expression and the tone of the shared dream reflecting the motives for sharing it, suggestive of the hyperpersonal dream.³³

The multiple authorship and instability of the narrative along with the decentering and decontextualization of the self in cyberspace may also contribute to another communication model: what might be called the “metapersonal,” by which I mean that it is beyond the bounds of the personal with no single individual or group determining the course of the communication though all can contribute. For instance, Shulamit Geller et al. approach dreams as “both individual creations and group property.”³⁴ We might ask what a metapersonal dream might look like. Because discourse also features a simultaneously individual and collective communicative mode, we could say the metapersonal dream is the discursive dream, that is, specifically constructed in its variety (as done here). Typically, when we examine a given text, the discourse surrounding a word like “dream” is (at least somewhat) internally coherent. Approaching the internet as text, though, we instead get encyclopedic incoherence (think a Wikipedia entry outlining the various understandings of the “dream”). This collective, incoherent, and remarkably democratic discursive perspective

³³ For the quote, see Daniel Graf, Michael Schredl, Anja S. Göritz, “Frequency and Motives of Sharing Dreams,” *Personality and Individual Differences* 175 (2021), <https://doi.org/10.1016/j.paid.2021.110699>. See also Geller et al., “Dreams.” The former study does not focus on what is off- or online, but rather general motivations for dream sharing; the latter is specifically regarding dream sharing on social media.

³⁴ Geller et al., “Dreams.”

is itself discursively constructing the object. And with the technological turn and the explosion of discourse in cyberspace, the metapersonal dream has become ubiquitous.

Theoretical Paradigms of Dreams: Essentialism and Contextualism

Another historiographical consideration is the different theoretical paradigms applied to the nature of dreams, including essentialism and contextualism, respectively situated in modern and postmodern epistemes, which, like in the other cases, are sometimes connected to discourses of authority and power. The discussion on the contextualism and essentialism of dreams, as noted by Daniel Pick and Lyndal Roper, is part of a wider historiographical debate on these paradigms as they relate to human nature more broadly.³⁵ But it is even bigger than that. Essentialism is an ancient philosophy, and it has been a defining feature of the modern episteme, of Western histories, and even of the formation of academic subjects, making theoretical paradigms a key historiographical consideration in the history of dreams and dream studies.

An essentialist paradigm persisted in the academic study of religion for some time in that religion was treated as something *sui generis*, such as put forth by Mircea Eliade. As Russell McCutcheon explains: “A dominant aspect of the modern discourse on religion is (...) established and maintained by such ideological and rhetorical strategies as dehistoricization, universalization, and decontextualization.”³⁶ Essentialist accounts of religion bled into analyses of dreams. For example, as Eliade puts it, “it has been found that dreams (...) may present (...) a ‘religious aura’ (...) homologous with the experience of the sacred.”³⁷ Edward Burnett Tylor similarly presented “dreams” and “religion” in essentialist terms, universalized across cultures when he suggested the former was the source of the latter. Andreas Nordin and Pär Bjälke-

³⁵ Daniel Pick and Lyndal Roper, “Introduction,” in *Dreams and History*, eds. Daniel Pick and Lyndal Roper (London: Routledge, 2004), 15.

³⁶ Russell T. McCutcheon, *Manufacturing Religion* (Oxford: Oxford University Press, 2003), 28.

³⁷ Mircea Eliade, *Myths, Dreams, and Mysteries* (New York: Harper and Brothers, 1960), 17.

bring challenge this predominant historical narrative of dreams, instead emphasizing how “religion” is not a monistic, universalized thing but rather made up of heterogenous parts—exemplifying the contextualist turn—and, as such, argue “religious dreaming” should be approached as “fractioned,” “comprising a range of phenomena.”³⁸

This theoretical transition can be seen across the humanities. In anthropology, the overemphasis on cultural continuity eventually gave way to increasing concern of cultural contingency, agency, individuality, and counterculture in an approach to dreams as cultural artifacts.³⁹ Bernard Lahire’s *The Sociological Interpretation of Dreams* (2020) contextualizes dreams in individuals’ social environments. And while early histories of dreams overwhelmingly focused on scientific or religious perspectives, as noted, historians have recently been more careful to present dreams as highly contextualized in time and place (see note 2). However, contextualism is so paradigmatically “academic” that we seem to forget the context of our contextualism as product—and producer—of postmodernism, meaning its antifoundationalist, antiessentialist, and destructuralist tendencies have tacitly structured our approach to the material and framed contextualism as a prime indicator of legitimate knowledge.

We see a similar move from essentialism to contextualism in the sciences. Freud essentialized the nature of dreams as illusory, the function as wish fulfilment, and the content as symbolic. Though Carl Jung, as well as Freud in some regards, emphasized individual circumstances, he also argued for the universality of archetypes based in the collective unconscious, which is another essentializing notion, an innate and uniting factor across all humanity.⁴⁰ This was taken up by many in an

³⁸ Andreas Nordin and Pär Bjälkebring, “The Counterintuitiveness of Supernatural Dreams and Religiosity,” *Journal of Cognition and Culture* 21, no. 3–4 (2021): 309–30, <https://doi.org/10.1163/15685373-12340114>.

³⁹ Plane and Tuttle, “Introduction,” 20. For a discussion of the history of the anthropology of dreaming, see Robin E. Sheriff, “The Anthropology of Dreaming in Historical Perspective,” in *New Directions in the Anthropology of Dreaming*, eds. Jeannette Mageo and Robin E. Sheriff (Oxford: Routledge, 2021), 23–49.

⁴⁰ Carl Jung, *Dreams* (Princeton: Princeton University Press, 1974), 77, describes the universality of archetypes and situates the psyche as both personal and collective, though elsewhere he notes some contextual considerations for archetypes as well. E.g., Jung, *Dreams*, 106–9.

essentialist fashion, particularly in dictionaries of dream symbolism. Universality is epitomized in such “keys to dreams,” which make up a lot of popular publications on dreams to this day, often invoking Jung’s name despite his opposition to this approach.⁴¹ Though essentialized dreams remain the dominant trope in popular publications, essentialism in science eventually gave way to the idea of a contextualized nature of dreams, and increasingly, specific variables have been targeted for analysis, especially in the hard sciences. Sometimes, contextualism is so narrowly applied that dreams are entirely individualized, ultimately situated in each person’s given circumstances. This approach already appeared by the late nineteenth century, such as in the case of psychologist Sante De Sanctis, for example, who argued that the “whole person,” including the dreamer’s life experiences, character, habits, passions, and health conditions, plays into dream content, which cannot be interpreted based on specific symbology.⁴²

Essentialism helped breed authority. Religious studies was “constructed, initially legitimized, and finally authorized” as a field of study through essentialist “exclusionary claims.”⁴³ Similarly, in the sciences, framing dreams as essentially and reducibly natural (the paradigm of legitimate knowledge, as we’ve seen) places authority in the hands of scientists. The postmodern shift to contextualism, though, fed an alternative current in discourses of authority over dreams. Alongside discourses on authority within the scientific episteme, value was placed on self-analysis.⁴⁴ From the perspective of an individual nature of dream symbolism, one must become familiar with their own patterns and associations in their dreams in order to understand them, situating expertise in the self. Contextualized interpretation nourished the democra-

⁴¹ On “keys to dreams,” see Jacqueline Carroy, “A History of Dreams and the Science of Dreams,” in *Histories of Dreams and Dreaming*, eds. Giorgia Morgese, Giovanni Pietro Lombardo, and Hendrika Vande Kemp (Cham: Palgrave Macmillan, 2019), 21. Regarding Jung’s views, see Jung, *Dreams*, 72–73. Thanks to an anonymous reviewer for directing me to this passage.

⁴² Morgese and Lombardo, “History,” 264, which provides several references to De Sanctis’s work.

⁴³ McCutcheon, *Manufacturing Religion*, 28.

⁴⁴ E.g., Carroy, “A History,” 26, notes that the importance placed on self-analysis by contemporaries was even picked up by Freud in a small way.

tization of dream interpretation in this way (even though universalist notions persist). In current discourse, we see this trend with emphasis on build-your-own dream dictionaries and learning your personal dream language, such as in Richard Nongard's *Panoramic Dream Analysis* (2023), Joanne Hedger's *Dream Interpretation for Better Sleep* (2022), and Robert J. Hoss's *Dream Language* (2015).

Conclusion: Dream Research Today and the Post-Postmodern Episteme

What is a dream? Not so shockingly, experts disagree on how to define a "dream." We have seen how the dream as an object has been variously constructed throughout history as constituting different physical, metaphysical, epistemological, and social spaces, forms of communication, and theoretical paradigms, as a religious experience, cultural artifact, social expression, historical object, and discursive construct. What has historically been attributed to the object "dream" has varied wildly through time, reflecting dominant discourses guided by overarching epistemes. Despite all these proposed answers, the question of definition is one thing that virtually all present-day research shares. And this question is itself a product of the postmodern episteme and even more paradigmatic of the academic cultural environment than contextualism itself: a doubting, a skepticism of metanarrative that has thrown our central terms of inquiry into chaos. And what I have seemingly done here is provide a painfully postmodern skeptical view of the metanarratives applied to "dreams" variously constructed. But the story needn't end here.

Instead of focusing on a highly contextualized and contingent "dream," plurality is increasingly emphasized in scholarship. This perspective on the nature of academic objects of study is, too, historically situated, a reflection of post-postmodernism. There is no consensus nor even a generally accepted notion of "post-postmodernism." But as with any period in intellectual history, it is helpful to position it in conversation with previous eras. As such, we can think of post-postmodernism as situated in the debates between modernism and postmodernism on foundationalism/antifoundationalism, structuralism/deconstructionism,

objectivity/relativism, and essentialism/contextualism. Post-postmodernism, according to cultural theorists Timotheus Vermeulen and Robin van der Akker, “negotiates between [and “beyond”] the modern and the postmodern (...) both here and there and nowhere.”⁴⁵ They emphasize oscillation over balance, arguing the post-postmodern appears as a “‘both-neither’ dynamic” toward the modern and postmodern. Though they are speaking of a turn in art, architecture, etc., I argue elsewhere that this reflects an increasingly prevalent discourse on reconciling dichotomies—including the modern-postmodern binaries listed above—that speak to the larger epistemological condition without a reductive identity between the “opposites.”⁴⁶ In fact, it is a rejection of such dichotomies as necessarily oppositional. While postmodernism emphasizes the contingency of knowledge in the sense of epistemological skepticism, post-postmodernism sees the multiplicity of narratives as epistemologically enlarging, a diversification of understanding the human condition. For example, a post-postmodernist might take the dichotomy of essentialism and contextualism not as mutually exclusive but as mutually inclusive, existing in a fundamentally relational mode of “other” referentiality and equally important parts of the story, which historiography at large—with its emphasis on eliminating essentialism—could benefit from taking into account. In terms of how the theoretical paradigms shape the object, the modern essentialist dream was one thing; the postmodern contextualist dream was nothing; the post-postmodernist plural dream is everything.

In the case of dreams, the post-postmodern turn can be seen, for example, in the recent positioning of dreams in terms of ontological multiplicity. For instance, in the natural scientific study of dreams, the object “dream” was originally restricted to REM-sleep mental activity but now includes the hypnagogic and hypnopompic stages. This has led to further pluralization of the object: the construction of the dream not as a static entity but as something that lies on a continuum from focused waking to daydreaming to dreaming (hence the “object” is not

⁴⁵ Timotheus Vermeulen and Robin van der Akker, “Notes on Metamodernism,” *Journal of Aesthetics and Culture* 2 (2010): 6, <https://doi.org/10.3402/jac.v2i0.5677>, and for “beyond,” 4.

⁴⁶ Vollmer, *The Relational Structure*, chap. 8.

monadic), as put forth by dream researcher Ernest Hartmann in *The Nature and Functions of Dreams* (2011), for example.

We can also see a post-postmodern turn in the historiographical considerations discussed in this article. Recently, the internal-external division of dreams has been disputed. Phyllis Mack, for instance, argues this binary is a bit forced, as many premodern dreams were regarded as both internal and representing transcendent truth, and the same is true for many people today.⁴⁷ The internal and external are not necessarily mutually exclusive even though that discourse certainly exists, and multiple constructs are thus simultaneously upheld. Speaking to the contingency of the internal-external divide, Ann Marie Plane and Leslie Tuttle argue a historiography of dreams should take note of the teleology of externalization to internalization,⁴⁸ which is part of a larger teleology evident in the modern worldview of moving from a more “primitive” or religious understanding to scientific ones. In a self-reflexive way, historiographers should also note that the awareness of this teleology is itself constructing new historical objects, such as the plural dream, reflecting a new, post-postmodern discursive phase in this teleological evolution of which we “conquer teleology.”

Regarding the conversation on the imagined spaces of dreams, we can also detect traces of post-postmodernism. Vande Kemp, in her later work, revised her earlier statement on the historical phases to be more on the point of dimensions of dreams rather than eras. She does not think of the spaces of dreams as mutually exclusive, though some enjoyed popularity at different times. Instead, there is a “scope” of dreams evidenced in the given interdisciplinary research, and she notes the contingency of “truth” and “facts” on these various dimensions but does not dip into relativism.⁴⁹ Instead, she argues, “scholars are studying dreams in ways that reflect all four dimensions of human existence.”⁵⁰ In other words, the various imagined spaces of dreaming are all “true” (as reflec-

⁴⁷ Phyllis Mack, “The Unbounded Self,” in *Dreams, Dreamers, and Visions*, eds. Ann Marie Plane and Leslie Tuttle (Philadelphia: University of Pennsylvania Press, 2013), 207–25.

⁴⁸ Plane and Tuttle, “Introduction,” 8.

⁴⁹ Hendrika Vande Kemp, “Epilogue,” in *Histories of Dreams and Dreaming*, eds. Giorgia Morgese, Gionvanni Pietro Lombardo, and Vande Kemp (Cham: Palgrave Macmillan, 2019), 277.

⁵⁰ Vande Kemp, “Epilogue,” 280.

tions of the data) even when their individual “truths” may vary, a very post-postmodern view of inclusivity. Further, though theories abound regarding what characterizes the post-postmodern episteme, technology features as a central, defining discourse.⁵¹ And we saw the impact of this as regards the inter- and intrapersonal space of dream engineering and in the construction of the “dream” in cyberspace, with the discursive dream particularly exemplary of post-postmodern pluralism.

As for the essentialism-contextualism debate, in psychoanalysis, anthropology, and the history of dreams today, paradigms of archetypes, cultural unity, and universalization exist alongside disparateness and contextualism at the levels of society and the individual. Furthermore, dreams are constructed as simultaneously individual and communal (in terms of psychology, culture, society, etc.): dreaming is a “collective phenomenon,” “shaped by social and cultural forces,” as argued by Jacques Le Goff, for instance.⁵² In a similarly pluralistic ontologizing, Kelly Bulkeley and Maja Gutman’s 2020 Dream Project analyzes dreams as part of “collective experience” relating to real-life historical events, another example of a continuum but, this time, among one’s own dreams and others.⁵³ Similar approaches can be found in the I Dream of COVID project and collections of dreams related to the historical events of 9/11, the atomic bomb, and Nazism, which “calls for a framework that can hold a space for dreams that emerge between minds,” as Adelais Mills argues.⁵⁴

This paper has but brushed the surface of possible historiographical considerations taken from changes in intellectual history related to discourses on the boundaries and legitimacy of different forms of knowledge. Other possible directions for future research include: discursive links between dreaming and psychosis (potentially a reflection of legitimization discourses of rationality/irrationality); changes to what is considered the function of dreams (divination, healing, contempla-

⁵¹ Vermeulen and van der Akker, “Notes,” 3.

⁵² Le Goff, *Medieval Imagination*, 229.

⁵³ Kelly Bulkeley and Maja Gutman, “The 2020 Dreams Project,” accessed September 24, 2023, <https://tiger-grape-astm.squarespace.com>.

⁵⁴ Adelais Mills, “Pandemic Dreaming,” in *Lockdown Cultures*, eds. Stella Bruzzi and Maurice Biriotti (London: UCL Press, 2022), 244.

tion, creativity, memory consolidation) and how the “function” establishes/reinforces power structures; the types of dreams considered within the boundaries and worthy of scientific study (from lucid to everyday dreams to “big dreams”); other localizations of dreams in physical places to imagined spaces ranging from temples, Freudian couches, individual beds, virtual reality, and sleep laboratories⁵⁵ to waking life (e.g., as in research on how dreams impact the day’s mood); the many, many other social realms of dreams that shape the historical object, such as art and film (e.g., as a theme or as an aesthetic but also in terms of narrative instability—a possible postmodern decentering of the self); and the power of dream interpreters throughout history and its impact on social structures of gender and sexuality.

Further research should pay attention to countercurrents as well since the ways of constructing dreams discussed here are more a reflection of the discursive power of dominant epistemes than the reality of the variety of “dreams” in lived experience. The reality is even more diverse. Moreover, the dichotomies drawn upon in this reconstruction of historical discourse, such as internal/external, subjective/objective, supernatural/natural, and others, have never been completely accepted, and challenges to them constitute a substantial discourse throughout history.

Returning to the question of how to define the “dream,” to conclude in a post-postmodern way, instead of taking the contingencies of the “dream” as indicative of the relativism of knowledge, we might say that these different constructs are suggestive of ontological multiplicity or, meta-analytically, that the ontologically multiple construct is self-reflexively suggestive of post-postmodernism. The plural dream is a prism, relationally existing and evolving in creative tension with various “others” from philosophical locales and imagined spaces to theoretical paradigms or even to the epistemes themselves.

⁵⁵ Hacking, *Historical Ontology*, 227–254, explores some of these.

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DREAMS, SLEEP QUALITY, AND COLLECTIVE TRAUMA: AN INVESTIGATION OF THE IMPACT OF THE COVID-19 PANDEMIC

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Introduction

The phenomenon of dreaming is the consequence of the brain's ability to generate a whole new world of experience based on previous knowledge, regardless of the surroundings.¹ Studies on brain injuries, functional imaging, and neurophysiology have provided evidence regarding the neural correlates of sleep and dreams. Sleep is the moment when the normal physiological condition of awareness disappears. In a recent study,² almost 30% of the subjects who were mostly awakened early at night, report not to have realised anything. Although dreams have always fascinated human beings, their strictly scientific study has only recently begun.³

¹ Stefano Bolognini, ed., *Il sogno cento anni dopo* (Milano: Mimesis Edizioni, 2016).

² Francesca Siclari, et al., "The neural correlates of dreaming," *Nature neuroscience* 20, no. 6 (2017): 872–878, <https://doi.org/10.1038/nn.4545>.

³ Allan J. Hobson, "REM sleep and dreaming: towards a theory of protoconsciousness," *Nature Reviews Neuroscience* 10, no. 11 (2009): 803–813, <http://dx.doi.org/10.1038/nrn2716>.

In *The Interpretation of Dreams*,⁴ Freud predicted the research for an explanation of the organic basis for the mental event. Robust scientific investigations of dreams are complex endeavours since dreams are solely accessible through self-reports rather than direct observations, so it is difficult, if not impossible, to experimentally manipulate and observe dream content through exposure to stimuli before and during sleep.⁵ Dreams represent brain organisation and functions and can, in some ways, be conceptualised as a brain-mind interaction. The evolutionary success of the human species has largely depended on our extraordinary cognitive capacities, and these abilities are based on a brain-mind system that functions non-stop, during both sleep and wakefulness.⁶ Dreams are highly visual, colourful, rich in shapes, and full of movement. They incorporate categories that are common in the moments we are awake, such as people, faces, objects, and animals.⁷ Dreams also contain sounds (including words and conversations) and, most rarely, tactile perceptions, smells, and tastes, as well as feelings of pleasure and pain. While dreaming, there is a considerable reduction in the voluntary control of actions and thoughts. Dreams can reflect one's own interests and personality, like one's mental activity when awake. Similar to people's personalities, dreams are generally rather stable over time during adulthood and share many similar characteristics among cultures and ages, i.e. the adolescent⁸ population. Some dreams are characterised by a high level of emotional involvement, among which are joy, surprise,

⁴ Sigmund Freud and James Strachey, *The complete psychological works of Sigmund Freud*, Vol. 22 (London: Hogarth Press and the Institute of Psycho-analysis, 1953).

⁵ David Foulkes and Allan Rechtschaffen, "Presleep determinants of dream content: Effects of two films," *Perceptual and Motor Skills* 19, no. 3 (1964): 983–1005, <https://doi.org/10.2466/pms.1964.19.3.983>; David Foulkes, *Dreaming: A cognitive-psychological perspective* (Hillsdale, NJ: Lawrence Erlbaum 1985); Morton F Reiser, *Memory in mind and brain: What dream imagery reveals* (Yale University Press, 1994).

⁶ Kelly Bulkeley, *Big Dreams: the science of dreaming and the origins of religion* (Oxford University Press, 2016).

⁷ Yuval Nir and Giulio Tononi, "Dreaming and the brain: from phenomenology to neurophysiology," *Trends in cognitive sciences* 14, no. 2 (2010): 88–100, <https://doi.org/10.1016%2Fj.tics.2009.12.001>.

⁸ Calvin Hall and Robert Van de Castle, *The content analysis of dreams* (University of Michigan: Appleton-Century-Crofts, 1966); Ana Guerrero-Gomez et al., "Dreaming in adolescents during the COVID-19 health crisis: survey among a sample of European school students," *Frontiers in psychology* 12 (2021): 652627, <https://psycnet.apa.org/doi/10.3389/fpsyg.2021.652627>.

anger, fear, and anxiety. Interestingly, sadness, guilt, and depression are rare in dreams. This is in line with Freud's suggestion that dreams have their origin in perceived threats or conflicts. According to Foulkes,⁹ dreams are an attempt of the sleeping mind to organise information, starting with the unconscious activation of memory units that takes place when sleeping. Dream awareness consists of a single fact: we are not contextually aware of where we are (in bed) or what we are doing (sleeping and dreaming). However, there is a strong¹⁰ coherence in thoughts and images that are experienced while dreaming (uniformity).

Since the quarantine period due to COVID-19, the quality of sleep has changed. Lockdowns have had a strong impact on our daily routines, emotional experiences, and sleep. A variety of studies have shown a high prevalence of sleep problems among teenagers and young adults, as well as difficulties in remembering dreams. Zhou and colleagues¹¹ have studied symptoms of insomnia among Chinese teenagers and young adults and found that the prevalence of symptoms of insomnia was 23.2%. In this context, an interesting phenomenon has been observed—a strong change in dream activity, such as a decrease in dream recall frequency and increased dream vividness, oddity, and emotional intensity. This condition¹² suggests an impact of potentially traumatic collective experiences on dreams. An Italian¹³ study surveyed 796 participants about their dream content using a questionnaire and reports of their most recent dream. The author found that women, compared to men, tend to recall dreams more frequently and that at least 20% of dreams containing aspects such as emotionality, intensity, and negative

⁹ Foulkes, *Dreaming*.

¹⁰ Allan Rechtschaffen, "The single-mindedness and isolation of dreams," in *The mythomaniacs: The nature of deception and self-deception*, ed. Michael S. Myslobodsky (Mahwah: Lawrence Erlbaum Associates, 1997) 203.

¹¹ Shuo Zhou et al., "DREAM-in-CDM approach and identification of a new generation of anti-inflammatory drugs targeting mPGES-1," *Scientific reports* 10, no. 1 (2020): 10187, <https://doi.org/10.1038%2Fs41598-020-67283-0>.

¹² Maurizio Gorgoni et al., "Pandemic dreams: quantitative and qualitative features of the oneiric activity during the lockdown due to COVID-19 in Italy," *Sleep medicine* 81 (2021): 20–32, <https://doi.org/10.1016/j.sleep.2021.02.006>.

¹³ Ilaria Iorio, Massimiliano Sommantico, and Santa Parrello, "Dreaming in the time of COVID-19: A quali-quantitative Italian study," *Dreaming* 30, no. 3 (2020): 199, <https://doi.org/10.1037/drm0000142>.

emotions were related to COVID-19. The aim of this work is to investigate the quality of sleep and the content of dreams reported during the COVID-19 pandemic by means of an interview and textual analysis of the contents of dreams.

Procedure

The data was collected via the Google Forms platform between July 2020 and December 2020 and included the informed consent form. The survey, which took around 15 minutes, was conducted with full respect for anonymity and privacy in accordance with the standards of ethical conduct. The data was analysed to test the hypotheses in question.

Research Instruments

1) The TKYDQ questionnaire (Dreaming and the COVID-19 Pandemic): This questionnaire, originally designed by Bulkeley,¹⁴ was translated into Italian by a native English speaker after obtaining the authors' permission. Subsequently, the questionnaire was back-translated to check correspondence with the original items and, where necessary, culturally adapted. The final Italian version included seven questions addressing dreaming and the COVID-19 pandemic. The list of items in this questionnaire can be found in the appendix.

2) The Pittsburgh Sleep Quality Index (PSQI): The Pittsburgh Sleep Quality Index (PSQI)¹⁵ is a self-report questionnaire that takes 5–10 minutes to complete. This tool, which assesses the quality of sleep, consists of 19 items based on which a total score and 7 sub-scores are calculated. The PSQI is intended to be an easy-to-use standardised sleep questionnaire for clinicians and researchers and it can be used for a range of clinical and healthy populations, including the diagnosis of sleep disorders. Clinical studies have found the PSQI to be reli-

¹⁴ Bulkeley, *Big Dreams*.

¹⁵ Carole Smyth, "The Pittsburgh sleep quality index (PSQI)," *Journal of gerontological nursing* 25, no. 12 (1999): 10–1, <https://doi.org/10.3928/0098-9134-19991201-10>.

able and valid in the assessment of sleep problems to some degree, but in particular with self-reported sleep problems and depression-related symptoms. This questionnaire yields seven components formed by combining specific items: subjective sleep quality (Component 1); the combination of the amount of time that each respondent needed to fall asleep during the past month and how often—on a weekly basis—they could not fall asleep within 30 minutes (Component 2); sleep duration (Component 3); the habitual effectiveness of sleep representing a quality index of night rest, which is the proportion between the hours slept versus the hours in bed (Component 4); sleep disturbances characterised by problems while sleeping such as nightmares, breathing issues, etc. (Component 5); the use of sleep medication (Component 6); and a combination of the frequency and severity of daily functions, such as problems staying motivated when performing daily activities or the ability to stay awake while driving, eating, or engaging in social activities (Component 7).

Sample

Participants were recruited online using the convenience sampling method and online advertisements. The inclusion criteria were: a) acquisition of informed consent; b) being older than 18 years of age; c) adequate understanding of Italian; d) filling in all the sections of the questionnaire; e) enough knowledge of basic computer functions to complete the form on a PC, tablet, or smartphone. In total, 402 people aged between 18 and 71 (mean age=33.08; Standard Deviation=11.47) participated in the survey, out of which 301 were females (mean age=32.6, Standard Deviation=11.03) and the rest were males (mean age=34.51, Standard Deviation=12.65). Among all the participants, 68.8% had a university education, 34.4% declared themselves single and 4% divorced at the time of completing the survey. Moreover, 38.9% of the participants reported that they were unemployed and 5% reported being in retirement.

Results

The following variables were used in a logistic regression analysis to investigate their predictive value regarding having bad dreams, dream recall, and dream content: sex; age; Covid-related dream; problems with insomnia; being personally affected by Covid; the time needed to go to sleep; duration of sleep; number of times without falling asleep in less than 30 minutes; getting up in the middle of the night or early in the morning; not being able to breathe satisfactorily; global judgement of sleep quality; use of medicine to help falling asleep; problems staying awake while driving, eating, or while engaging in social activities; being enthusiastic enough to do things properly; and having a partner (i.e., not being single at the time of answering the questionnaire). The pattern of responses is presented in Table 1.

The occurrence of bad dreams could be predicted by how participants judged their sleep quality ($p < 0.0001$; odds ratio[aOR], 0.183; 95% confidence interval [CI], 0.096 – 0.347), how enthusiastic they were when performing their routine activities properly ($p = 0.006$; aOR, 0.319; CI, 0.142 – 0.716), and the number of times they experienced breathing issues during sleep ($p = 0.008$; aOR, 0.472; CI, 0.271 – 0.721). The way participants judged their sleep quality ($p < 0.0001$; aOR, 0.199; CI, 0.108 – 0.365) and the level of enthusiasm they expressed during their routine activities ($p = 0.004$; aOR, 0.345; CI, 0.166 – 0.714) could predict the positivity/negativity of their dreams. No predictors were found after applying the FDR correction for dream recall.

In addition to the questions in the PSQI, the survey included the following items: 1) how frequently the respondents recalled their dreams' content within the last month; 2) whether they had a dream related to the COVID-19 epidemic or not; 3) whether they have noticed any differences in the quality of emotions in their dreams; 4) the extent to which they have experienced insomnia/sleep disturbances; 5) how they have been personally affected by the pandemic; and 6) whether they agreed with the government's policies regarding the management of the pandemic. The results of the survey can be seen in Table 1.

Comparisons between men and women yielded significant differences considering a Bonferroni corrected p-value (0.0166), in C4,

TABLE 1: Specifics of the responses of participants (n=403).

	<i>Degree and direction of change</i>	Percentage
Remembering dreams	The same	54.09
	Slight increase	22.58
	Significant increase	5.21
	Slight decrease	12.9
	Yes/No	
COVID-related dream	Yes	10.92
Differences in quality of emotions	<i>Degree and direction of change</i>	
	No difference	64.02
	A little more negative	29.28
	Much more negative	3.23
	A little more positive	2.48
	Much more positive	0.99
Difficulties in sleeping/insomnia	<i>Number of days</i>	
	0	22.33
	1	21.34
	2	17.12
	3	16.13
	4	7.69
	5	7.44
	6	3.72
In what way have they been personally affected by the pandemic	7	4.22
	<i>Aspects of problems faced</i>	
	Holidays and meeting	34.99
	New mental health problems	25.31
	No impact	18.36
	Work related problems	13.9
	Financial difficulties	4.71
If they agree with the policies of the government regarding covid	Physical health problems	2.73
	<i>Agree/Disagree</i>	
	Agree	50.12
Judgement of sleep quality	Disagree	25.81
	<i>Degree and direction</i>	
	Very good	10.4
	Fairly good	54.6
	Fairly bad	30.5
Sleep duration	Very bad	4.5
	<i>Number of hours</i>	
	> 7 hours	33.7
	6/7 hours	31.3
	5/6 hours	27.8
Use of sleep medication	<5 hours	7.2
	<i>Frequency of use</i>	
	Not during the past month	86.4
	Less than once a week	6.5
	Once or twice a week	3.2
	Three or more times a week	4

$t(400)=3.271$, $p=0.001$ and the global index $t(399)=2.902$, $p=0.004$ of the PSQI, with women having higher scores in both components, meaning that women on average reported more relaxed night sleep. Subjects who were personally affected by Covid differed significantly from non-affected individuals in C1, $t(400)=3.776$, $p<0.001$, C2, $t(399)=3.055$, $p=0.002$, C5, $t(400)=2.787$, $p=0.006$, C7, $t(400)=4.321$, $p<0.001$ and the global index of PSQI, $t(399)=3.575$, $p<0.001$ in such a way that all the affected people had a higher score in all of these components. This highlights the fact that those who were directly affected by COVID-19 exhibit sleep disturbances in different indexes of sleep quality. Finally, subjects with partners had higher scores in C5 $t(400)=3.111$, $p=0.002$, which represents a higher range of bad dreams and breathing problems compared to those without a partner.

Qualitative Analysis of the COVID-19 Related Dreams

Respondents were asked to share a recent COVID-19-related dream with as many details as possible, including the scenario, characters, thoughts, actions, and emotions. In total, 41 dreams have been collected and analysed. The reported dreams can be subdivided into different macro-categories. The most representative ones are those with a phobic content of contamination, fear of suffocating, fear of dying, feelings of panic, and negative emotionality. Phobia, moreover, was extended to the facemask but also to situations when the mask was absent, generating anxiety. Text analysis shows the fear of being positive with COVID-19, based on the repetition of words and phrases such as “infect”, “having been infected”, “having contracted it”, and experiencing respiratory symptoms and needing to be resuscitated. Other times, the person was asymptomatic and became the source of infection for the family. All this can be traced back to anxious and distressing feelings connected to the aggressiveness of the virus that “exterminates billions of lives” and where the only possibility to fight against it is a vaccine, even though it “has exorbitant prices”. Another category is represented by the fear of being infected, with persecutory content, or of being infected on purpose.

Table 2: Example Contents of some of the reported dreams

I dreamt everything was back to normal and epidemic was a nightmare. When it was not possible to go out, I dreamt of being able to meet friends.	Confused and fragmentary memory of me and people whose identity I don't remember having approaches opposed to prevention, as nothing had ever happened.	Being in a very narrow space with many people without their face mask on.
I dreamt prices to buy vaccine were exorbitant and that every family could buy up to 3, therefore my parents renounced having it to the benefit of my two sisters and me.	A landscape of hills, you can see the beach, my house on the hills with my family, it's sunny. A tsunami, the sea floods everything, and leaves my husband and my sons submerged in front of the house. I find myself with a lot of people I don't know among debris, everything is grey and we look for shelter in a house, holding our hands, we try to get out again and I hear a dirge, like a voice music but produced by many people crying.	Seeing my family and not being able to give them a hug and a kiss.
I was walking along the seaside. There were many people without facemask not respecting social distance. My first thought was they were all reckless and this made me afraid.	My grandmother had a shop and we risked getting infected, I was crying in floods, we couldn't say goodbye.	I was visiting my American grandfather, who was still working in his company, which actually had become a shop, I found him in his office producing facemasks against covid, with the Italian flag drawn on them.

<p>I dreamt several times of meeting my parents outdoors in a green area and of being worried. My concern came from the possibility of infecting them, as they are part of the risk category and I am “asymptomatic”.</p>	<p>I dreamt for up to 2 nights of getting infected... I was alone in the hospital and I cried because nobody came to look after me.</p>	<p>Everybody was wearing facemask in the middle of lava.</p>
<p>I look out of a window and I see that in the neighbours’ courtyard there is a party; I go there aware and therefore worried of not having face-mask. Several unicorns arrive flying and they land on the neighbours’ courtyard... I wonder how this is possible as unicorns are fantastic animals.</p>	<p>I find myself climbing the stairs of a building to reach the terrace because there was something in the street (like a demonstration) and from the top I was able to see better; but there were too many people in the terrace and I decide not to get close to them because of Coronavirus, I come back, I go down the stairs and I find myself in a shabby room, as an ancient abandoned chapel, with the statue of Our Lady of Medjugorie who was also dirty and ruined.</p>	<p>My father who told me he would stay until covid had disappeared. He died five years ago.</p>
<p>I dreamt of meeting a person I knew and I said hello with a kiss, and I remembered I made a mistake about doing it because there was covid.</p>	<p>A friend of mine at the bar affected by Corona got close to me to get me infected on purpose.</p>	<p>I was wandering in my neighbourhood and everybody was free and I didn’t understand why they were free to do everything without their masks on.</p>

Discussion

This research is in line with a variety of studies¹⁶ conducted over the last year and a half, which have demonstrated the central role of nightmares in people's dream experiences. An analysis of dreams can be considered from the Jungian theory of compensation. According to Jung, most dreams obey the law of compensation, through which the unconscious compensates the unilateral attitude of consciousness by integrating opposites.¹⁷ According to the literature,¹⁸ this condition is similar to trauma because people perceived the COVID-19 outbreak as potentially dangerous to their own lives. During this period, people's dreams changed, and there was a massive presence of dream content concerning fear of COVID-19. In particular, this study highlighted that during the COVID-19 pandemic, the sleep quality of individuals in society has been negatively affected at various levels. In this study, it was observed that the sleep quality of the individuals was poor. For example, during the COVID-19 pandemic, insomnia was rampant, causing a negative change in individuals' sleep quality. These results support our study. In our research, we evaluated sleep quality during the COVID-19 pandemic, as well as the impact of the Coronavirus on dream content.

Moreover, dreams can be analysed as an attempt of the unconscious to induce the dreamer to take note of real danger rather than putting up mechanisms of repression or denial.¹⁹ Therefore, it functions as an invitation for dreamers to give the right value to the emotions experienced during a pandemic outbreak. In fact, the results have shown – as in previous studies – that most dreams had a pandemic topic, such as phobic content, including fear of contamination, fear of suffocation, fear of

¹⁶ Serena Scarpelli et al., "Pandemic nightmares: Effects on dream activity of the COVID-19 lockdown in Italy," *Journal of Sleep Research* 30, no. 5 (2021): e13300, <https://doi.org/10.1111/jsr.13300>.

¹⁷ Marie-Louise Von Franz, *Sguardo sul Sogno* (Torino: Raffaele Cortina Editore, 1989).

¹⁸ Yeliz Akkuş et al., "Determination of the factors affecting sleep quality in the general population during the early phase of the COVID-19 Pandemic," *Journal of Turkish Sleep Medicine* 8, no. 2 (2021): 142–150, <http://dx.doi.org/10.4274/jtsm.galenos.2021.93063>.

¹⁹ Carl Gustav Jung, "Il significato della psicologia per i tempi moderni," in *Opere vol. 10/1: Civiltà in transizione: il periodo fra le due guerre* (Torino: Bollati Boringhieri, 1998): 201–224.

dying, panic sensations, and negative emotionality. Another category, conversely, was represented by the fear of being purposefully contaminated, which suggests a paranoid thought process. The results showed that a considerable portion of the subjects experienced an increased capacity to remember dreams and therefore a greater access to their unconscious, which is in line with similar studies on dreams during the pandemic. Barrett²⁰ asked more than 2800 participants to describe their dreams (those that were still clear) before and during the pandemic. After collecting information from a total of 9,000 dreams and analysing them with text analysis software, the author classified them into positive and negative emotions, such as anger, anxiety, sadness, health, or death. The study highlighted changes in dream content before and during the pandemic. As during the pandemic, the dream content was concentrated on Covid-19. All over the world,²¹ researchers studying dreams have reported an increase in the frequency of vivid dreams and, in certain cases, nightmares during the COVID-19 pandemic.

For example, in a survey²² comparing COVID-19-related dreams to those before the pandemic, the results suggest that the frequency of vivid dreams during self-isolation and quarantine has increased significantly. As far as the quantitative aspect of sleep is concerned, the seven main components of Pittsburgh's scale have been explored in the present study. In the sample of more than 400 healthy subjects, a significant portion reported difficulty falling asleep. Moreover, some reported not being able to totally enjoy the hours they spent in bed and not having really restful sleep. Some participants scored in the moderate

²⁰ Deirdre Barrett, "Dreams about COVID-19 versus normative dreams: Trends by gender," *Dreaming* 30, no. 3 (2020): 216, <http://dx.doi.org/10.1037/drm0000149>.

²¹ Michael Schredl and Kelly Bulkeley, "Dreaming and the COVID-19 pandemic: A survey in a US sample," *Dreaming* 30, no. 3 (2020): 189–198, <http://dx.doi.org/10.1037/drm0000146>; Natália Bezerra Mota et al., "Dreaming during the Covid-19 pandemic: Computational assessment of dream reports reveals mental suffering related to fear of contagion," *PLoS One* 15, no. 11 (2020): e0242903, <https://doi.org/10.1371/journal.pone.0242903>; Jiaxi Wang et al., "Does COVID-19 impact the frequency of threatening events in dreams? An exploration of pandemic dreaming in light of contemporary dream theories," *Consciousness and cognition* 87 (2021): 103051, <https://doi.org/10.1016/j.concog.2020.103051>.

²² Elizaveta Solomonova et al., "Stuck in a lockdown: Dreams, bad dreams, nightmares, and their relationship to stress, depression and anxiety during the COVID-19 pandemic," *PLoS One* 16, no. 11 (2021), <https://doi.org/10.1371/journal.pone.0259040>.

clinical range of sleep disorders and a smaller percentage in the severe range, in which case they resorted to the use of drugs to sleep. They also reported at least one or two daily inconveniences per week due to difficulties getting restful sleep. Many people reported being more restless and, therefore, sleeping less than usual. Our routine has undoubtedly suffered from extensive alterations, which has had consequences for our sleep patterns.²³ According to some investigators, such as Barrett (2020), having more vivid dreams can be a result of a change in sleep times. During²¹ the lockdown period, people seem to have slept more than usual. Dreams occur during the REM stage, where a transition from lighter to deeper sleep takes place. During this phase of sleep, our brain shows a higher level of activity, resulting in more vivid dreams. As the longest REM phase takes place only during the last hours of sleep, for most people, the REM phase can be disrupted if they do not get enough sleep. This result is similar to our research findings.

Moreover, we showed, in line with the findings of McNamara and colleagues,²⁴ that our dream patterns have been influenced by the fear and anxiety related to the pandemic. This study highlights how the REM dream system appears to be specialised in managing a wide range of types of imagery, memory, and cognitive elements. According to many researchers, dream vividness can be attributed to the emotional and physical chaos in which many people are living. The theory of dream continuity suggests that our dreams are influenced by our thoughts and actions during wakefulness. As a consequence, if we feel a certain level of stress as a result of the pandemic, work, or family, then the same patterns will also probably emerge in our dreams. It has been shown that the limbic system, which is involved in behavioural and emotional regulation, is activated during the most bizarre or sensitive dreams.²⁵

It is for this reason that some researchers believe that dreams have a functional aim: to help dreamers prepare for the difficult and chal-

²³ Solomonova et al., "Stuck in a lockdown."

²⁴ Patrick McNamara et al., "A neurocomputational theory of nightmares: the role of formal properties of nightmare images," *Sleep Advances* 2, no. 1 (2021), zpabo09, <https://doi.org/10.1093/sleepadvances/zpabo09>.

²⁵ McNamara et al., "A neurocomputational theory of nightmares."

lenging situations that they will have to deal with when they are awake. When something extraordinary happens, such as a pandemic, the brain can process it through dreams. What is transposed into dreams²⁶ are our recent experiences, oftentimes emotional and negative. Therefore, dreaming modulates emotional disorders, regulating the most problematic ones. Dreams can be considered a way to regulate the emotional components of our experiences, which does not always happen over just one night, but may need a longer period.²⁷ Dreams are also connected to memory. The results of a study by Marzano et al.²⁸ on the relationship between dreams and memories suggest that the neurophysiological mechanisms we use while we sleep and when we remember dreams are the same that are activated when we create and recover memories. In another study,²⁹ it was found out that vivid, bizarre, and emotionally intense dreams—dreams that we are usually able to remember—are connected to specific parts of the brain, i.e., the amygdala and the hippocampus. While the amygdala plays a fundamental role in elaborating emotional reactions, the hippocampus is involved in important functions of memory, such as consolidating information through short- and long-term memory. Another hypothesis is that dreaming more vividly is a traumatic reaction to stress or isolation. Stress factors related to long quarantines, contagion-related fears, frustration, feelings of boredom, lack of information, and fake news have been identified. It has been suggested that self-isolation and pandemic-related stress can increase the risk of developing PTSD.³⁰ This could partly explain the parallel phenomenon of alteration in dreams' content, as nightmares and disrupted sleep are important characteristics of PTSD. People suffering

²⁶ Akkuş et al., "Determination of the factors affecting sleep quality."

²⁷ Anu-Katriina Pesonen, et al., "Pandemic dreams: network analysis of dream content during the COVID-19 lockdown," *Frontiers in psychology* 11 (2020): 573961, <https://doi.org/10.3389%2Ffpsyg.2020.573961>.

²⁸ Cristina Marzano, et al., "Recalling and forgetting dreams: theta and alpha oscillations during sleep predict subsequent dream recall," *Journal of Neuroscience* 31, no. 18 (2011): 6674–6683, <https://doi.org/10.1523/JNEUROSCI.0412-11.2011>.

²⁹ Samantha K. Brooks et al., "The psychological impact of quarantine and how to reduce it: rapid review of the evidence," *The Lancet* 395, no. 10227 (2020): 912–920, [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8).

³⁰ Akkuş et al., "Determination of the factors affecting sleep quality."

from this pathology often have frequent and recurrent nightmares and intense flashbacks connected to intrusive traumatic memories.³¹ In the Jungian vision of dreams, the presence of dreams with nightmares and traumas can be read as indications that the collective unconscious sends to the dreamer's consciousness, anticipating traumatic events that may arise later.³² Several people have had anticipatory dreams related to pandemic events, coming from the collective unconscious. These dreams invite dreamers to prepare for unpredictable events by providing them with tools to acquire greater awareness.

Conclusions

In conclusion, the pandemic seems to have fully entered our collective subconscious, not only through symbols but also by processing direct images and scenes from common experience and the rapid change in daily social interactions.

Dreams reflect the predominant thoughts we have when we are awake; they are necessary to build memories, allow an outlet for anguish and preoccupations, and help to process and emotionally face difficult situations in real life. Dreams can lead us to new insights and solutions to problems and can be powerful therapeutic tools. The analysis of problems connected to sleep and dreams can be considered an early predictor of other pathologies, as it often represents a risk factor for the development of anxious and depressive syndromes that, over the last year—aside from PTSD—have exponentially increased. This evaluation, therefore, requires clinical attention, early and timely interventions in the general population, and adequate early and wide-ranging psychological intervention. Hence, it is necessary to pay attention to the need for strengthening psychological support services and encouraging the narration and collection of dreams. Although the subjectivity

³¹ Madhulika A. Gupta, "Spontaneous reporting of onset of disturbing dreams and nightmares related to early life traumatic experiences during the COVID-19 pandemic by patients with posttraumatic stress disorder in remission," *Journal of Clinical Sleep Medicine* 16, no. 8 (2020): 1419–1420, <https://doi.org/10.5664/jcsm.8562>.

³² Ferdinando Testa, *La clinica delle immagini Sogno e psicopatologia* (Bergamo: Moretti e Vitali, 2019).

and self-reporting nature of dreams are hard to capture in a quantitative manner, for all the purposes mentioned above, the use of statistical inference, where possible, can help provide a more reliable and valid interpretation of this human experience. Understanding and interpreting this phenomenon can hugely benefit from both quantitative and qualitative analyses and thus more investigations taking advantage of both methodologies are essential and recommended. Last but not least, the findings of this study can be useful for mental health professionals and emphasises the importance of psychological assessments of traumatic events.

Limitations

Although our study highlighted an important theme aligned with previous studies on dream content—which is the association between dream content and the fear of COVID-19—it also comes with limitations such as the small sample size, which was not demographically representative. Considering this and other potential limitations of the study, cautious interpretation of the results is recommended.

Contributor Statements

M.C. and T.F. conceptualised and designed the study; M.C., M.C.S., and B.K. designed the data collection instruments; A.R., C.L., and A.H.L. carried out the observations and statistical analyses and drafted the initial manuscript; C.M., T.F., and T.K. coordinated, supervised, and revised the manuscript. All the authors approved the final manuscript as submitted.

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Declaration of Interest

The authors report no conflicts of interest.

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Appendix

Italian translation of the TKYDQ questionnaire (Dreaming and the COVID-19 Pandemic)

WSC_Q1- required: In che misura la frequenza con cui ti svegli ricordandoti un sogno è aumentata o diminuita nell'ultimo mese (ad esempio, dagli inizi di Aprile 2020)?

WSC_Q2- required: Hai mai avuto un sogno collegato all'epidemia di Coronavirus (COVID-19), o i problemi sociali/economici causati dall'epidemia?

WSC_Q3- required: Quante notti in media alla settimana soffri di insonnia o hai difficoltà a dormire? Se non sei sicuro, per favore dai la tua stima migliore.

WSC_Q4- required: Dall'inizio dell'epidemia di Coronavirus (COVID-19), le emozioni nei tuoi sogni sono diventate più positive, negative, o le stesse di prima?

WSC_Q5- required: Sei stato personalmente influenzato dall'epidemia Coronavirus (COVID-19) in uno qualsiasi di questi modi? Per favore seleziona tutto ciò che può essere applicato.

WSC_Q6- required: Su un diverso argomento, approvi o disapprovi il modo in cui Donald Trump sta svolgendo il suo ruolo come presidente?

AN ANCIENT DISEASE IN A MODERN WORLD: EPILEPSY AND DREAM RESEARCH

M a r y C . W a l s h

Epilepsy is an ancient and universal disease that has inspired fear, reverence and curiosity for centuries. The World Health Organization estimates that around 50 million people worldwide have epilepsy, making it one of the most common neurological diseases globally.¹ There is, as yet, little research into the dreams of epileptics. The research we have, however, provides knowledge about epilepsy, suggests ways to improve epileptic care, and offers insight into the experience of people with epilepsy. Epilepsy is treatable and societal knowledge of epilepsy directly correlates with successful treatment; however, misunderstanding and lack of knowledge about the condition perpetuates stigma and undermines epileptic healthcare.² This article provides an overview of current research into dreams and epilepsy, explores the challenges epileptics face in the modern world, and suggests possible implications for epileptic care and future research. Recent findings shed light on the protective role of REM sleep against seizures, the impact of epilepsy on dreaming and spiritual experience, and the needs of vulnerable populations (such as children and the elderly). While the focus of this article is on recent findings, a brief look at the history of epilepsy and the use of dreams in

¹ WHO, "Epilepsy," World Health Organization, last modified October 19, 2023, <https://www.who.int/news-room/fact-sheets/detail/epilepsy>.

² Kritika Gosain and Tannistha Samanta, "Understanding the Role of Stigma and Misconceptions in the Experience of Epilepsy in India: Findings From a Mixed-Methods Study," *Frontiers in Sociology* 7 (May 13, 2022): 790145, <https://doi.org/10.3389/fsoc.2022.790145>; Christian M. Kaculini, Amelia J. Tate-Looney, and Ali Seifi, "The History of Epilepsy: From Ancient Mystery to Modern Misconception," *Cureus* 13, no. 3 (2021): 1, <https://doi.org/10.7759/cureus.13953>.

the treatment of epileptics affords insight into ancient misconceptions that continue to impact epileptics.

For centuries and across cultures people have tried to understand and treat epilepsy. Written descriptions of epilepsy are found in ancient texts from Egypt (circa 1700 BCE), India (400 BCE), Babylonia (1067 BCE), and China (770–221 BCE). Many of these texts attribute epilepsy to the supernatural. Others explore the physiological characteristics of the disease. Known as the “Sacred Disease” in ancient Greece, epilepsy was attributed to the gods and demonic possession. Exorcism of epileptics was practiced in biblical times, throughout the Middle Ages, and is still performed on epileptics in Africa, Saudi Arabia, among British Muslims,³ and in modern Western societies.⁴ Epilepsy has also been linked historically to ecstatic healing, prophesy, and the initiatory call of shamanic healers.⁵ Stanley Krippner notes that Shamans are called to their professions in a number of ways, including through seizures and lucid and vivid dreams.⁶

While association with the supernatural dominates much of history, early medical texts demonstrate interest in and knowledge of epilepsy as a physiological condition. Ancient Ayurvedic texts, for example, provide a remarkably accurate description of epilepsy while prescribing a holistic course of treatment.⁷ As early as 1700 BCE, Egyptians considered epilepsy to be caused by cortical disruption. In the 5th century BCE, Hippocrates hypothesized that epilepsy was not a sacred disease but a brain disorder.⁸

³ Ian Bone and Simon Dein, “Religion, Spirituality, and Epilepsy,” *Epilepsy and Behavior* 122 (Sept. 2021): 108219, <https://doi.org/10.1016/j.yebeh.2021.108219>.

⁴ Ruta Mameniskiene, Eglė Sakalauskaitė-Juodeikienė, and Valmantas Budrys, “People with Epilepsy Lack Knowledge about Their Disease,” *Epilepsy and Behavior* 46 (2015): 192, <https://doi.org/10.1016/j.yebeh.2015.03.002>.

⁵ Jeanne Achterberg, *Imagery in Healing* (Boulder, Col: Shambhala Publications, 1985), 21.

⁶ Stanley Krippner, “Psychoneurological Dimensions of Anomalous Experience in Relation to Religious Belief and Spiritual Practices,” in *Soul, Psyche, Brain*, ed. Kelly Bulkeley (New York: Palgrave Macmillan, 2005), 77.

⁷ M. Tripathi et al., “Ayurvedic Medicine and Epilepsy,” *Neurological Journal of Southeast Asia* 5 (2000): 1, 3.

⁸ Kaculini, Tate-Looney, and Seifi, “The History of Epilepsy,” 2–3.

Throughout this long history, dreams have played a role in healing traditions worldwide. In ancient Ayurvedic tradition, dreams were used in clinical practice to facilitate diagnosis, prognosis, and health maintenance.⁹ The practice of dream healing during sleep and the use of dreams to diagnose illness was prominent in ancient Egypt and in ancient Greece.¹⁰ One Greek account records the cure of an epileptic through a dream at the sanctuary of Asclepius at Epidaurus.¹¹ Dreams continue to be used globally by Shamans and traditional healers.

The advent of modern neurology in the mid-19th century marks the beginning of our current understanding of epilepsy. Epilepsy, as defined by The International League Against Epilepsy (ILAE), is a chronic brain disorder characterized by a tendency to have recurrent, unprovoked seizures. A seizure is a sudden, temporary burst of activity in brain cells, which alters a person's movement, behavior, awareness, sensations and/or feelings.¹² Seizures are classified as focal, generalized or unknown.¹³ A focal seizure occurs in one area of the brain. A generalized seizure begins in both hemispheres of the brain. When the location of seizure cannot be identified it is classified as unknown. The nature of the seizure and the symptoms the epileptic experiences can vary greatly depending on where the seizure occurs in the brain. Generalized seizures may have non-motor symptoms (such as staring spells) or muscle movement: jerking (clonic), limp (atonic), tense or rigid (tonic), or twitching (myoclonus). Focal seizures may also involve muscle movement as well as non-motor symptoms. Non-motor symptoms include

⁹ Kanchan Chowdhury, Satish B. Patil, and Nilanjan Datta, "Concept of Swapna (Dream)," *Scholars Journal of Applied Medical Sciences* 2, no. 1 (2014): 494.

¹⁰ Helen Askitopoulou, "Sleep and Dreams: From Myth to Medicine in Ancient Greece," *Journal of Anesthesia History* 1, no. 3 (2015): 70, <https://doi.org/10.1016/j.janh.2015.03.001>.

¹¹ Michael Zellmann-Rohrer, "Hippocratic Diagnosis, Solomonic Therapy, Roman Amulets: Epilepsy, Exorcism, and the Diffusion of a Jewish Tradition in the Roman World," *Journal for the Study of Judaism* 36, no. 5 (2021): 14, <https://doi.org/10.1163/15700631-bja10033>.

¹² Robert S. Fisher et al., "ILAE Official Report: A Practical Clinical Definition of Epilepsy," *Epilepsia* 55, no. 4 (2014): 475, <https://doi.org/10.1111/epi.12550>.

¹³ Puja Patel and Solomon L. Moshé, "The Evolution of the Concepts of Seizures and Epilepsy: What's in a Name?," *Epilepsia Open* 5, no. 1 (2020): 22, <https://doi.org/10.1002/epi4.12375>.

changes in sensation, emotion, cognition, and aphasia (the inability to speak or understand language).

The development of anti-seizure medications (ASMs) in the early 20th century was a watershed event in epilepsy treatment. The World Health Organization estimates that 70% of epileptics could be seizure free with the use of ASMs. In low-income countries however, only 25% of epileptics receive treatment.¹⁴

While modern neuroscience has radically altered both our understanding and treatment of seizures, epilepsy's long and complicated history spills into the present. Stigma, isolation, and discrimination impact both quality of life and quality of care. As recently as the mid-20th century in the USA, for example, epileptics were not allowed to marry and sterilization was encouraged.¹⁵ In their study of people with epilepsy (PWE) in India, Gosain and Samanta found that epileptics in the study used concealment of their condition as "a dominant coping strategy" to mitigate "social alienation and rejection associated with epilepsy."¹⁶ Even successful treatment and the cessation of seizures, however critical, cannot assure quality of life for epileptics who continue to combat stigma, discrimination, and stress-related disorders. For this we need multi-disciplinary and culturally sensitive research and treatment.

Epilepsy, Sleep, Dreaming, and the Protective Role of REM

Sleep plays a critical role in the health and wellbeing of epileptics. Sleep issues can impact dream recall (DR) and trigger seizures in epileptics. Epilepsy has been found to effect sleep-related cognitive activity such as memory consolidation and the cognitive processes at work during dreaming.¹⁷ Studies in adults with epilepsy have shown that sleep disturbances were twice as prevalent in people with epilepsy as

¹⁴ WHO, "Epilepsy."

¹⁵ Kaculini, Tate-Looney, and Seifi, "The History of Epilepsy," 2–3.

¹⁶ Gosain and Samanta. "Understanding the Role."

¹⁷ Aurélien de la Chapelle et al., "Relationship Between Epilepsy and Dreaming," *Frontiers in Neuroscience*, 15 (2021): 1–2, <https://doi.org/10.3389/fnins.2021.717078>.

in healthy controls, while sleep disturbance significantly increases the risk of seizures.¹⁸ Epileptics are more likely than non-epileptics to suffer from parasomnias, nightmare disorder, and night terrors.¹⁹

Recent research has found that REM sleep appears to protect against seizures. In fact, reduced REM is suggested as a biomarker for epilepsy.²⁰ While some seizures occur almost exclusively during sleep, especially NREM sleep, it is rare for epileptic seizures to be observed during REM. REM has been found to inhibit seizure activity during a seizure but also impedes the spikes of electrophysiological activity epileptics experience between seizures.²¹

Each sleep stage provides a different level of neural connectivity. Brain connectivity describes both the interactions within each brain system and the interactions between brain systems. During NREM sleep there are higher levels of within system integration (greater integration within the limbic system, for example) but lower levels of between system integration (less integration between the prefrontal cortex, limbic system, and brain stem). In contrast to NREM, there is increased interaction between major brain systems during REM.²²

Seizures involve excessive synchronization in the brain that interrupts the connections between brain systems and disrupts the brain's normal functioning. A seizure is like a storm in the brain that takes out the power lines and floods the roads. It disables both communication within the epileptic's brain and between the epileptic and others. Researchers hypothesize that the influence of REM sleep on seizures is

¹⁸ Therese Gutter et al., "Prevalence of Sleep Disturbances in People with Epilepsy and the Impact on Quality of Life," *Seizure* 69 (July, 2019): 298, <https://doi.org/10.1016/j.seizure.2019.04.019>.

¹⁹ de la Chapelle et al., "Relationship," 4–5.

²⁰ Ufuk Sadak et al., "Reduced REM Sleep: A Potential Biomarker for Epilepsy – a Retrospective Case-Control Study," *Seizure* 98 (May 1, 2022): 27, <https://doi.org/10.1016/j.seizure.2022.03.022>.

²¹ Sadak et al., "Reduced REM Sleep," 4–5.

²² Ho Ming Chow et al., "Rhythmic Alternating Patterns of Brain Activity Distinguish Rapid Eye Movement Sleep from Other States of Consciousness," *Proceedings of the National Academy of Sciences of the United States of America* 110, no. 25 (2013): 10300, <https://doi.org/10.1073/pnas.1217691110>.

due to a desynchronized EEG pattern during REM.²³ The connectivity of REM may be reflected in dream content. Dream reports sampled after REM awakenings show more connectedness and higher levels of dream complexity.²⁴ While these are recent findings, they suggest that improving sleep generally and REM in particular, may be helpful in reducing seizure frequency in epileptics. Dream recall and dream complexity could be indicators of increased REM connectivity and subsequent lower seizure threshold.

Challenges to Research: Dream Recall, Differences in Epilepsies, and ASMs

Several issues confront the researcher interested in studying the dreams of epileptics: dream recall, differences in seizures, the impact of anti-seizure medications (ASMs), and co-occurring disorders. Leaving aside co-occurring disorders for the moment, let's begin with the issues posed by dream recall (DR), ASMs, and types of seizures.

It is difficult to study dreams if people do not remember their dreams. While DR is decreased in epileptics, decreases in DR vary by epilepsy type. People with complex partial seizures, for example, have approximately twice the DR of those with generalized seizures.²⁵ Decrease in DR is also associated with sleep disruption, certain medications, and cognitive impairment.²⁶ There is some evidence that seizure symptoms may be incorporated into dream content.²⁷ This suggests seizures may directly or indirectly interfere with dreaming. Dream recall frequency has been associated with curiosity about and attention

²³ Marcus Ng and Milena Pavlova, "Why Are Seizures Rare in Rapid Eye Movement Sleep? Review of the Frequency of Seizures in Different Sleep Stages," *Epilepsy Research and Treatment* (June, 2013): 1, <https://doi.org/10.1155/2013/932790>.

²⁴ Joshua M. Martin et al., "Structural Differences between REM and Non-REM Sleep Reports Assessed by Graph Analysis," *PLoS One* 15, no. 7 (2020): e0228903, <https://doi.org/10.1371/journal.pone.0228903>.

²⁵ Enrica Bonanni et al., "Dream Recall Frequency in Patients with Partial and Generalized Seizures," *Epilepsia* 43, no. 8 (2022): 888, <https://doi.org/10.1046/j.1528-1157.2002.48101.x>.

²⁶ de la Chapelle et al., "Relationship," 1.

²⁷ de la Chapelle et al., "Relationship," 4.

to dreams,²⁸ experiential openness,²⁹ creativity,³⁰ thin boundaries,³¹ and a predisposition to become immersed in mental imagery and sensory experience.³² In some studies dream recall has been found to correlate with health and a sense of wellbeing.³³ Studies assessing the use of DR strategies (such as dream journaling) with epileptics may help us better understand poor DR in epileptics and the value of DR strategies.

ASMs present another confounding factor in epileptic dream research. Little is known about the impact of ASMs on dreaming but some studies have found that ASMs can have a negative influence on sleep. Both seizure activity and ASM withdrawal have been associated with deficits in REM.³⁴ Although the relationship between sleep and seizure activity is well known, current epilepsy management guidelines fail to account for the impact of ASMs on sleep.³⁵

The effect of epilepsy on dreaming can vary with the type of seizures. These differences may influence subject selection for a dream research study. Nocturnal seizures, for example, are more likely to be incorporated into dream content.³⁶ Higher DR, has been found in epileptics with left vs. right temporal lobe epilepsy (TLE). Higher levels of aggression,

²⁸ Michael Schredl and Anja S. Göritz, "Dream Recall Frequency, Attitude toward Dreams, and the Big Five Personality Factors," *Dreaming* 27 (2017): 49–58, <https://doi.org/10.1037/drm0000046>.

²⁹ Michael Schredl et al., "Factors of Home Dream Recall," *Journal of Sleep Research* 12 (2003): 133–141, <https://doi.org/10.1046/j.1365-2869.2003.00344.x>; Schredl and Göritz, "Dream Recall Frequency."

³⁰ Serge Brand et al., "Dream Recall and its Relationship to Sleep, Perceived Stress, and Creativity among Adolescents," *Journal of Adolescent Health*, 49 (2011): 525–531, <https://doi.org/10.1016/j.jadohealth.2011.04.004>.

³¹ Ernest Hartmann, "Boundaries of Dreams, Boundaries of Dreamers," *Psychiatric Journal of the University of Ottawa*, 14 (1989): 557–560, <https://doi.org/10.2190/HK76-038K-407M-8670>; Schredl et al., "Factors of home dream recall."

³² Schredl et al., "Factors of home dream recall."

³³ de la Chapelle et al., "Relationship," 7.

³⁴ J. Layne Moore et al., "Sleep and Epilepsy: A Focused Review of Pathophysiology, Clinical Syndromes, Co-Morbidities, and Therapy," *Neurotherapeutics* 18, no. 1 (2021): 170, <https://doi.org/10.1007/s13311-021-01021-w>.

³⁵ Lino Nobili et al., "Expert Opinion," *Epilepsy and Behavior* 124 (November 2021): 108341, <https://doi.org/10.1016/j.yebeh.2021.108341>.

³⁶ de la Chapelle et al., "Relationship," 7.

fewer animals, and more self-negative expressions have been found in the dream content of epileptics with left vs. right TLE.³⁷

Epilepsy and Dream Content

Studies have found differences in the dreams of epileptics when compared to dreams of non-epileptics. The dream reports of epileptics are shorter compared to non-epileptics. Dream content is more vivid and emotional. There are more familiar characters and settings, fewer dreams of success and more negative dream content.

The dreams of epileptics also reflect subjective feelings associated with seizures.³⁸ Dreams have been found to reflect waking life experience and especially recent and/or emotional events.³⁹ The dreams of epileptics, therefore, may provide insight into the experience and emotional impact of epilepsy. A deeper understanding of this experience may help de-mystify the disease and facilitate de-stigmatization.

A number of studies examine the possible incorporation of seizures into dream content. While seizures are rare during REM sleep, dreams can occur during light NREM, a stage of sleep associated with seizure activity.⁴⁰ Some epileptics, notably those with TLE, report having seizures in their dreams and there is some evidence to suggest the possible incorporation of seizure symptoms into dream content.⁴¹ This appears to be an area of particular interest to epileptics. In numerous posts on the Epilepsy Foundation Forum, for example, epileptics question whether certain dreams are actually seizures. Research that helps epileptics discern the difference between seizures and dreams could be helpful in an epileptic's self-understanding, as well as in medication management.

Different types of seizures can have varying effects not only on DR but also on dream content and the emotional valence of dreams. People with TLE, for example, are more likely to have recurring, intense, and

³⁷ de la Chapelle et al., "Relationship," 7.

³⁸ de la Chapelle et al., "Relationship," 6.

³⁹ de la Chapelle et al., "Relationship," 6.

⁴⁰ de la Chapelle et al., "Relationship," 4.

⁴¹ de la Chapelle et al., "Relationship," 4.

frightening dreams. People with TLE are also more likely to experience *déjà-rêvé* (the sensation you dreamed about something before it happened).⁴²

Dreams of Children with Epilepsy

The onset of epilepsy occurs most frequently in children and the elderly.⁴³ Sleep problems are common in children with epilepsy. Fatigue and sleep deprivation can trigger seizures.⁴⁴ Children are particularly vulnerable because epilepsy can impact brain development and children have not yet developed coping skills to deal with either the stress that can trigger seizures or the emotions living with seizures can evoke. When epilepsy interferes with memory consolidation, a child will struggle to integrate new information at a critical time for learning.⁴⁵ When epilepsy interferes with emotion regulation, it can lead to issues with behavior and mood. Research suggests that dreams may play a role both in memory consolidation and emotion regulation.⁴⁶ As yet we know little about the impact of epilepsy on dreaming in children or the possible impact of sleep and dream deficits in cognitive development, memory consolidation, and emotion regulation in these children.

Children with epilepsy are at greater risk for developing depression, anxiety, ADHD, and behavioral issues. While few studies examine the dreams of these children, the available research is compelling. One study examining symbolic function in children with epilepsy found that the dream content of children showed “a high presence of psychical suffering, unprocessed or impossible to process.”⁴⁷

⁴² Jonathan Curot et al., “*Déjà-Rêvé*,” *Brain Stimulation* 11, no. 4 (July 1, 2018): 875, <https://doi.org/10.1016/j.brs.2018.02.016>.

⁴³ Ettore Beghi, “The Epidemiology of Epilepsy,” *Neuroepidemiology* 54, no. 2 (2020): 185, <https://doi.org/10.1159/000503831>.

⁴⁴ Angelika A. Schlarb et al., “Sleep and Dreaming in Children and Adolescents with Epilepsy,” *Somnologie* 20, no. 4 (2016): 242, <https://doi.org/10.1007/s11818-016-0077-1>.

⁴⁵ Ana Filipa Lopes et al., “Memory Functioning in Children with Epilepsy,” *Behavioural Neurology* (2014): 1, <https://doi.org/10.1155/2014/218637>.

⁴⁶ de la Chapelle et al., “Relationship,” 1.

⁴⁷ Sabina La Grutta et al., “Symbolic Function Explored in Children with Epilepsy and Headache,” *Minerva Pediatrica* 59, no. 6 (2007): 745.

Talking with children about their dreams may help parents and caregivers better understand the emotional challenges of children with epilepsy. The experience of epilepsy is frightening, isolating, and difficult to describe. Dream sharing may help children talk about these experiences and process the powerful emotions seizures evoke. Such sharing may help alleviate fear and isolation.⁴⁸

Dreams, Epilepsy, and Aging

While epilepsy is most often diagnosed in childhood, approximately 25 per cent of new-onset seizures occur after the age of sixty-five.⁴⁹ It can be difficult to diagnose epilepsy in the elderly as many symptoms of seizure may be attributed to aging (confusion, loss of awareness, falling, anxiety). As yet, there is little research into the dreams of this population. Research does indicate a decrease in DR in the elderly, possibly linked to a reduction in REM sleep, however this research is not specific to epileptics.

Understanding the impact of aging on REM sleep is important both for epileptics who are aging and for those who develop epilepsy late in life. Elderly people tend to sleep less, sleep less efficiently, have reduced REM sleep and awaken more often during REM. In addition, dream recall tends to decline with age.⁵⁰ As REM appears to be protective against seizures, it is possible that decreased REM in the elderly is a risk factor for late-onset epilepsy.

Memory consolidation critical for children is also significant for elderly epileptics. Itzhak Fried, a neurosurgeon specializing in intractable seizure disorders, writes: "There is what I call a cognitive tsunami coming to us. Millions and millions of patients, the aging population,

⁴⁸ Alan Siegel and Kelly Bulkeley, *Dreamcatching: Every Parent's Guide to Exploring and Understanding Children's Dreams and Nightmares* (Pennsylvania State University: Three Rivers Press, 1998) provides an accessible resource for parents who want to understand and help their children talk about their dreams.

⁴⁹ Shasha Liu, Weihua Yu, and Yang Lü, "The Causes of New-Onset Seizures in the Elderly," *Neuropsychiatric Disease and Treatment* 17 (June 2016): 25, <https://doi.org/10.2147%2FNDT.S107905>.

⁵⁰ Anastasia Mangiaruga et al., "Spotlight on dream recall," *Nature and Science of Sleep* 10 (2018): 1, <https://doi.org/10.2147/NSS.S135762>.

are going to have initially mild memory deficiencies and later develop Alzheimer's and other disorders, and, presently, we really have no pharmacological treatment."⁵¹

Much of the available research on dreaming in older epileptics examines rapid eye movement sleep behavior disorder (RBD). This condition predominantly affects older adults and can co-occur in epileptics.⁵² People with this disorder, lacking the body's natural inhibition of muscle movement during dreaming, appear to enact their dreams while asleep. Behaviors can be violent when there is violent dream content. RBD is associated with higher risk for Parkinson's disease and dementia⁵³ and has also been linked to PTSD, depression, anxiety, and alcohol use.⁵⁴ Given that epileptics have increased risk for PTSD and depression, early treatment of trauma and depression in epileptics may decrease vulnerability to RBD.

Epilepsy and Co-Occurring Disorders

RBD is a good example of the complex relationship between epilepsy and physical and mental health. Depression is the most common disorder co-occurring with epilepsy and the most prevalent mental health disorder afflicting epileptics globally.⁵⁵ The relationship between epilepsy and depression is bi-directional. Recent studies have found that a history of depression increases the risk of developing epilepsy, while epilepsy increases the risk of depression. Suicide rates among epileptics are ten times higher than the general population.⁵⁶ Despite the preva-

⁵¹ UCLA Health, "Finding a Way to Halt Memory Loss," January 31, 2023, <https://www.uclahealth.org/news/finding-way-halt-memory-loss>.

⁵² Raffaele Manni and Michele Terzaghi, "Comorbidity between Epilepsy and Sleep Disorders," *Epilepsy Research* 90, no. 3 (2010): 171, <https://doi.org/10.1016/j.eplepsyres.2010.05.006>.

⁵³ Amber Roguski et al., "A Neurologist's Guide to REM Sleep Behavior Disorder," *Frontiers in Neurology* 11 (2020): 610, <https://doi.org/10.3389/fneur.2020.00610>.

⁵⁴ Chun Yao et al., "Risk Factors for Possible Rem Sleep Behavior Disorder," *Neurology* 92, no. 5 (January 29, 2019): E475, <https://doi.org/10.1212/WNL.0000000000006849>.

⁵⁵ Claudia Espinosa-Garcia, Helena Zeleke, and Asheebo Rojas, "Impact of Stress on Epilepsy," *International Journal of Molecular Science* 22, no. 8 (2021): 4061, <https://doi.org/10.3390%2Fijms22084061>.

⁵⁶ Andres M. Kanner, "Depression in Epilepsy," *Biological Psychiatry* 54, no. 3 (2003): 388, [https://doi.org/10.1016/S0006-3223\(03\)00469-4](https://doi.org/10.1016/S0006-3223(03)00469-4).

lence of depression in epileptics, mood disorders often go undiagnosed and untreated.⁵⁷ The diagnosis of depression in epileptics can be more difficult because the clinical picture of depression in epileptics does not correspond to diagnostic classification systems.⁵⁸ Further, the stigma associated with epilepsy can cause epileptics to hide depression and isolate rather than obtain help.

We have research on the dreams of people with depression, but not, to my knowledge, on the dreams of epileptics with depression compared with epileptics without depression. Negative dream content is found in both the dream reports of epileptics and those of people with depression, with depressed subjects having “fewer characters in their dreams and especially fewer strangers.”⁵⁹ Research into the differences between depressed and non-depressed epileptics might facilitate early intervention and treatment of depression in epileptics.

Epilepsy is also linked to PTSD. There is increased prevalence of PTSD among epileptics while traumatic experience increases the risk of epileptic seizures.⁶⁰ Some people develop PTSD and psychiatric symptoms following epileptic seizures. Both people with epilepsy and people with PTSD experience significant sleep disturbance, increased nightmares, and negative dream content. While there is considerable research on trauma and dreams, there is little research on the dreams of traumatized epileptics. Stress and stress disorders can play a critical role in the health of epileptics.

⁵⁷ Christian Prueter and Christine Norra, “Mood Disorders and their Treatment in Patients with Epilepsy,” *The Journal of Neuropsychiatry and Clinical Neurosciences* 17, no. 1 (2005): 20, <https://doi.org/10.1176/jnp.17.1.20>.

⁵⁸ Eva Bølling-Ladegaard et al., “Directionality of the Association Between Epilepsy and Depression: A Nationwide Register-Based Cohort Study,” *Neurology* 100, no. 9 (2023): E932, <https://doi.org/10.1212/WNL.0000000000201542>.

⁵⁹ Deirdre Barrett and Michael Loeffler, “Comparison of Dream Content of Depressed vs Nondepressed Dreamers,” *Psychological Reports* 70, no. 2 (1992): 403, <https://doi.org/10.2466/pro.1992.70.2.403>.

⁶⁰ Harriet J. Rosenberg et al., “A Comparative Study of Trauma and Posttraumatic Stress Disorder Prevalence in Epilepsy Patients and Psychogenic Nonepileptic Seizure Patients,” *Epilepsia* 41, no. 4 (April 1, 2000): 447, <https://doi.org/10.1111/j.1528-1157.2000.tb00187.x>.

Stress has been found to trigger seizures in both children and adults.⁶¹ One study found COVID-19 infection significantly increased vivid dreams and nightmares in patients with daytime (diurnal) seizures. The researchers observed “significant deterioration in general health in patients with active epilepsy during the COVID-19 pandemic, regardless of COVID-19 disease.”⁶² Nightmares and intense or vivid dream content may signal a need for stress reduction interventions in epileptics.

Co-occurring disorders can complicate epilepsy treatment, challenging us to understand the complexity of the disease. While as yet we know little about the dreams of epileptics with co-occurring disorders, a greater understanding of and attention to epileptic dreaming might facilitate treatment. Increased negative dreams in epileptics may signal a need for treatment of depression. Severity of PTSD symptoms correlates with difficulty in identifying internal feelings and emotions.⁶³ Therapeutic work with dreams may help epileptics identify and process emotion. Clara Hill’s Cognitive-Experiential-Dream Model, for example, facilitates exploration of dreams to gain insight. Might Hill’s Model help increase insight into feelings and lessen the severity of post seizure symptoms?

Nightmares and Epilepsy

Nightmares are intense, frightening or distressing dreams. While nightmares are a normal part of healthy dreaming, they can undermine health and wellbeing when they recur with frequency and intensity. They can also be an indicator of physical and psychological distress and illness. Nightmares have been found to negatively impact sleep quality,

⁶¹ Maeike Zijlmans, Jolien S. Van Campen, and Al De Weerd, “Post Traumatic Stress-Sensitive Epilepsy,” *Seizure: European Journal of Epilepsy* 52 (2017): 20, <https://doi.org/10.1016/j.seizure.2017.09.010>.

⁶² Jana Slonkova et al., “The Effects of COVID-19 on Sleep and General Health of Czech Patients with Epilepsy,” *Helicon* 9, no. 2 (2023): e13413, <https://doi.org/10.1016/j.helicon.2023.e13413>.

⁶³ Man Cheung Chung, Rachel D. Allen, and Ian Dennis, “The impact of self-efficacy, alexithymia and multiple traumas on posttraumatic stress disorder and psychiatric co-morbidity following epileptic seizures,” *Psychiatry Research* 210, no. 3 (2013): 1043, <https://doi.org/10.1016/j.psychres.2013.07.041>.

and increase anxiety before sleep.⁶⁴ This makes nightmares problematic for epileptics as poor sleep quality can increase seizure activity.⁶⁵

Several factors have complicated research into epileptic nightmares. Zadra suggests that nightmare research has suffered from “inconsistent definitions.” Hartman (1984), for example, defines a nightmare as a frightening dream that awakens the dreamer, other researchers have not used the waking criteria, and still others have let study participants determine whether their dream is a nightmare.⁶⁶ Research has found nightmares to be more prevalent in certain types of epilepsy. Silvestri and Bromfield, for example, have found recurrent nightmares in people with TLE.⁶⁷ To further complicate study of epileptic nightmares, nocturnal seizures, particularly complex partial seizures, may appear to be nightmares. These “nightmares” are more likely to occur during NREM.⁶⁸

The relationship between sleep and emotion regulation is well documented.⁶⁹ Sleep helps us regulate emotions. Poor sleep quality can result in emotion dysregulation. Nightmares may help us process negative and frightening experiences; but chronic or traumatic nightmares can interfere with sleep. Sleep disruption, in turn, can trigger seizures in epileptics. Epileptics who experience nightmares may benefit from interventions that help process the distress associated with nightmares. There are a number of models for helping people deal with nightmares. These include self-help models a parent might use with an epileptic

⁶⁴ Franc Paul, Michael Schredl, and Georg W. Alpers, “Nightmares Affect the Experience of Sleep Quality but Not Sleep Architecture,” *Borderline Personality Disorder and Emotion Dysregulation* 2, no. 3 (2015): 1, <https://doi.org/10.1186/s40479-014-0023-4>.

⁶⁵ de Chapelle et al., “Relationship,” 7.

⁶⁶ Antonio Zadra and Don C. Donderi, “Nightmares and Bad Dreams,” *Journal of Abnormal Psychology* 109, no. 2 (2000): 273, <https://doi.org/10.1037/0021-843X.109.2.273>.

⁶⁷ Rosalia Silvestri and Edward Bromfield, “Recurrent Nightmares and Disorders of Arousal in Temporal Lobe Epilepsy,” *Brain Research Bulletin* 63, no. 5 (2004): 369, <https://doi.org/10.1016/j.brainresbull.2003.12.009>.

⁶⁸ Mark Solms, “Neurobiology and the Neurological Basis of Dreaming” in *Handbook of Clinical Neurology Part 2, Vol. 98*, eds. Pasquale Montagna and Sudhansu Chokroverty, (Elsevier, 2011): 519, <https://doi.org/10.1016/B978-0-444-52006-7.00034-4>.

⁶⁹ Marie Vandekerckhove and Yu-lin Wang, “Emotion, Emotion Regulation and Sleep: An Intimate Relationship,” *AIMS Neuroscience* 5, no. 1 (2018): 1, <https://doi.org/10.3934/Neuroscience.2018.1.1>.

child such as Alan Siegel's *Nightmare Remedies*. Siegel's model is a four-step process for "transforming nightmares" that can be used by children and adults.⁷⁰ They also include interventions a therapist might use with an epileptic client suffering from PTSD, such as imagery rehearsal therapy.⁷¹ This is a cognitive-imagery approach that has been used successfully to treat nightmares in trauma survivors.

Epilepsy, Dreams, and Spiritual Experience

Recent decades have witnessed a sea change in our understanding of the relationship between epilepsy and spirituality. Forces driving this change include greater awareness of multi-cultural influences, new diagnostic paradigms of epileptic spiritual experience, and a growing interest in spirituality in modern healthcare. Spirituality has been found to have a significant impact on physical, mental, and social health,⁷² yet is often inadequately addressed in medical practice.⁷³

While epilepsy has long been associated with the supernatural, there appear to be few studies on spiritual content in the dreams of epileptics. Recent research suggests correlations between seizure related spiritual experience in epileptics and the spiritual experiences of non-epileptics. Neurological studies, for example, have found that epileptic (ecstatic) spiritual experiences affect the activity of the insula while stimulation of the insula produces spiritual experience in non-epileptics.⁷⁴ De la Chapelle et al. note that dreams commonly found in the general popu-

⁷⁰ Alan B. Siegel, *Dream Wisdom: Uncovering Life's Answers in Your Dreams* (San Mateo, CA: Celestial Arts, 2002).

⁷¹ Barry Krakow and Antonio Zadra, "Clinical Management of Chronic Nightmares: Imagery Rehearsal Therapy," *Behavioral Sleep Medicine* 4, no. 1 (2006): 45, https://doi.org/10.1207/s15402010bsm0401_4.

⁷² Zachary Zimmer et al., "Spirituality, Religiosity, Aging and Health in Global Perspective," *SSM - Population Health* 2 (2016): 373, <https://doi.org/10.1016/j.ssmph.2016.04.009>.

⁷³ Darpan Kaur Mohinder Singh and Shaunak Ajinkya, "Spirituality and Religion in Modern Medicine," *Indian Journal of Psychological Medicine* 34, no. 4 (2012): 399, <https://doi.org/10.4103/0253-7176.108234>.

⁷⁴ Markus Gschwind and Fabienne Picard, "Ecstatic Epileptic Seizures," *Frontiers in Behavioral Neuroscience* 10, no. 21 (2016): 1, <https://doi.org/10.3389/fnbeh.2016.00021>.

lation can be very similar to epileptic auras, “suggesting the involvement of common brain networks in the two phenomena.”⁷⁵

There are several types of epileptic experience associated with spirituality that may be reflected in dream content: ecstatic seizures, prophetic or precognitive dreams, spiritual auras, and post-ictal religious experience. Ecstatic epilepsy may help to explain epilepsy’s long association with the spiritual. This is a type of focal epilepsy in which the aura (the beginning of the seizure) consists of profoundly positive feelings. Gschwind and Picard write: “ecstatic auras provoke feelings of well-being, intense serenity, bliss, and ‘enhanced self-awareness. They are associated with the impression of time dilation, and can be described as a mystic experience by some patients.”⁷⁶ Dostoevsky wrote the first detailed description of ecstatic seizures in his novel *The Idiot*. Research suggests these seizures occur in only a small percentage of epileptics; however, they may be underreported. Ecstatic seizures share many qualities of impactful or “big” dreams.

Prophetic and precognitive dreams have long played a role in religion and have been associated with spiritual experiences. Research has found psi-related experience to be correlated with TLE. However, limbic temporal lobe psi phenomena have also been found during dreaming of non-epileptics.

Seizure-related spiritual experiences occur most often in people with TLE⁷⁷ and may be incorporated into epileptic dreams.⁷⁸ Temporal lobe discharge associated with epileptic “religiosity” has also been found in the altered states of consciousness of shamanic healers.⁷⁹ While ecstatic auras occur at the onset of seizures, epilepsy-related conversion experiences occur most often in TLE following seizures (post-ictal).⁸⁰ This suggests that an epileptic spiritual experience can have a lasting impact

⁷⁵ de Chapelle et al., “Relationship,” 6.

⁷⁶ Gschwind and Picard, “Ecstatic,” 1.

⁷⁷ Orrin Devinsky and George Lai, “Spirituality and Religion in Epilepsy,” *Epilepsy and Behavior* (May 2008): 636, <https://doi.org/10.1016/j.yebeh.2007.11.011>.

⁷⁸ de la Chapelle et al., “Relationship.”

⁷⁹ Michael Winkelman, “Shamanism, Psychedelics, and the Alteration of Consciousness,” in *Stanley Krippner: A Life of Dreams, Myths and Visions*, eds. Jeannine Davies and Daniel Pitchford (Colorado Springs, CO: University Professors Press 2015): 77.

⁸⁰ Devinsky and Lai, “Spirituality,” 636.

on the spirituality of epileptics. Research has found improved quality of life is significantly predicted in epileptics by spirituality scores in Awe and Transcendence (World Health Organization QOL, WHOQOL 100).⁸¹

Seizure-related spiritual experiences are poorly understood. Future dream research into the spiritual content of epileptic dreams could help us better understand these experiences, their relationship to the dreams of non-epileptics, and their impact on the spirituality and quality of life of people with epilepsy.

Western medicine has focused on epileptic spiritual experience as symptomatic of pathology. According to Spiers, “The Medical Model has historically characterized epileptic spiritual experience as delusional or hallucinatory ‘hyper-religiosity.’”⁸² The term “hyper-religiosity” is used in Western medicine to describe epileptic behavior changes considered extreme or out of balance compared to norms. While it is important for healers to identify unbalanced behaviors that interfere with healthy function, the term “hyper-religiosity” is problematic as both the concepts of religiosity and balance are subject to significant cultural variation.

Spiritual experiences are shaped by cultural perceptions, religious traditions, and subjective differences. One culture’s shaman is another culture’s psychotic. Devinsky notes: “Normal function is culturally defined and varies radically.”⁸³ He asserts that neuropsychiatry in Western medicine, “focuses almost exclusively on hyper-function, although hypo-function is probably of equal interest and importance, but is unrecognized.”⁸⁴ Thus “hyper-religiosity” would be considered pathological, but a lack of interest in or experience of religion or spirituality would be considered normal. In contrast, many cultures employ spiritual practices that foster intense spiritual experiences (such

⁸¹ Anna R. Giovagnoli, Rute F. Meneses, and Antonio Martins da Silva, “The Contribution of Spirituality to Quality of Life in Focal Epilepsy,” *Epilepsy and Behavior* 9, no. 1 (August 2006): 133, <https://doi.org/10.1016/j.yebeh.2006.04.002>.

⁸² Louise Spiers, “Dreamy States and Cosmic Wanderings: An Autoethnographic Narrative of Spiritual Experiences in Epilepsy,” *Departures in Critical Qualitative Research* 10, no. 1 (2021): 50, <https://doi.org/10.1525/dcqr.2021.10.1.50>.

⁸³ Devinsky and Lai, “Spirituality,” 637.

⁸⁴ Devinsky and Lai, “Spirituality,” 637.

as sweat lodges, fasting, prolonged isolation, and the ceremonial use of hallucinogens).⁸⁵ In these cultures an epileptic with intense religious experience (including spiritual dreams) might be considered normal, or even gifted. As important, cultures that embrace intense religious states are likely to provide containers for these experiences. These containers might include religious narratives, communal gatherings, rituals, dream interpretation, methods for spiritual discernment, spiritual vocations, spiritual directors, guides, and healers. Containers can help the individual connect their experience with the larger communal narrative.

A failure to take these cultural and personal differences into account can have negative consequences.⁸⁶ New paradigms for “hyper-religiosity” have been suggested. Based on the results of their research, Dolgoff-Kaspar et al. suggest that the spirituality of epileptics with frequent numinous auras is “an experiential, personalized, and atypical form, which may be distinct from traditional, culturally based religiosity” and is “better described by the term *cosmic spirituality* than hyper-religiosity.”⁸⁷ Spiers suggests an autoethnographic narrative to describe and analyze the spiritual experiences of epileptics from a nonmedical perspective.⁸⁸

An Ancient Disease in a Modern World: Technology, Epilepsy, and Dreams

The modern world presents both unprecedented challenges and opportunities for epileptics at a time when epilepsy cases are rising. The United States reports significant incidence increases in both children

⁸⁵ Devinsky and Lai, “Spirituality,” 637.

⁸⁶ The book by Anne Fadiman, *The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures* (New York: Farrar, Straus and Giroux, 2012) provides a powerful account of how a cultural clash can impact epileptics and their families.

⁸⁷ Rima Dolgoff-Kaspar et al., “Numinous Like Auras and Spirituality in People with Partial Seizures,” *Epilepsia* 52, no. 3 (2011): 640, <https://doi.org/10.1111/j.1528-1167.2010.02957.x>.

⁸⁸ Spiers, “Dreamy States,” 50.

and adults,⁸⁹ and Korea is seeing an increase in epilepsy among the elderly.⁹⁰ There has also been a significant rise in epilepsy mortality rates in the USA (98.8% between 1999 and 2017) at a time when deaths due to any cause declined 16.4%.⁹¹ These increases are troubling given the significant treatment gap in epileptic care globally. Over 50 million people worldwide have epilepsy. Over 80% of these people live in low- and middle-income countries where people have limited access to ASMs or surgical treatment. There are also considerable disparities in epilepsy treatment in high-income countries.⁹² A consistent finding across regions is that the most vulnerable people have the least access to treatment.

In light of the increasing numbers of epileptics and the significant treatment gap in epileptic care, we face a dual challenge. On the one hand, we need to bridge the treatment gap and expand care options. Technology provides numerous resources to help with this. On the other hand, we need to make our world more epilepsy friendly. To do this we need to understand the challenges epileptics face in a modern world.

Our Changing Relationship with Light: technology, sleep, and dreams

Change in our light environment is one of the most significant environmental factors impacting sleep, dreaming, and epilepsy. Modern technology has radically altered the way we experience light. A. Fisk et al. write: “Extended periods of abnormal light exposure can result in circadian disruption, which has been implicated in changes in metabo-

⁸⁹ Christopher M. Degiorgio et al., “Why Are Epilepsy Mortality Rates Rising in the United States? A Population-Based Multiple Cause-of-Death Study,” *BMJ Open* 10, no. 8 (2020): 35767, <https://doi.org/10.1136/bmjopen-2019-035767>.

⁹⁰ Ji Ye Jeon et al., “Increasing Trends in the Incidence and Prevalence of Epilepsy in Korea,” *Journal of Clinical Neurology (Korea)* 17, no. 3 (2021): 393, <https://doi.org/10.3988/jcn.2021.17.3.393>.

⁹¹ Degiorgio et al., “Why Are Epilepsy,” 35767.

⁹² Jacob Pellinen, “Treatment Gaps in Epilepsy,” *Frontiers in Epidemiology* 2 (August 2022): 976039, <https://doi.org/10.3389/fepid.2022.976039>.

lism, sleep, and cognition.”⁹³ Anything that negatively impacts sleep can influence dreaming and increase seizure activity in epileptics.

Electronic devices emitting blue light (cell phones, tablets, laptops) can significantly affect melatonin and circadian rhythms.⁹⁴ These changes have some impact on everyone; but can be particularly problematic for epileptics. Circadian rhythm influences both the timing and severity of seizures. Curiously, it can also affect the efficacy of ASMs. Studies have found that the time when an ASM is taken (morning, evening) can improve seizure control.⁹⁵ Circadian-driven fluctuations also impact dreaming and have been found to correlate with changes in the central characteristics of dream reports.⁹⁶

The prevalence of flickering light is another change in our light environment that is problematic for people with photosensitive epilepsy. This is a type of epilepsy in which seizures are triggered by flashing or flickering lights (usually at high intensity) or contrasting light and dark patterns. Photosensitive epilepsy is most common in children and youth. Electronic devices prevalent in modern life can provoke seizures in epileptics. TVs, computer games, electronic instruments with flickering displays, strobe lighting and faulty fluorescent lighting are all common triggers.⁹⁷

While photosensitive epilepsy makes up only 5% of epileptics, recent research suggests flickering light may have a broader impact.⁹⁸ R.

⁹³ Angus S. Fisk et al., “Light and Cognition: Roles for Circadian Rhythms, Sleep, and Arousal,” *Frontiers in Neurology* 9 (2018): 1, <https://doi.org/10.3389/fneur.2018.00056>.

⁹⁴ Eric Suni and Abhinav Singh, “Light & Sleep: Effects on Sleep Quality,” Sleep Foundation, accessed November 8, 2023, <https://www.sleepfoundation.org/bedroom-environment/light-and-sleep>.

⁹⁵ Bo Jin et al., “Epilepsy and Its Interaction with Sleep and Circadian Rhythm,” *Frontiers in Neurology* 11 (May 8, 2020): 330, <https://doi.org/10.3389/fneur.2020.00327>.

⁹⁶ Erin J. Wamsley et al., “Circadian and Ultradian Influences on Dreaming,” *Brain Research Bulletin* 71, no. 4 (January 9, 2007): 347, <https://doi.org/10.1016/j.brainres-bull.2006.09.021>.

⁹⁷ The Epilepsy Foundation has specific recommendations for the frequency, intensity and types of patterns that are safe for photosensitive epileptics (Epilepsy Foundation, “Shedding Light on Photosensitivity, One of Epilepsy’s Most Complex Conditions,” accessed November 10, 2023, <https://www.epilepsy.com/stories/shedding-light-photosensitivity-one-epilepsys-most-complex-conditions-o>).

⁹⁸ Antonio Martins da Silva and Bárbara Leal, “Photosensitivity and Epilepsy,” *Seizure* 27 (2017): 209, <https://doi.org/10.1016/j.seizure.2017.04.001>.

Inger et al. report: “flickering light has been shown to have detrimental effects in humans and other species.”⁹⁹ Animal studies have found light flicker influences “behavioural and movement patterns, visual systems and levels of stress.”¹⁰⁰ Research that helps us to understand the impact of artificial light sources on epileptic sleep and dreaming may help us adapt technology to the health needs of individuals, and the wellbeing of our own and other species.

Stigma and fear of seizure onset can lead to social isolation and increase the risk of depression in epileptics.¹⁰¹ Changes in our light environment can increase social isolation for people with epilepsy. Epileptics may need to avoid light environments (theater and social events with strobe lights, stores with faulty fluorescents) and activities (such as video games) that can trigger seizures. The dream content of epileptics reflects this experience of isolation. Bentes writes: “Social isolation, absence of future perspectives, and quality of life seem to be reflected in the dream content of patients with TLE.”¹⁰² The trend toward higher familiarity in characters found in epileptic dream content may also reflect social isolation.¹⁰³ Dream sharing may help forge social connections and reduce isolation. The dreams of a person with epilepsy carries the emotional weight of their experience of seizures but will also reflect the daily concerns, emotional valence, and search for meaning present in the dreams of non-epileptics. Dream sharing may potentially provide common ground and a space to heal internalized stigma.

⁹⁹ Richard Inger et al., “Potential Biological and Ecological Effects of Flickering Artificial Light,” *PLoS ONE* 9, no. 5 (May 29, 2014): 98631, <https://doi.org/10.1371/journal.pone.0098631>.

¹⁰⁰ Inger et al., “Potential Biological.”

¹⁰¹ Chrysanthi Papoutsis et al., “Interrogating the Promise of Technology in Epilepsy Care,” *Sociology of Health and Illness* 11 (2021): 929, <https://doi.org/10.1111/1467-9566.13266>.

¹⁰² Carla Bentes et al., “Dream Recall Frequency and Content in Patients with Temporal Lobe Epilepsy,” *Epilepsia* 52, 11 (2011): 2022–27, <https://doi.org/10.1111/j.1528-1167.2011.03290.x>.

¹⁰³ Bentes et al., “Dream Recall,” 2022.

The Promise of Technology

Technology presents challenges for epileptics but also promises resources. Technological advances in neurosurgery are particularly exciting. Implantable antiepileptic devices promise to benefit the 25% of epileptics whose seizures cannot be controlled by ASMs.¹⁰⁴ Researchers are currently developing devices that can be implanted in patients with memory disorders.¹⁰⁵ The robotic insertion of electrodes, and the use of computer programs to analyze surgical outcomes and predict treatment strategies can improve surgery outcomes.¹⁰⁶

There are a number of apps that may help improve sleep and dream recall, including apps designed to reduce sleep problems and nightmare disorder, anxiety reduction apps, and apps that facilitate dream journaling. There are numerous apps and wearable devices that can help epileptics track sleep, seizures, and set reminders for taking medication. Wearable seizure detection devices, monitors, and alerts are a rapidly expanding area of research and production.¹⁰⁷ Digital seizure diaries can be helpful in tracking and sharing information about seizures, triggers, medications, and appointments.

Telemedicine makes both medical and therapeutic care more available to epileptics, can facilitate medication adherence, and communication with healthcare providers.¹⁰⁸ This is of particular importance for epileptics who live in areas without public transit, or rural areas lacking access to physicians and therapists. Currently, disparities in access to technology limit the use of telemedicine for many who might benefit.

¹⁰⁴ William C. Stacey and Brian Litt, "Technology Insight: Neuroengineering and Epilepsy – Designing Devices for Seizure Control," *Nature Clinical Practice Neurology* 4, no. 4 (2008): 190, <https://doi.org/10.1038/ncpneuro0750>.

¹⁰⁵ UCLA Health. "Finding a Way."

¹⁰⁶ Mauricio Medina-Pizarro, Dennis D. Spencer, and Eyiymisi C. Damisah, "Recent Advances in Epilepsy Surgery," *Current Opinion in Neurology* 36, no. 2 (2023): 95, <https://doi.org/10.1097/WCO.0000000000001134>.

¹⁰⁷ Guidelines for using seizure detection devices can be found at Epilepsy Foundation, "Role of Seizure Alerts," accessed November 10, 2023, <https://www.epilepsy.com/complications-risks/early-death-sudep/role-seizure-alerts>.

¹⁰⁸ Francesco Brigo et al., "Telemedicine and the Challenge of Epilepsy Management at the Time of COVID-19 Pandemic," *Epilepsy and Behavior* (2020): 1, <https://doi.org/10.1016/j.yebeh.2020.107164>.

There are a number of ways in which technology can help researchers interested in studying epileptic dreams. Wearable devices that detect seizures and sleep stages, and digital seizure diaries when combined with dream journaling could help researchers correlate dream content with seizure activity. Technological resources such as DreamSAT, which facilitates automated data entry and statistical analysis, and the Sleep and Dream Database (SDDb), which provides an archive of dream reports as well as a word search tool, make dream research more accessible to both researchers and healthcare providers.

Conclusion

This article has, admittedly, covered a lot of ground. A survey of recent studies on sleep, epilepsy, and dreams affords insight into the protective role of REM, and the impact of circadian fluctuations on seizures and dreaming. Research on epileptic dream content sheds light on the vivid, intense, nightmarish and, at times, sublime inner experience of people with epilepsy. While providing an overview of recent studies, this article has also examined the concerns of epileptics in the modern world for which as yet we have little research. I believe that dream research has the potential to facilitate diagnosis, decrease stigma, improve understanding of epilepsy among healthcare providers, and increase epileptics' own self-understanding of their disease, their spirituality, and their place in the world.

In conclusion I would like to share an excerpt from an epileptic's dream. The dreamer is a woman with photosensitive TLE. She writes: "I dream I'm on top of a mountain. I'm confused and going into a seizure. I need someplace safe to hide. I run to the very edge of the mountain. By now I'm numb and can't talk. Suddenly I'm thirsty. I see a beautiful faceted crystal goblet with light flashing from it. I drink the light. Now I'm drunk but there's nowhere to lie down. I want someone to help me but no one sees me. I have no words. I'm light-headed. Then my head is empty. Then I'm alone in the dark."

The dream reflects seizure symptoms (numbness, aphasia, confusion), the dreamer's complex relationship with light, sense of isolation, and need to hide. It is my hope that we can make our world a place

where epileptics feel seen, where it is safe to ask for help, and where no one is left alone in the dark.

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DREAMING WITH AI

Sheldon Junker

Introduction

Humans have had a long, complex, and often fraught relationship with technology. From the days of Gutenberg's printing press to the widespread adoption of the Internet, every significant technological advancement has changed the way we think about the world, how we relate to one another, and even what it means to be human.¹ We take for granted that many of the features of our everyday lives were once new technological breakthroughs, and our failure to see this only shows the extent to which we are defined by our relationships with them. For example, few of us would see the books on our shelves as advanced technology, but from a historical perspective, and given the relatively short period of human culture, they are nothing less. Printed media allowed the efficient dissemination of information, reliable sources of truth, and a method of inexpensive and therefore accessible education. This revolutionized the world, and many argue that this technology is what allowed for the predominance of linear thought and large, organized, and uniform populaces.²

Understandably then, these new technologies have always been accompanied by both enthusiasm for their potential to elevate and suspicion about their ability to disrupt and degrade the human experience. Many people were worried that the introduction of the printing press

¹ Antonio Cartelli, Luisa Miglio, and Marco Palma, "New Technologies and New Paradigms in Historical Research," *Informing Science: The International Journal of an Emerging Transdiscipline* 4 (2001): 61–62, <https://doi.org/10.28945/1559>.

² Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962).

and the corresponding ability for anyone to publish their own literature would lower the quality of available information and would end in the degradation of human cognitive faculties. This has been a repeated concern with many other technological advancements, including radio, film, and television.³ Though these are all undeniably beneficial, the questions remain: Who will get to use these technologies? How will they be abused? How will we be affected by them?

In this realm of continual technological progress, the electronic age, marked by the Internet and digital innovations, has brought about further dramatic and unprecedented changes. From the introduction of the Internet to social media, to online dating, we as a species have been inundated in a short time with technological changes that have been a challenge to adapt to. Having barely had a chance to take a breath, we find ourselves standing once again at the threshold of another technological revolution: we face the beginning of the age of Artificial Intelligence (AI). And while not everyone realizes it, the fingerprints of AI are already visible everywhere. They determine the videos we watch, the songs we listen to, the stocks we invest in, and even the vehicles we drive—or, in the case of self-driving cars, the vehicles in which we are chauffeured.⁴

With the rise of AI-enabled creative tools, the lines between human and machine are blurred even further. Any individual with a minimal amount of technological skill can, with the aid of AI image generation systems, produce artistic pieces that would have been considered masterpieces by previous generations. The same is true with the works produced by AI systems using generative text models, which can produce text that is in many cases indistinguishable from that authored by humans. They have transformed the digital landscape, acting as our programming partners, academic allies, and creative collaborators.

³ Neil Postman, *Amusing Ourselves to Death: Public Discourse in the Age of Show Business* (New York: Penguin Books, 2006).

⁴ Ed Newton-Rex, “59 Impressive Things Artificial Intelligence Can Do Today,” *Business Insider*, March 7, 2017, <https://danielschristian.com/learning-ecosystems/2017/03/27/59-impressive-things-artificial-intelligence-can-do-today-7-other-items-re-artificial-intelligence-machine-learning-deep-learning/>.

With such impressive credentials, one wonders where the limitations of these AI systems are. Many of these domains have always been thought to require human intelligence, intuition, and creativity, but time and time again, AI has demonstrated its ability to rival even the most competent humans in a variety of situations. To further determine the ability of AI systems, we decided to explore an area that has been largely unaddressed in the context of AI research—an area that we believe is less concerned with the replacement or mimicry of human activity, and more to do with deepening our understanding of what it means to be human in such a technology-focused era. We wondered: To what extent could AI help us understand our own psyches? Could it help us live more fully in a world of complex, personal symbology? Could it provide us with new insights about our lives and relationships? In short, we asked the question of whether AI, with all its automated algorithms and vast neural networks, could help us delve into the mysterious and mystical world of our dreams.

Just as humans have always had an intricate relationship with technology, we share an equally profound connection with our dreams. From time immemorial, dreams have captivated the human psyche, their innate, nightly ritual sparking curiosity and introspection, driving us to seek and create meaning and significance. Throughout history, dreams have been perceived as windows into other realms. They have offered us glimpses into our psyches, served as pathways to commune with higher beings, and provided insights into the enigmatic and symbolic world we all inhabit. Whether viewed as prophetic foretellings of future events, wellsprings of artistic inspiration, or compasses guiding pivotal life decisions, dreams have played a central role in shaping personal and collective narratives. For some, dreaming transcends mere nocturnal visions and is itself a spiritual practice. The aspirations to reach lucidity, journey through astral realms, or connect to a higher self to attain enlightenment illustrate the profound depths of our engagement with this phenomenon.⁵

⁵ Kelly Bulkeley, *Dreaming in the World's Religions: A Comparative History* (New York: New York University Press, 2008), 3–4.

In their quest to decipher dreams, cultures have always turned to various texts and interpreters. These individuals, along with their writings, became sources of wisdom, offering explanations and insights into phenomena that are otherwise often seen as nothing more than the random and meaningless byproducts of the sleeping mind or brain. Over the centuries, these collective insights and the oral and written records that they produced have led to the development of numerous traditions surrounding dreams and dream interpretation.⁶ From shamanic traditions focused on communion with ancestors and the spirit world, dream interpretation practices have evolved into modern approaches rooted in psychoanalytical theory. Notable among these are the symbolic frameworks proffered by Freudian and Jungian practices of interpretation.⁷ The most common way that dreams are interpreted in these frameworks is in the process of individual psychoanalysis in which clients share dreams with trained professionals—or analysts—so that they can be explored and understood in the context of the client's life situation and personal development.

However, in our technologically advanced era, many people are turning instead to apps and software to aid in the interpretation of their dreams. Examples abound with countless online websites and communities dedicated to dream symbols and interpretation. Coming full circle back to artificial intelligence, even more recently, there are many mobile apps such as Elsewhere, Oniri, and Dream App, all of which are providing their users with insightful AI-based dream interpretations.⁸ Even though these AI-driven analyses are becoming increasingly common, a formal examination of the integration of AI with dream analysis remains largely unexplored, to our knowledge. To rectify this, we decided to perform a variety of experiments or explorations into the capacity of AI systems to both interpret individual dream reports and

⁶ Bulkeley, *Dreaming in the World's Religions*.

⁷ Kelly Bulkeley, *An Introduction to the Psychology of Dreaming* (Westport, CT: Praeger, 1997), 3.

⁸ Sheldon Juncker, Daniel Kennedy, and Gez Quinn, *Elsewhere*, Version 3.7.5, Google Play Store, released November 16, 2023; Oniri Inc., *Oniri - Explore your dreams*, Version 1.26, Google Play Store, released November 9, 2023; DreamApp Ltd., *DreamApp: Journal & Dictionary*, Version 5.37.13, Google Play Store, released November 8, 2023.

to analyze the symbols and relationships found within lengthy series of dreams found in dream journals. These analyses will be explored in detail in the following section. Moving beyond just the capabilities of AI, we will also touch upon the broader implications of AI, with a specific focus on the impact on the world of our dreams. This intersection between AI and dream analysis brings with it a unique set of ethical and philosophical challenges. We aim to address these concerns, pondering the consequences of merging AI with our most personal and intimate thoughts, while also offering what we hope is a positive vision for the future.

By the end, we hope that you will not only grasp what AI can achieve in the domain of dream analysis but that you will also understand the underlying tools and technologies. Moreover, we wish to lay a foundation of theoretical and ethical considerations, equipping those interested in make their own informed explorations and contributions. We hope that in doing so, we have made a positive contribution to the long and complex history of mankind's relationship with their technology and their dreams.

Explorations

To determine the ability of AI systems to help us interpret and understand our dreams, we have crafted a set of six explorations or experiments, each emphasizing a different aspect of our dreams and the capabilities of artificial intelligence. The first three analyses will start with a simple and generic dream interpretation and then move to dream interpretations within the two interpretive schools mentioned in the previous section. The next three analyses will focus on patterns detected within one of our own dream journals, where we will be looking at the dreamer's personal symbology, character relationships, and changes to relationships across time.

To facilitate these analyses, we decided to use the GPT-3.5 and GPT-4 generative text models underlying OpenAI's ChatGPT systems. These models have been trained on vast amounts of human knowledge, use high-quality and up-to-date information, and have shown the capacity to produce content that is difficult for humans to distinguish

from human-generated text.⁹ They are also efficient, highly affordable, and accessible, allowing anyone to explore them, even if they have a minimal technological background. They provide limited free tools, advanced paid-for features, and developer playgrounds and APIs for easy testing and exploration. These were of particular interest to us: as both researchers and software engineers, we wanted to maintain an emphasis on practicality and reproducibility. Our goal was to make each exploration user-friendly and straightforward so that any interested reader could reproduce our experiments and gain insights into their own dreams. To aid in this, we have included references to the specific technologies and configurations used in each exploration.

Exploration 1: A Dream Interpretation

In this exploration, we start with a dream report of 105 words, which is roughly the average for a written report, and show the process by which we can generate an interpretation using AI systems.¹⁰ We use OpenAI's GPT-4 model, as is the case with all of our individual dream interpretation examples. For this exercise, we chose a contemporary dream from one of our own private dream journals to ensure that the dream text could not have been included in the AI's training set and thus affect the results.

The dream report was written as follows:

I was in a large building with Dad that also happened to be a train car, taking us somewhere. The issue was that the building was flying and so it was no longer possible to get out halfway through the journey. You could only get out at the end where it touched down on the ground. I had been watching a red bar on a screen indicating the progress it was making. All of a sudden, it jumped to the end where it and the sign above the door showed yellow. I rushed to grab all of my things before the train took off again.

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⁹ Tom B. Brown et al., "Language Models are Few-Shot Learners," *ArXiv:2005.14165 Computer Science* (June 2020): 46, <https://doi.org/10.48550/arXiv.2005.14165>.

¹⁰ Kelly Bulkeley, "Baseline Survey," Sleep and Dream Database, accessed November 24, 2023, [https://sleepanddreamdatabase.org/search_results/%7B%22surveyIds%22:\[%224bd8d2cd-d69d-4b4a-b225-81d6f2a80a69%22\],%22surveyNames%22:\[%22Baseline%20Survey%22\]%7D](https://sleepanddreamdatabase.org/search_results/%7B%22surveyIds%22:[%224bd8d2cd-d69d-4b4a-b225-81d6f2a80a69%22],%22surveyNames%22:[%22Baseline%20Survey%22]%7D).

We used the OpenAI playground environment, which allows developers and other technology enthusiasts to test the capabilities of various OpenAI models in different scenarios. We ran our test with the settings outlined in Config 1.¹¹ Using these settings, we received the following dream interpretation:

This dream could symbolize a journey or process you are going through in your life, possibly with the guidance or influence of your father. The large building being a train car could represent the structure and direction of this journey, while it flying could indicate that it's a journey you can't easily escape or change the course of. The red bar on the screen could symbolize your awareness of the progress you're making in this journey or process. The sudden jump to the end could indicate a sudden advancement or change in your situation. The rush to grab your things before the train takes off again could suggest a fear of being unprepared or left behind. The colors red and yellow could symbolize caution and urgency.

This interpretation is quite insightful and illustrates how advanced these technologies are in that they can easily and quickly generate meaningful dream interpretations with a minimum of guidance and instruction. We will highlight three features of this interpretation.

1. Connects with the Dreamer's Waking-Life Relationships and Situations

One of the standout features of this dream interpretation is its ability to make connections to the dreamer's possible waking-life relationships and situations. For example, when the dream mentions the presence of the dreamer's father, the interpretation suggests that it might revolve around a situation where there is guidance or influence from the father. This shows an understanding of how dreams can often reflect our real-world relationships, especially those with a significant emotional impact. By drawing parallels between the elements of the dream and potential real-life scenarios, the interpretation provides the dreamer with a bridge to connect their subconscious mind to their everyday experiences, there-

¹¹ Under the "Supporting AI Configurations" section, see pp. 191–192.

by enabling a more profound introspection and understanding of their emotions and situations.

2. Analyzes Various Symbols and Their Potential Meanings

Another remarkable feature of the interpretation is the depth of symbol analysis. From the large building being a train car symbolizing the journey's structure to the red bar on the screen symbolizing the awareness of progress, each element is carefully dissected to unearth its potential meaning. The colors red and yellow being associated with caution and urgency further illustrates the keen attention to detail and understanding of symbolic representation. This analysis not only provides the dreamer with a comprehensive breakdown of each dream element but also presents a cohesive narrative that ties these symbols together, offering a broader perspective on the dream's possible significance.

3. Uses Ambiguous Language and Doesn't Provide Definitive Answers

The interpretation helpfully employs ambiguous language, such as "could indicate" and "could symbolize," demonstrating a respectful, non-intrusive approach to dream analysis. Instead of imposing definitive meanings or interpretations, it provides possibilities and allows the dreamer the freedom to resonate with what feels most accurate to their personal experience. This approach recognizes that dreams are deeply personal and subjective, and that their meanings can vary widely among individuals. By providing options rather than certainties, the interpretation empowers the dreamer to connect the dots in a way that feels most authentic to them. It showcases an understanding that, while AI can provide insight and guidance, the ultimate interpretation and meaning of a dream resides with the dreamer.

Overall, this is a high-quality attempt at interpreting the dream and would rival that of any human interpreter if asked to provide a possible interpretation of the dream while being placed under the same limitations regarding word count and lack of additional context about the dream and dreamer.

Exploration 2: A Freudian Analysis

Since AI was clearly up to the task of generating a general dream interpretation, we wanted to push the limits of its capabilities and ask it to provide interpretations within specific schools of dream interpretation theory. Since the text models underlying ChatGPT have been trained using high-quality data from the Internet, it stands to reason that they should be familiar with many different systems of thought for interpreting dreams. To test this, we started by re-framing our prompt to request an expressly Freudian interpretation, without giving any hints or expectations as to what we meant by this. Freudian dream analysis often focuses on the hidden meaning of symbols, repressed emotions, and fears and anxieties related to waking-life situations, and in all of these primarily seeing the dream functioning as wish fulfillment.¹² We wanted to see which of these themes of Freudian analysis the AI system would pick up on by itself. We used the same AI settings as before but have extended the permitted output from 256 tokens to 400 tokens as the longer response will prove illustrative (See Config 2).¹³ This is the result that ChatGPT provided in response to our request for a Freudian dream interpretation:

In a Freudian framework, dreams are seen as a reflection of repressed desires, thoughts, and experiences. The dreamer's journey in the large flying train car could represent their unconscious desire for structure and guidance, possibly from a paternal figure. The train's flight could symbolize the dreamer's feelings of being trapped or unable to control their life's direction, reflecting a sense of helplessness or lack of control.

The red bar on the screen could represent the dreamer's suppressed awareness of their progress or achievements, possibly due to a fear of failure or criticism. The sudden jump to the end could symbolize a repressed desire for quick success or change, reflecting impatience or anxiety about the future.

The rush to grab things before the train takes off again could indicate a fear of abandonment or being left behind, possibly stemming from past experi-

¹² Sigmund Freud, *The Interpretation of Dreams*, trans. A. A. Brill (New York: The Macmillan Company, 1918).

¹³ Under the "Supporting AI Configurations" section, see p. 192.

ences or insecurities. This could also reflect the dreamer's anxiety about being unprepared or not having enough resources to face life's challenges.

The colors red and yellow, in Freudian symbolism, often represent intense emotions. Red can symbolize passion, anger, or danger, while yellow can symbolize caution, cowardice, or deceit. In this dream, these colors could reflect the dreamer's repressed emotions or fears related to their life journey.

This interpretation has many elements in common with the earlier general interpretation, but given the expanded output limit and additional prompting, it expands upon and adds to those features in a discernibly Freudian way. The following highlights several of the uniquely Freudian features of this analysis and how they differ from the general interpretation.

1. Focuses More on the Symbolic Significance and Less on Waking-Life Situations

While the general interpretation tends to directly relate the dream's contents to the dreamer's waking-life relationships and situations, the Freudian analysis leans heavily into symbolic significance. For instance, rather than drawing a direct connection to the dreamer's father, the Freudian interpretation suggests that the train car and its journey might symbolize the dreamer's unconscious desire for a kind of authoritarian or paternal structure and guidance. This approach aligns with Freud's belief that dreams are often coded messages from the unconscious, filled with symbols that require deciphering to understand the underlying desires and emotions.

2. Emphasizes Feelings of Fear and Anxiety

Freudian interpretation places a more pronounced emphasis on underlying feelings of fear and anxiety. For instance, the dream's elements, such as the train's flight and the rush to grab belongings before it departs, are viewed through the lens of feelings of helplessness, abandonment, and lack of control. These are interpreted as indicators of the dreamer's deeper insecurities and anxieties, which are potentially rooted in past experiences. Such a focus is characteristic of Freud's belief that

many of our unconscious thoughts and feelings manifest as anxieties and fears in our dreams, reflecting unresolved internal conflicts.

3. Highlights Possible Repressed and Suppressed Emotions

A distinct feature of Freudian analysis is its attention to repressed and suppressed emotions. The red bar on the screen, for example, is not merely a symbol of progress awareness but is seen as a representation of the suppressed acknowledgment of one's achievements, potentially due to a fear of failure. The colors red and yellow are not just symbolic of caution and urgency; they delve deeper into the realm of intense emotions such as passion, anger, deceit, and cowardice. This underscores Freud's theory that dreams are a playground for our repressed desires, emotions, and experiences, providing a window into our unconscious mind.

4. Suggests Wish Fulfillment

One of the cornerstones of Freudian dream interpretation is the concept of wish fulfillment. Dreams, in this view, often represent unsatisfied desires or unfulfilled wishes. In the provided interpretation, the sudden jump to the end of the journey might be seen as a repressed desire for rapid success or an abrupt change, showcasing the dreamer's impatience or anxiety about what the future holds. This nuanced understanding differs from the general interpretation, which could merely view the "jump" as a change in circumstance or situation. It's a clear nod to Freud's theory that dreams serve as a space where our unmet desires play out.

It is pertinent to note, however, that while the interpretation is closely aligned with Freudian theory, there are aspects, like the color yellow, where the AI might be projecting plausible interpretations that are not explicitly mentioned in Freudian literature. Despite this, once again, the AI text-completion model shows its ability to not only provide an insightful and plausible dream interpretation but to incorporate the theories of a specific school of thought.

Exploration 3: A Jungian Interpretation

Seeing that the AI was able to provide a more than passable Freudian-style analysis, we were further curious to see if it would perform as well when providing an analysis using the less well-known and more depth-based Jungian approach. While Jung was, for a time, the student of Freud, and their theories agree on many points, there are some key differences that are worth highlighting here. In Jungian depth psychology, dreams are not primarily symbolically obscured wish fulfillment, but are instead a clear and direct message from the unconscious to the conscious mind, accurately and honestly exposing the underlying psychic state.¹⁴ In Jungian psychology, dream symbolism and metaphor is often connected to archetypes found in the collective unconscious and are meant to be understood and integrated in the pursuit of the organism's health and individuation. Specifically in that endeavor, dreams are seen as providing both compensatory and prospective functions, helping to maintain psychic equilibrium and providing hints at possible future outcomes. To test whether the AI system was capable of providing this style of interpretation, we once again re-framed the original prompt, this time giving it a Jungian bent (see Config 3).¹⁵ This resulted in the following Jungian-style interpretation:

In a Jungian framework, dreams are seen as a way for the unconscious mind to communicate with the conscious mind, often using symbols and metaphors.

The large building that is also a train car could represent the dreamer's life journey or a specific phase of life. The fact that it's also a building might suggest that this journey or phase is a significant one, involving personal growth or development. The presence of the dreamer's father could symbolize authority, tradition, or the influence of the past on this journey.

The flying building/train car could symbolize a feeling of being out of control or being carried along by circumstances. The inability to get out halfway

¹⁴ Marlon Xavier, "Dream Interpretation In Jung's Theory A Comparative Analysis," *The Jung Page*, October 27, 2013, <https://jungpage.org/learn/articles/analytical-psychology/107-dream-interpretation-in-jungs-theory-a-comparative-analysis>.

¹⁵ Under the "Supporting AI Configurations" section, see p. 192.

through the journey might suggest a feeling of commitment or inevitability about this journey or phase of life.

The red bar on the screen could represent the dreamer's awareness of the progress they're making in this journey or phase of life. The sudden jump to the end might suggest a sudden realization or change in perspective.

The color yellow is often associated with caution or warning in Western cultures. The sign turning yellow as the dreamer rushes to gather their things could symbolize a warning or sense of urgency about the need to prepare for the next phase of the journey or life.

Overall, this dream might be interpreted as a message from the dreamer's unconscious about a significant journey or phase of life they're currently undergoing. It might suggest feelings of being carried along by circumstances, a sudden realization or change in perspective, and a sense of urgency about preparing for what's next.

This interpretation is again similar to the previous two but diverges from the Freudian approach in several ways by centering around the broad life path and individuation process of the dreamer. Through the Jungian lens, the dream is seen as a representation of the dreamer's psyche, evoking a more holistic and integrative perspective. It focuses on the symbols as being parts of the dreamer's psyche and as being connected to processes of growth along a life path. Again, we will highlight a few of the Jungian features of this interpretation.

1. A Focus on Symbols and Metaphors Related to the Dreamer's Life

The Jungian interpretation underscores the dream's symbols and metaphors as they relate directly to the dreamer's life journey and personal growth. For instance, the large building that doubles as a train car is not merely an object of transportation or even a specific symbol but is rather a metaphor for the dreamer's ongoing life journey or a particular significant phase in life. This emphasis on symbolic resonance with life stages and personal development is in line with Jung's belief that dreams serve as a window into the individual's internal processes and unconscious perspective. Instead of just pointing to repressed desires or direct connections to waking-life situations, the Jungian approach interprets these symbols as deep-seated elements of the dreamer's psyche that reveal new information about their life path.

2. Shows a More Holistic Process of Growth and Individuation

Another salient feature of the Jungian analysis is its representation of the dream as a comprehensive story of growth and individuation. The dream is not viewed as a disjointed collection of symbols but as an interconnected narrative highlighting the dreamer's process of becoming a whole individual. The presence of the dreamer's father, for example, not only signifies authority or past influences but indicates the dreamer's relationship with tradition, authority, and the influence of the past as they navigate their life journey. The flying train car and the inability to exit it, rather than just pointing to feelings of being out of control, suggest a more profound sense of commitment or inevitability tied to this life phase. Jung's concept of individuation, the journey to becoming a unique individual by integrating different parts of the unconscious into consciousness, is encapsulated in this holistic interpretation.

3. Focuses Less on Repressed Emotions or Fears and Anxieties

Unlike the Freudian perspective, which delved deeply into repressed desires and underlying anxieties, the Jungian interpretation steers away from a predominant focus on these aspects. Instead, it acknowledges emotions and sensations, while centering more on the developmental journey and the messages the unconscious is trying to convey for the individuation of the dreamer. For instance, the color yellow and the rush to gather belongings are not primarily seen as repressed fears or anxieties but are interpreted as symbolic warnings or a sense of urgency related to the dreamer's personal development and life journey. This distinction showcases the tendency of the Jungian approach to view dreams as more direct messages from the unconscious, aiming to guide and inform the conscious self, rather than as coded expressions of repressed feelings or desires.

While still clearly interpreting the same dream and using many of the same themes, this interpretation provides a distinctly Jungian bent and includes features that would not have been brought to light in the other approaches.

Based on these examples, the overall capability of AI in dream interpretation is more than evident. The interpretations it produces arguably rival those of many amateur interpreters and even some professional analysts—again with the need to emphasize that this is only the case under the limitations of context and brevity under which the AI system was placed. With the ability to mold its analysis based on different psychological frameworks, the potential of AI in this domain is vast. Further, these examples are startlingly simple and there are many avenues of future exploration and improvement in the process of AI-based dream interpretation.

That said, since AI has demonstrated exceptional competence in analyzing individual dreams through several interpretive frameworks, we wanted to continue our explorations of AI's capabilities to understand dreams and broaden our focus from isolated dreams to comprehensive dream journals. The goal was to see whether AI would prove useful in quickly and efficiently processing a large number of dreams and being able to pick out interesting patterns that could be used to help individuals learn more about their dreaming—and even waking—lives.

Exploration 4: The “Cat” Symbol Analysis

Because of the importance of symbolic associations in the majority of schools of thought in dream interpretation, understanding the interpretation of symbols within these dream journals was central to our exploration.¹⁶ We aimed to uncover how AI might illuminate the intricate dynamics between the dreamer and their symbols, ultimately assisting individuals in decoding their distinct symbolic lexicon.

We decided to test this by analyzing the symbol “Cat” in a series of dreams from one of our own dream journals. The symbol was chosen primarily for three reasons: its frequent occurrence in dreams, its rich interpretative background, and admittedly, the author's personal affinity for cats. This presented an opportunity to discern whether the AI could identify the dreamer's distinctive relationship with the symbol or merely default to its preexisting general knowledge of dream symbols.

¹⁶ Bulkeley, *An Introduction*, 18, 32, 45–53.

The choice of dream journal was made so that we would be able to verify the results without taking the painstaking time to read through thousands of dream reports and provide our own in-depth analysis. Already having a basis for understanding our own symbolic dream world, using one of our own dream journals made the most sense in terms of being able to fact-check the results of the AI system.

The journal in question contains 1,990 dreams spanning from late 2016 to early 2023, though it also includes several childhood dreams from the late 1990s and early 2000s. The average word count is 250. The dreamer is male, and at the time of this writing, in his late twenties.

The first analysis was performed using the following system. First, all of the dreams with references to “Cats” were collected, looking for words such as “cat,” “cats,” “kitten,” “tabby,” etc. Larger cats, such as lions and tigers were excluded as they are understood to have their own unique representation in symbolic space. Some 67 dreams were found, but due to the limitations of the AI systems, we randomly selected 50 of these. At the time of this writing, these limitations are no longer in place and a significantly larger number could be used for future analyses.

All of the dreams were ordered from oldest to newest and were each given separately to the AI system, which was asked to interpret the symbolic meaning of the “Cat” in the dream. This was meant to provide us with a brief interpretation containing no more than a few sentences and capturing the gist of the meaning of the symbol within the dream. The settings used for these symbol interpretations are outlined in Config 4.¹⁷

Once all of these individual symbol interpretations were collected, they were again ordered by the dream dates from earliest to latest and were fed back into the AI system, this time requesting the AI to take all of the individual interpretations and synthesize them into a holistic picture of the dreamer’s relationship with that symbol. The settings for that request are outlined in Config 5.¹⁸ The resulting synthesis from this experiment was as follows:

Based on the series of short summaries, it seems that the dreamer has a complex and multifaceted relationship with the symbol of the cat. The cat

¹⁷ Under the “Supporting AI Configurations” section, see pp.192–193.

¹⁸ Under the “Supporting AI Configurations” section, see p. 193.

often represents a desire for comfort, affection, and companionship. The dreamer may have a strong attachment to their pet or may long for a sense of security and relaxation. However, the cat also symbolizes independence, self-sufficiency, and a need for personal space. The dreamer may value their freedom and autonomy, and may have a curious and playful nature.

In some dreams, the cat represents the dreamer's nurturing and caring side, as they take care of kittens or show concern for the cat's well-being. This suggests that the dreamer has a natural instinct to protect and provide for others. On the other hand, the cat can also symbolize the dreamer's own need for nurturing and care, as they seek comfort from the cat or desire affection.

The cat's behavior in the dreams can vary, from being tame and content to being skittish or aggressive. This reflects the dreamer's own emotions and experiences. The dreamer may feel overwhelmed or outnumbered by small but persistent problems or obstacles, which they try to address with newfound abilities or tools. There may be a sense of fear or anxiety that the dreamer is trying to conquer or fend off.

Overall, the cat symbol in the dreamer's dreams represents a complex blend of emotions, desires, and experiences. It reflects the dreamer's longing for comfort and affection, their need for independence and self-sufficiency, and their nurturing and protective instincts. The cat symbolizes the dreamer's relationships with others, as well as their own inner world and sense of self.

The AI's interpretation of the cat symbol, as seen in the dreams, is both intricate and expansive, encompassing a broad spectrum of characteristics and associations related to the symbol. One particularly notable observation made by the AI is the dreamer's ownership of a pet cat. While skeptics might dismiss this as a mere projection or fortunate guess, it showcases the depth of understanding embedded within the AI's analysis. It is evident that while some features of the cat symbol interpretation are ingrained in the AI's fundamental understanding, a significant portion is tailor-made, derived specifically from the dreamer's unique relationship with and perception of cats. For instance, when one requests ChatGPT to provide general information on the symbolic meaning of cats in dreams, the model would highlight elements of femininity, mystery, magic, intuition, emotion, independence, sensuality, and omens. Of these characteristics, attributes like independence, instinct, and emotion resonate with the dreamer's specific interpretation. However, the AI astutely identified other traits directly linked to the dreamer's experiences as

reflected in the dreams, including playfulness, curiosity, nurture, and relationship to self/other.

These attributes were discerned and presented by the AI in an impressively short period of time (under 2 minutes of total processing time), underscoring its efficiency. The analysis is not only rich in detail but is also presented in a coherent and reader-friendly format. By synthesizing a myriad of data points, the AI creates a comprehensive narrative that offers both clarity and depth. Most importantly, this AI-driven interpretation was found to be both enlightening and accurate, providing useful insights into the dreamer's self-understanding.

Exploration 5: Relationship Analysis

Having seen the successful outcomes of this symbol analysis, we were eager to test the AI's capability in decoding the dreamer's interactions and affiliations with the characters populating their dreams. A key point to consider here is the continuity hypothesis, which suggests that dreams are a natural reflection of the most recurring and significant elements of our waking lives.¹⁹ Accordingly, many of the characters in our dreams will represent real-life individuals, typically, people we are closest to and therefore the ones with whom we are most likely to want insight and understanding. Thus, comprehending these dream-character relationships might offer a gateway to better understanding the dreamer's real-world relationships and interactions, helping them make appropriate changes and take positive action. It is also often the case in dreams that the distinction between self and other is blurred, and if the AI analysis can help an individual identify these aspects, that understanding, in turn, could serve as a valuable tool for self-reflection and personal growth as they more clearly see which elements of their relationships are projections and which are coming from the environment.

For this analysis, we used the same dream journal and foundational framework that was applied during the symbol analysis, but our fo-

¹⁹ Maja Gutman Mušič et al., "Theoretical Foundations," In Maja Gutman Mušič et al., *2020 Dreams: Toward a New Understanding of the Dreaming-Waking Continuum* (Stanford, CA: Stanford University Press, 2023), <https://2020dreams.supdigital.org/2d/theoretical-foundations>.

cus shifted to the dreamer's interactions with one of their friends and colleagues—an individual they had been acquainted with for approximately three years and with whom they had developed a close relationship. This dream-character, who we will refer to as “James,” appeared in a total of 50 dreams in the journal. This provided us with a complete dataset without necessitating any truncation or selection. The methodological approach remained consistent with the symbol analysis, though minor modifications were made to the two prompts to cater to the change in subject matter, as shown in Configs 6–7.²⁰ This resulted in OpenAI's systems producing the following character synthesis:

The dreamer's relationship with their friend James appears to be complex and multifaceted, with different emotions and dynamics at play depending on the dream and situation. In some dreams, the dreamer may feel disconnected or left out of James's life, while in others they may feel a strong bond of friendship and trust. The dreamer may also perceive James as someone who is fun and adventurous but may have concerns about his behavior or safety at times.

One recurring theme in the dreams is a sense of responsibility toward James's well-being, with the dreamer often expressing concern for his safety or worrying about his behavior. This may suggest that the dreamer sees themselves as a protector or caretaker in their relationship with James, and may feel a sense of obligation to look out for him.

Another theme that emerges in the dreams is a desire for deeper connection and understanding with James. The dreamer may feel uncertain about whether James shares their interests or values, or may feel frustrated in their attempts to keep up with his intellectual pursuits. However, there are also moments of camaraderie and comfort between the two, suggesting that they do share a strong bond of friendship.

Throughout the dreams, there are also indications of a power dynamic at play in the dreamer's relationship with James. The dreamer may see themselves as a natural leader when they are with James, but may also feel a desire to explore and assert their independence. This tension between leadership and independence may reflect the dreamer's desire for a more equal and balanced relationship with James.

Overall, the dreamer's relationship with James appears to be a mix of positive and negative emotions, with moments of connection and support as well as moments of frustration and disconnection. The dreamer may need to re-

²⁰ Under the “Supporting AI Configurations” section, see pp. 193–194.

flect on their own desires and needs in the relationship, and communicate openly with James about their feelings in order to strengthen their bond and achieve a more fulfilling relationship.

In this analysis, what stands out is the AI system's ability to understand character relationships without any foundational knowledge about the dreamer or their friend, James. While analyzing the "cat" symbol, the AI could at least draw from its training based on numerous dream symbol dictionaries. In contrast, when interpreting the dynamic with James, it could only rely on the features of the text included in the dream reports. The resulting interpretation is nothing short of remarkable. It not only captures the salient features of the dreamer's relationship with the dream-character, James, but also mirrors the dreamer's real-world interactions with the actual person. Several features of this analysis are worth noting.

1. The AI's Determination that James is a "Friend"

The AI is easily able to determine that James is primarily a "friend" in the dreamer's life, which, though apparent from reading the texts, is still worth noting given the limited context provided in the dream reports. While there are hints about their professional interaction as colleagues—inferred from notions of leadership dynamics—the system still correctly identifies their bond primarily as friendship. This ability of the AI to discern and emphasize the primary nature of relationships in dream analysis allows the dreamer to approach the interpretation from a more personal and emotional perspective, facilitating deeper introspection.

2. The Diverse Range of Emotions Connected to James is Brought to the Forefront

Another standout feature of this analysis is the AI's aptitude in highlighting a wide range of emotions associated with James. From feelings of disconnection or being left out, to strong sentiments of trust, friendship, and camaraderie, the AI paints a comprehensive emotional portrait of the dreamer's relationship with him. By doing so, it acknowl-

edges the multifaceted and dynamic nature of human relationships and helps the dreamer grasp the depth, complexities, and intricacies of their specific relationship with James.

3. It Serves as an Amplification of Elements Previously Unexamined

When the dreamer reviewed this analysis, they found it so insightful that they highlighted several connections that it made to their waking-life relationship with James, finding that it had revealed several aspects of that relationship of which they had previously been unaware. The AI system facilitated this by amplifying specific aspects of the dreamer's relationship with James that had gone unexamined in their waking-life introspection. By highlighting emotions related to exclusion and the recurring sense of responsibility and concern for James's well-being, the AI provided a magnified view of potential underlying emotions and patterns. By shedding light on these elements, the AI aided the dreamer in distinguishing between features of their waking-life relationship with James and the internal symbolic representation of him in their psyche. The dreamer felt that these insights facilitated both a deeper and healthier relationship with their friend.

The significance of AI's capability in generating this kind of analysis should not be understated. Not only can this AI system quickly interpret characters within an individual's dreams, it can also offer tangible and actionable insights that the individual can integrate into their day-to-day life. Such deep insights traditionally emerge only after prolonged periods of introspection, meditation, or through the therapeutic process. Yet, here, the AI accomplishes this in short order despite the dream narratives being largely descriptive, focusing more on dream events than introspective musings or interpretations.

Exploration 6: Relationships Across Time

In our final exploration of the depth and breadth of insights AI might provide from a singular dream journal, we sought to discern whether it could adeptly map the evolution of a relationship over time. Given AI's ability to perform an in-depth analysis of a dreamer's over-

all relationship with a character, we wondered if AI could also help identify the elements (if any) that had changed as the relationship developed. Our assumption was that the features related to uncertainty and disconnection would primarily be found early on and that the feelings of closeness and security would increase as time passed. To investigate this transformation, we leveraged the same dataset of 50 dreams where James featured prominently. To facilitate a chronological analysis, we devised a simple system in which we segmented these dreams into two distinct subsets: the initial 25 dreams constituted the first set, representing the early stages of their relationship, while the subsequent 25 dreams formed the second set, capturing the most recent interactions. Our objective was to direct the AI to compare and contrast the two sets, discerning the nuanced changes in the relationship dynamics over time. To begin, individual analyses were crafted for both sets using the character-specific settings delineated earlier. After this, both analyses were presented to the AI system, guided by the prompt outlined in Config 8.²¹ This resulted in the following output:

The two dream relationship analyses for the dreamer's friend James share some similarities but also have some notable differences. Both analyses describe a complex and multifaceted relationship between the dreamer and James, with the dreamer valuing James's support and guidance. However, there are some differences in how the dreamer's relationship with James has evolved over time.

In the first analysis, the dreamer feels a sense of disconnection and uncertainty in their relationship with James. While they value his reliability and helpfulness, they also feel left out of his life, particularly in regards to his professional activities. The dreamer also feels unsure about whether or not James shares their interests and passions, and may feel hesitant to share those interests with him. Additionally, the dreamer may need to reassess their involvement in certain projects to improve their relationship with James.

In contrast, the second analysis suggests that the dreamer has a closer and more intimate relationship with James. They value his advice and support, and see him as a guiding figure in their life. However, there may be some tension between the dreamer and James, which makes the dreamer feel vulnerable and uncomfortable. The dreamer also feels a level of discomfort or unease

²¹ Under the "Supporting AI Configurations" section, see p. 194.

around James's loved ones, indicating a feeling of unfamiliarity or discomfort in their relationship with them.

Overall, the two dream relationship analyses suggest that the dreamer's relationship with James has become more complex and intimate over time. While the dreamer still values James's support and guidance, they may also feel a sense of disconnection or discomfort in certain aspects of their relationship.

Once again, we are presented with a compelling demonstration of the power of generative AI text models. This analysis elucidates the evolution of a relationship over time, relying solely on the narratives provided in dream reports. The progression is noteworthy: the relationship, initially characterized by hesitancy and uncertainty, gradually transforms into one that is steadfast and intimate. Following our previous findings and theorizing, this closely aligns with the real-world dynamics of the relationship and raises interesting questions about the kinds of patterns that can be found in dreams, what dreams can tell us about our waking lives, and what kinds of unique characteristics could be found by performing these analyses on larger datasets including many different dream journals.

Our research underscores the profound capabilities of AI in the realm of dream interpretation. AI's proficiency extends beyond just interpreting individual dreams; it is adept at conducting intricate analyses across comprehensive dream journals. This allows for a deep dive into symbols, the relationships they forge within dreams, and the evolving patterns that manifest over time. Remarkably, AI's insights seem to be on a par with those of human readers, and in some instances, it offers fresh perspectives that shed new light on the dreamer's waking-life experiences and emotions.

In our continued explorations, we crafted additional tests to delve into a dreamer's connection with religion and spirituality, aiming to chart its growth and shifts over time. These analyses employed the foundational framework outlined earlier. While the results were enlightening, a detailed discussion of these findings falls outside the purview of this particular article. However, there is still much to be explored and, along with others, we hope to continue using these new and powerful tools to uncover more of the uncharted territory of technology and our dreams. In moving toward that goal, we thought that it would

be helpful to conclude by outlining some of our own ethical considerations and philosophies when it comes to working with technologies and dreams, and finally to provide a positive, hopeful vision of a future relationship between artificial intelligence, humanity, and the collective world of our dreams.

Ethical Considerations

Given the increasing insightfulness and accessibility of powerful AI systems, there is a growing and understandable concern among many people regarding the potential negative impact of artificial intelligence, especially when it comes to its capability to replace humans.²² As we have seen, this is not limited to purely technical and scientific fields, but extends even to areas as nuanced as analyzing the subconscious content found in our dreams and connecting them to our waking lives. In the preceding sections of our discussion, we delved into this recently discovered capacity of AI systems. In each of those instances, what stood out is the efficiency of the AI systems. They operate swiftly and can generate results that are insightful and of a quality that closely mirrors human expertise. Even though it is still in its infancy as far as technologies go, AI has demonstrated time and time again that it can undertake much of what we once believed required the unique touch of a human hand. So, what are the larger implications of these observations and findings? To better understand the potential ripple effects, we will focus on three significant areas: the potential ramifications in our daily lives and routines, the concern about human replacement by AI, and the role of AI as an ethical analyst and interpreter of dreams.

1. Impact on Day-to-Day Life

In the past, securing reliable and insightful dream interpretations has been a challenging endeavor. While there is some knowledge about

²² Marieke M. M. Peeters et al., "Hybrid Collective Intelligence in a Human-AI Society," *AI & SOCIETY* 36, no. 1 (1 March 2021): 217–220, <https://doi.org/10.1007/s00146-020-01005-y>.

dream interpretation and analysis in the general public, it is limited and many are unaware of the insights that can be gained from dreams and how to access them. Since professional dream interpretation has traditionally been performed as part of the psychotherapeutic process, there are many practical and emotional barriers to access, with the most common being concerns about financial cost.²³ Even for those who do possess such knowledge and means, there can be additional barriers, often stemming from the same societal stigmas that prevent so many from seeking psychotherapy.²⁴ However, this is all changing with the rise of advanced AI systems and an array of accessible dream-related digital platforms—including software, websites, and apps. Today, virtually anyone who is interested can receive immediate and insightful analyses of their dreams with either no or little cost and without facing any of the previously existing barriers or possible discrimination for doing so.

At this time, such developments in dream-related technology mainly benefit those who have a keen interest in these subjects and who keep up-to-date with the latest technological advancements, but given the pace at which AI is progressing and becoming integrated into our daily lives, this scenario may shift rapidly. Studies have also shown a general trend toward spirituality with stable beliefs in psychological and paranormal phenomena.²⁵ These findings corroborate our perception of an increased cultural interest in all things psychological and spiritual, as evidenced by a proliferation of pop psychology books, new-age philosophies, and even a new wave of openness to and research on psychedelics.²⁶ These trends are naturally being extended to dreams, which is something that we have seen both as researchers and through the

²³ David C. Mohr et al., “Barriers to Psychotherapy among Depressed and Nondepressed Primary Care Patients,” *Annals of Behavioral Medicine* 32, no. 3 (December 1, 2006): 254–258, https://doi.org/10.1207/s15324796abm3203_12.

²⁴ Patrick Corrigan, “How Stigma Interferes with Mental Health Care,” *American Psychologist* (US: American Psychological Association, 2004), 315–318, <https://doi.org/10.1037/0003-066X.59.7.614>.

²⁵ Jeffrey M. Jones, “In U.S., 47% Identify as Religious, 33% as Spiritual,” Gallup, September 22, 2023, <https://news.gallup.com/poll/511133/identify-religious-spiritual.aspx>; David W. Moore, “Three in Four Americans Believe in Paranormal,” Gallup, June 16, 2005, <https://news.gallup.com/poll/16915/three-four-americans-believe-paranormal.aspx>.

²⁶ Michael J. Winkelman, and Ben Sessa, eds., *Advances in Psychedelic Medicine: State-of-the-Art Therapeutic Applications* (Santa Barbara: Praeger, 2019), <https://www.researchgate.net/pub->

proliferation of media and technology focused on dreams and the many ways that our relationship with them can bring meaning to our lives. Given this trajectory and the profound influence that AI already exerts on various facets of our daily lives, it becomes imperative for us to grasp the potential, boundaries, and ethical aspects of AI, especially as they pertain to its interplay with the world of our dreams.

2. Human Replacement by AI

The concern regarding whether—and potentially when—artificial intelligence will overshadow most human professions remains a prevailing topic of debate and discussion for many.²⁷ It is undeniable that AI is already making significant inroads in various sectors, and as time progresses, it is likely to dominate even more. Fields such as writing, coding, and artistic creation emerge as evident and, to some, unsettling instances of this transformation. Our observations, especially with the current generation of generative AI text models, have confirmed that these systems possess remarkable capability. Their efficiency in providing insightful interpretations and analyses of dreams and dream journals is noteworthy. In many ways, their output mimics the insights that human interpreters can provide, generally surpassing the expertise the average person would have access to. So, does this trajectory suggest that AI will soon eclipse human dream interpreters and analysts? Our answer is both yes and no.

On one hand, there is no doubt that certain individuals will prefer and embrace AI-generated content, without feeling the need to consult human professionals for further analysis. When people are provided with inexpensive, easy-to-use, and accessible technologies, we believe that they will tend to prefer them even if it means that more in-depth and previously existing options will be passed over. Take the example of Wikipedia: When Wikipedia was introduced, there was concern about whether or not a free, open, and accessible repository of encyclopedic

lication/331321003_Advances_in_Psychedelic_Medicine_STATE-OF-THE-ART_THERAPEUTIC_APPLICATIONS.

²⁷ Peeters et al., “Hybrid Collective Intelligence,” 217.

knowledge could ever rival the accuracy of other more expensive and closed sources of knowledge. Even to this day, many universities do not allow their students to reference Wikipedia as they do not consider it a reliable source. Despite this, it has been the case for more than a decade that the accuracy and breadth of knowledge on Wikipedia rivals, and in some areas even surpasses, that of traditional encyclopedias and textbooks.²⁸ This serves to show that it is often the widely accessible and affordable technologies that receive the most focus and improvements as time goes on. We believe that the same can be true of AI systems, which even today rival the accuracy and knowledge of many human experts. If this is the case even in their infancy, what will the AI-human relationship look like in just a few years? It is almost impossible to imagine a world in which more and more people do not begin to rely on these AI systems, and we see no reason to believe that this will not extend to the analysis of dreams among other aspects of our psychology.

On the other hand, we do not believe that the situation is as dire as some make it out to be. We would argue that most of the individuals who will come to rely on these AI systems would not have been seeking out specialized, and possibly costlier, human expertise in the first place. Going back to the example of Wikipedia, there are many people who rely on it almost solely as their source of information, very few of whom would have been interested in seeking out more in-depth and costlier journal articles and encyclopedias in its absence. Further, we assess that the general population's grasp of dream interpretation and the recognition of dreams' significance remains relatively elementary. Thus, the primary role of the current AI systems, in our opinion, will not be to replace human expertise but rather to highlight and amplify the significance of the symbolic world of our dreams. Finally, we assert that many individuals drawn to dream-related topics are often seeking

²⁸ Nicola J Reavley et al., "Quality of Information Sources About Mental Disorders: A Comparison of Wikipedia With Centrally Controlled Web and Printed Sources," *Psychological Medicine* 42, no. 8 (2012): 1753–62, <https://doi.org/10.1017/S003329171100287X>; Jim Giles, "Internet Encyclopaedias Go Head to Head," *Nature* 438, no. 7070 (December 1, 2005): 900–901, <https://doi.org/10.1038/438900a>; Jona Kräenbring et al., "Accuracy and Completeness of Drug Information in Wikipedia: A Comparison with Standard Textbooks of Pharmacology," *PloS One* 9, no. 9 (September 2014): e106930, <https://doi.org/10.1371/journal.pone.0106930>.

a human touch and connection as much as personal insights. Human connection and relationships have always been an essential feature of the psychotherapeutic context in which dreams are most often analyzed, and this is something that AI in its current form is inherently unable to replace. It is essential to note that despite their prowess, in our experience, AI systems still fall short of mirroring the profound depth of human understanding and intuition, as well as bringing to light the context of the dreamer's life in a way that can only happen in the human relationships that are intrinsic to the process of traditional dream analysis.

In our hopeful vision, the advent and popularization of AI in dream analysis could serve as a catalyst by elevating the collective appreciation and understanding of dreams. Consequently, this heightened awareness may increase the demand for the depth of insight and relational connections that can only be offered by human interpreters and analysts, even if a section of the audience will always prefer exclusively AI-driven insights.

3. Ethics in Dream Analysis

Dreams, with their unique nature, necessitate particular ethical attention. Serving as unfiltered portals into our unconscious minds, they often reveal facets of our psyches that had previously remained elusive. When laid bare before an insightful analyst, these deep-seated, concealed portions of our minds can be easily interpreted and understood, often giving away far more about ourselves than we might wish. This gives rise to some pertinent concerns, primarily about what AI systems might be able to discern about an individual and the potential misuse of such information. Not only is there a concern that this information could be abused by being shared with third parties, the very act of sharing this information with the dreamer could lead to discomfort and confusion. Because dreams can bring to the surface deeply personal, and at times negative, content, there is a potential risk of revealing information to the actual dreamer. These revelations might relate to repressed memories or even past traumas that, when revealed, significantly affect the well-being of the dreamer. A further

and related aspect of these concerns is the nature of dream interpretation itself. Analyzing dreams often involves projecting certain meanings or interpretations onto the dreamer. Whether these projections are from a human or an AI, they can sometimes serve to confuse and mislead the dreamer. This leads to the risk of dreamers placing undue trust in the interpretations offered, treating them as absolute truths about their personal lives when in reality they can be wrong or reflective more of the inner world of the interpreter than that of the dreamer.

In light of these considerations, we believe it is imperative to take several precautions into account. Firstly, we advocate the utmost discretion when handling any data related to a person's dreams. Such data is deeply personal, private, and revealing. Any use or analysis of this data should prioritize the dreamer's well-being and always take place with their informed consent. Dreamers should always be aware of the way their dreams are being used and analyzed and whether or not any third parties, even if they are AI systems, might be using or sharing such content. Sharing this data with such third parties, unless requisite for transient processing needs and with the dreamer's consent, is a breach of this trust. Secondly, we believe that dreamers interacting with AI-based dream analyses should be forewarned about the potential depths of information that might be revealed. Thus, dreamers interacting with AI-driven systems that mimic human intuition and insight should approach the experience with the same kind of caution that they would a more traditional psychoanalytical approach. Finally, to mitigate potential misinterpretations, projections, and undue trust in the AI-generated output, we recommend prefacing AI-generated dream interpretations and analyses with disclaimers and clarifying statements. Phrases such as "If this were my dream..." or "This dream might suggest..." emphasize the interpretative nature of the content and dissuade dreamers from considering it as definitive truth or advice. It goes without saying that it should always be clear which content is generated by humans and which by AI.

Our articulation here not only encapsulates a philosophical stance but also delineates a professional approach. Whether engaged in dream research or the development of software applications providing insights

into dreams, we ardently hope that we will witness a similar ethos adopted across the board by others in this domain.

Conclusion

Congratulations on completing what has, even in writing, felt like a wild ride through the uncharted worlds of technology and dreams! We hope that you walk away from this with a deeper understanding of both the capabilities of AI systems and the symbolic and meaningful world of our dreams. Today, as we have seen, AI systems can provide us with new insights not only into our own dreams but into dreaming as a whole, and in ways that could have a profound impact on our self-understanding and relationships. We are truly in the midst of a technological—and maybe even spiritual—revolution and we are as excited as you are to see what the future holds.

One possible future we envision is a world where every person who is so inclined will be able to have a personal AI assistant that can analyze their dreams and the patterns within them, tracking changes across time, and formulating all of these into helpful and digestible insights. These insights would help people to better understand the depth and complexity of their dreaming world, but would also show the profound and practical connections to their waking lives, making sense of their life journeys and relationships. These insights would not be definitive answers but would be formulated as thoughts, questions, and impressions. They would be starting points for further thought and discussion and would ideally become the basis of an ongoing dialogue with this AI system, but more importantly, with other people whether friends and partners, or therapists and analysts. If such a system is implemented well, it could serve to further the human endeavor and provide people with more meaning, insight, and ways to grow and connect with the people in their lives.

At the same time, we also share many of your ethical concerns around the ingression of AI into our daily lives and the serious implications that this has for so many of us. While the human-AI relationship is most often productive and beneficial, we admit that it can also be harmful and that there will always be the potential for such systems to be abused. This has been the case with the development of every new

technology, but we do not believe that these concerns should prevent us from moving forward. At the end of the day, it is the responsibility of every one of us to make sure that, as individuals and communities, we relate to technology in a way that is healthy and beneficial. By developing these technologies and exploring them openly along with the associated ethical concerns, we believe that we can move forward to a hopeful—and hopefully shared—vision of the future: a world in which humans and AI can co-exist in a mutually beneficial way, and a world in which human life is elevated through a deeper understanding of ourselves, our relationships, and our dreams.

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Appendix: Supporting AI Configurations

Config 1 – Basic dream interpretation

Prompt: Interpret the following dream.

{dream text}

Mode=Chat

Model=GPT-4

Max Tokens=256

Temperature=0

Top N=1

Stop sequences=N/A

Frequency Penalty=0

Presence Penalty=0

A quick breakdown of these settings is as follows:

1. Mode: The Chat mode allows one to use the fine-tuned and more conversational ChatGPT models. These are the preferred models for question-and-answer style conversations and can also be faster and more cost-effective.
2. Model: We used the GPT-4 model, which was the most recent at the time of this writing. The GPT-3.5 model is, however, much faster, more cost-effective, and entirely adequate.
3. Temperature: We set the temperature to 0 in all tests so that they would be reproducible as this setting eliminates randomness from the resulting output.

4. Top N/Penalties: These were all left at their default values as these are generally only relevant when working with the non-chat modes when generative AI is more likely to suffer from issues around repetition.

Config 2 – Freudian dream interpretation

Prompt: Interpret the following dream using a Freudian framework of dream analysis.

{dream text}

Max Tokens=400

Config 3 – Jungian dream interpretation

Prompt:

Interpret the following dream using a Jungian framework of dream analysis.

Config 4 – Symbol interpretation (individual dream)

Prompt: Interpret the symbol “Cat” in the following dream.

Dream:

{dream text}

Model=gpt-3.5

Max Tokens=100

Temperature=0.5

Top N=1

Stop sequences=N/A

Frequency Penalty=0

Presence Penalty=0

Config 5 – Symbol interpretation (across journal)

Prompt:

Synthesize the following symbol interpretations for “Cat” into a cohesive picture of the dreamer’s relationship with the symbol.

01/01/2000 - The cat in the dream symbolizes the dreamer’s innate sense of freedom and creative expression.

03/07/2016 - The cat in this dream could represent the dreamer’s relationship with his or herself and their fears relating to independence.

Model=gpt-3.5

Max Tokens=600

Temperature=0.7

Top N=1

Stop sequences=N/A

Frequency Penalty=0

Presence Penalty=0

Config 6 – Relationship analysis (individual dream)

Prompt:

What can you tell me about the above character “James” from my below dream?

{dream text}

Config 7 – Relationship analysis (across journal)

Prompt:

Synthesize the following character interpretations for “James” into a cohesive picture of the dreamer’s relationship with the character.

05/15/2022 - I was walking to the park when I saw James...

03/07/2021 - James and I met at the cafe, but they wouldn’t serve me a coffee saying that they were closing early...

Config 8 – Relationship changes over time

Prompt:

Compare the two analyses below and write a summary noting the differences and similarities. Focus a bit more on the differences and help the reader understand what has changed.

System:

The assistant compares two analyses generated from a user's dreams and helps them to understand how their dreams have changed over time. The analyses might be about various topics such as religious experiences, relationships to people in the dreamer's life, or the dreamer's emotions toward a person or place.

Type: Relationship

Analysis 1:

{analysis text}

Analysis 2:

{analysis text}

NEW APPROACHES IN THE EMPIRICAL STUDY OF DREAMS

Kelly Bulkeley

Introduction

Since the beginning of recorded history, humans have been seeking to understand the empirical patterns of meaning in their dreams. By “empirical,” we are speaking here of patterns that can be observed and identified in evidence that is available to everyone for review. There are many possible dimensions of meaning in dreams, but not all of them are available to everyone in this empirical sense. Some of these dimensions can only be accessed by the dreamer. Some only emerge from theoretical frameworks. And some require a detailed knowledge of the dreamer’s cultural and historical context to fully understand. There may be valid and valuable insights gained from each of these approaches, but they each have the drawback of being difficult to communicate, test, and verify. The task is finding a way to convey the basic findings of modern dream research to people who might know nothing about it, and indeed who might be skeptical that dreams have any actual significance at all. How can we provide clear, easily accessible empirical evidence in favor of the meaningfulness of dreaming? Answering this question is a central challenge for dream researchers in the twenty-first century.

This paper offers one possible answer to that question, in the form of a new technological resource, the Sleep and Dream Database (SDDb) and its suite of tools for pursuing a genuinely empirical study of the meaningful patterns of dreaming. The paper will show how using the

tools of the SDDb, specifically the survey analysis and word search functions, can provide anyone with the resources to explore large collections of dreams, analyze them in different ways, and develop one's own ideas and interpretations that can easily be tested, refined, and shared with others. To be clear, even more sophisticated dream analysis systems exist now and will be developed in the future. The goal of this paper is not to treat the SDDb as a singular phenomenon, but rather to use its tools as a means of providing readers with an initial orientation to the new world of dream discovery that has opened up thanks to these kinds of technologies. The paper will close with reflections on the interplay of dreaming and technology.

Background

Several other researchers have been working in this direction for more than a century and the present paper builds on their methods, findings, and insights. Perhaps the earliest empirical dream researcher in the modern sense was Mary Whiton Calkins, whose 1893 paper "Statistics of Dreams" provided a detailed analysis of the most easily observable features of two dream series, one from herself and the other from one of her colleagues.¹ Others who pursued the analysis of large collections of systematically gathered dreams include the anthropologist Dorothy Eggan, who studied the dreams of the Hopi native people of the American Southwest;² the psychologist Calvin Hall, who along with Robert Van de Castle created a widely-used coding system for the quantitative analysis of dreaming;³ and the social psychologist G. William Domhoff, who with his colleague Adam Schneider, have carried Hall's work into the digital resource of Dreambank.net.⁴ The SDDb

¹ Mary Calkins, "Statistics of Dreams," *The American Journal of Psychology* 5 (1893): 311–343.

² Dorothy Eggan, "The Manifest Content of Dreams: A Challenge to Social Science," *American Anthropologist* 54 (1952): 469–485, <https://doi.org/10.1525/aa.1952.54.4.02a00020>; Dorothy Eggan, "Dream Analysis," in *Studying Personality Cross-Culturally*, ed. Bert Kaplan (Evanston: Row, Peterson and Co., 1961), 551–557.

³ Calvin Hall and Robert Van de Castle, *The Content Analysis of Dreams* (New York: Appleton-Century-Crofts, 1966).

⁴ George William Domhoff, *Finding Meaning in Dreams: A Quantitative Approach* (New York: Plenum, 1996); Inge Strauch and Barbara Meir, *The Scientific Study of Dreams: Neural*

derives much of its inspiration and guidance from the efforts of Domhoff and Schneider with the Dreambank. Also deserving mention in this realm are Inge Strauch and Barbara Meir, Ernest Hartmann, Harry Hunt, Rosalind Cartwright, Michael Schredl, James Pagel, Sophie Schwartz and Pierre Maquet, and Han and colleagues, all of whom have developed innovative methods of identifying empirical patterns and themes in dreams.⁵

Not high on this list are Sigmund Freud and Carl Jung, the two giants of modern dream psychology.⁶ Freud did not dismiss empirical dream research per se (in the *Interpretation of Dreams*, he refers favorably to Calkins), but he built his ideas primarily on the foundations of clinical and cultural research data. Jung actively affirmed the value of studying dreams in a series to highlight the recurrent images, conflicts, and motifs. However, other than his examination of the dream series of Wolfgang Pauli, a famous physicist who came to him for treatment, Jung did not pursue this insight about the empirical patterns of dream content in any active way. And even in his study of Pauli's dreams, Jung focuses on the exploration of archetypal symbolism, which can be compelling but does not include any quantitative analyses that might help to ground and clarify the qualitative interpretations. Freud and

Networks, Cognitive Development, and Content Analysis (Washington: American Psychological Association, 2003).

⁵ Han et. al., "The cognitive social network in dreams: Transitivity, assortativity, and giant component proportion are monotonic," *Cognitive Science* 40, no. 3 (2016): 671–696, <https://doi.org/10.1111/cogs.12244>; Ernest Hartmann, *Dreams and Nightmares: The Origin and Meaning of Dreams* (New York: Basic Books, 2000); Harry Hunt, *The Multiplicity of Dreams: Memory, Imagination, and Consciousness* (New Haven: Yale University Press, 1989); James Pagel, *The Limits of Dream: A Scientific Exploration of the Mind/Brain Interface* (New York: Academic Press, 2010); Michael Schredl, "Dream Recall: Models and Empirical Data," in *The New Science of Dreaming*, Vol. II, eds. Patrick McNamara and Deirdre Barrett (Westport: Praeger, 2007), 79–114; Sophie Schwartz and Pierre Maquet, "Sleep imaging and the neuro-psychological assessment of dreams," *Trends in Cognitive Sciences* 6, no. 1 (January 2002): 23–30, [https://doi.org/10.1016/S1364-6613\(00\)01818-0](https://doi.org/10.1016/S1364-6613(00)01818-0); Inge Strauch and Barbara Meir, *In Search of Dreams: Results of Experimental Dream Research* (Albany, New York: State University of New York Press, 1996); Rosalind Cartwright, *The 24-Hour Mind: The Role of Sleep and Dreaming in Our Emotional Lives* (New York: Oxford University Press, 2010).

⁶ Sigmund Freud, *The Interpretation of Dreams*, trans. James Strachey (New York: Avon Books, 1965); Carl Jung, *Children's Dreams: Notes from the Seminar Given in 1936–1940*, trans. Ernst Falzeder and Tony Woolfson (Princeton: Princeton University Press, 2008).

Jung's general theories of dreaming are always worth keeping in mind, and perhaps in future developments of the technologies discussed here, it will be possible to integrate their ideas into a kind of hybrid or "centaur" model of dream interpretation. We will return to this topic in the conclusion.

Overview of the SDDb

The Sleep and Dream Database (SDDb) is a digital archive designed to promote an empirical, hands-on approach to dream research. The SDDb enables users to apply the basic tools of data analysis to identify meaningful dimensions of dreaming experience. The goal of the SDDb is not to replace other modes of dream interpretation, but rather to complement and enrich them with new insights into the recurrent patterns of dream content. Anyone who studies dreams, from whatever perspective and for whatever purpose, can benefit from knowing more about these basic patterns. As noted above, the SDDb is not the only online resource for this kind of approach to the study of dreams. The Dreambank.net website run by G. William Domhoff and Adam Schneider also has a large online collection of dream reports gathered by various researchers that can be searched and analyzed in many ways. The future will likely witness the development of many other online databases with valuable collections of dream material. The focus here is on the SDDb, but the following discussion highlights important methodological principles that apply to all forms of digitally-enhanced dream research.

The SDDb currently contains more than 30,000 dream reports of various types from a wide range of people. Some of the reports come from individuals who have kept a dream journal for many years. Some of the reports come from participants in surveys and questionnaires. Some come from studies by other researchers who have generously shared their data with me. The SDDb also includes dream reports from anthropological studies, historical texts, literary sources, and media interviews. (The database does not, however, contain dream reports that users have entered directly through an online portal. That feature awaits future development.)

In addition to dream reports, the SDDb also includes the answers given by survey participants to a variety of questions about their sleep and dreaming, for example how often they remember their dreams, how often they experience insomnia, have they ever had a dream of flying or lucid dreaming, etc. The data also includes people's responses to various demographic questions about their gender, age, race/ethnicity, education, religious practices, political beliefs, etc.

This combination of a large number of narrative dream reports plus a large amount of quantitative survey data makes the SDDb an especially deep and varied resource for the study of dreaming.

The SDDb offers two basic functions for exploring this material. One, "Survey Analysis," enables you to compare answers to questions posed on a survey or questionnaire. For example, you can create a statistical table to compare the dream recall frequencies of people from different age groups, or the insomnia frequencies of people with different political views, or the occurrence of lucid dreams among men and women.

The other function, "Word Searching," enables you to sift through large numbers of dreams for particular words and phrases. You can search the dreams by choosing your own word strings, or you can use the built-in word search templates to search for typical categories of dream content. This function allows you, for example, to search a set of dreams for all references to water, or colors, or emotions, or the names of famous people or places.

Methodology

The development of the SDDb began in the early 2000s in consultation with G. William Domhoff and Adam Schneider, who helped me understand how to use their Dreambank.net website. With their encouragement, I started designing a new, complementary database that would 1) include both dream reports and survey data, 2) allow for the easy use of built-in word search templates, and 3) have enough flexibility to enable a wide range of searches and analyses. In 2009 I worked with Kurt Bollacker, a software designer and engineer from San Francisco with expertise in digital archiving practices, to build the

first version of the database. In 2014, I began working with Graybox, a web technology company in Portland, to expand the scope of the SDDb and improve its user interface. A major upgrade of the database was completed by Graybox in the spring of 2020. Since then, the team behind the Elsewhere.to dream journaling app has been managing the database and helping to prepare for another upgrade, which is scheduled to come online in early 2024.

The word search function of the SDDb has many advantages as a mode of dream research: speed, transparency, replicability, flexibility, and the power to analyze very large quantities of material. The process is fairly easy to learn and sites like the SDDb and Dreambank.net provide free and open access for users to engage in their own study projects aided by these new digital tools.

This approach has several disadvantages, too. They include deemphasizing the qualitative aspects of dreaming, overemphasizing the measurability of dream content, and leaving open the key question of how to connect the numerical frequencies of word usage to the waking life concerns of the dreamer.

These disadvantages can be diminished by using quantitative analysis as one method among others in a multidisciplinary approach to dreams. There is no reason in principle why word search methods cannot work in coordination with other methods using qualitative insights and evaluations. Indeed, I would argue the future prosperity of dream research depends on developing better interdisciplinary models for integrating the results of multiple methods of study. The users of the SDDb can help make progress in creating these models.

To address the challenge of how to connect the word usage frequencies with relevant aspects of the dreamer's life, two principles should be kept in mind. These principles suggest paths for exploring the potentially meaningful connections between the dream and the individual's waking situation.

One principle is the *continuity hypothesis*: the relative frequency with which something appears in a person's dream could be a reflection of its importance as a meaningful concern in the person's waking life. In other words, the more often something (a character, setting, or activity) shows up in dreams, the more emotionally important it's likely to

be in waking life. To be clear, the continuity does not need to be literal or physical; it's more what people care and think about in their waking lives. As an example, one of the dream series in the SDDb comes from "Bea," a young woman whose anxious, sad dreams were continuous not with her actual life, which was quite safe at the time, but with her worries about possible bad things that might happen to her family or to the students in her care as a dormitory resident assistant.

The other principle is the *discontinuity hypothesis*: infrequent and anomalous elements of dream content can be spontaneous expressions of playful imagination, occurring at any point in life but especially in times of crisis, change, or transition. Something that appears very rarely and is dramatically discontinuous with typical patterns of dream content can reflect the mind's concerted effort to go beyond what is to imagine what *might be*.

A Closer Look: Survey Analysis

The Survey Analysis function allows you to compare the answers that different groups of people give to questions about their sleep and dreams. This tool lets you create statistical tables that focus on whatever demographic variables you want to study.

The SDDb currently includes results from twelve different surveys that I designed and commissioned to study sleep and dream patterns among contemporary Americans. (The number of surveys in the SDDb and the layout of the menus will likely change in the future, but the basic analytical process will remain the same for users.) The field research for these surveys was conducted by a number of different opinion research companies (Zogby Interactive, Harris Interactive, and YouGov), all but one of which administered the surveys online (one, via Quinlan Greenberg Rosner, was performed by random-digit telephone dialing).

More surveys will be added to the database, but this initial collection includes responses from more than 30,000 participants. All of the surveys include responses to questions about demographics (age, gender, region of residence, etc.) along with questions about sleep and dreams (the frequency of insomnia, dream recall, sharing dreams with others, etc.). Most of the surveys also include questions asking for a narrative

report of a dream (e.g., a lucid dream, a nightmare, or a highly memorable dream), and many of the surveys include demographic questions about religion and politics.

Here is an example of the kind of inquiry that can be easily performed using the SDDb. (Note: future upgrades of the database may change some of the labels and analytic sequences described in this paper, but the basic processes will remain the same.) Let's start with the two most important variables that have been studied in relation to dream recall, namely gender and age. How do a person's gender and age correlate with the frequency of their dream recall? We can gain helpful empirical insights into that question through the following analyses.

First, we choose one of the surveys available for study in the Survey Analysis page's menu. Several surveys could serve as examples; let's look at the 2015 Demographic Survey, which includes responses from 2,303 participants.

Then we choose the questions of comparison. If we make a table comparing people's answers to questions of gender and dream recall, we find that women remember slightly more dreams than men. Summarizing the results and rounding to the nearest whole number, 56% of the women remembered a dream once a week or more often, compared to 52% of the men who remembered their dreams this often.

Next, we will try a new analysis with the same survey, comparing people's age to their dream recall. For this analysis, we use the variable "Age Group D," which divides the participants into three age groupings (18-34, 35-54, and 55+). The results show that younger people remember dreams much more frequently than older people. For the youngest age group, 64% reported remembering their dreams once a week or more, while 54% of the middle age group and 49% of the oldest age group said they remembered their dreams this often.

The SDDb enables users to pursue the analysis further than this. We might wonder whether men and women remember their dreams with similar frequencies at the same ages? Do young men remember more dreams than old men, and young women more than old women?

This kind of analysis can be performed by using the constraints feature. After choosing to make a table comparing the questions for Age

Group D and dream recall, we can add a constraint by selecting the gender question and choosing either male or female participants. By doing this, we filter the analysis so we only see the results for that specific subset of participants. Starting with the males as a constraint, we find that the 18-34 group does not have significantly more dream recall than the 55+ group (55% vs. 51%). But when we use the females as a constraint, the results differ more dramatically, with 69% of the 18-34 group remembering their dreams once a week or more, while only 47% of the 55+ remembered their dreams that often.

These results can be taken as evidence that men's dream recall frequency is more consistent over the life span, and women's recall frequency is more variable, with an especially high rate in early life and a considerable drop-off thereafter.

This example has shown that with nothing more than a few computer clicks, we are able to identify an intriguing pattern in dream recall frequencies among men and women of different ages. We have to be careful, however, because even though a sizable number of people participated in this survey, their answers may not be representative of all of humankind, so we should not overgeneralize about the significance of such results. I believe it is vital to remain humble in this kind of research, in recognition of the wide variability of dreaming experience among the general human population.

To determine whether this pattern is only true of the participants in this survey or applies to other people as well, we could try a similar search process using other surveys in the SDDb. We could also look at age and gender variations in relation to other demographic categories like race/ethnicity, education, income, religious activities, and political views. There may be other variables at play that need to be considered before reaching any settled conclusions.

The Survey Analysis function can be applied to the study of a wide range of topics, with the capacity for even more finely-grained investigations. For example, if you wanted to compare the dream recall frequencies of younger versus older women, all of whom who graduated from four-year colleges, describe themselves as politically conservative, and live in the American south, you could create a table using those variables and constraints and learn that 67% of the younger women with

all these attributes remember their dreams once a week or more, while only 14% of the older women remember their dreams that frequently.

Of course, using more constraints in an analysis leads to a smaller number of participants who fit the criteria, making the statistical frequencies of the results shakier and more subject to chance. (In the comparison above, there were only 6 women in the younger group and 7 in the older group.) Here, as elsewhere, caution and modesty are advised when drawing appropriate conclusions from the results of your analyses.

A Closer Look: Word Searching

The Word Searching function has even greater range and flexibility than the Survey Analysis function. This function enables you to sift through large numbers of dream reports for particular words and phrases. The SDDb automatically calculates the percentage of dreams in which the selected word or phrase appears at least once. This percentage allows users to compare patterns of word usage in various kinds of dreams from various kinds of people.

The Word Searching process begins with the selection of a source of dream reports. The SDDb contains reports from many different sources, including personal journals, questionnaires, psychology experiments, anthropological studies, and media interviews, among others. The first choice to make when using this function is which dreams to explore. As a simple introductory demonstration, let's just select "All Surveys," which will draw on all the sources in the SDDb. Next we choose a filter, which is optional but allows for more focused results. Again, to keep it simple, we can choose "males" from the filter menu for the "gender" question.

Next is a choice of the type of dream report to be searched. The dreams in the SDDb have been provided in response to several kinds of questions. Examples include: What is your most recent dream? What is your most memorable dream? What is your worst nightmare? Have you ever had a visitation dream (in which someone who is dead appears as if alive)? Each different type of dream has special qualities and is worthy of detailed study, which the SDDb makes relatively easy to do. For this

initial search, we can select “Most Recent Dream” as the type of dream text.

The next step is an important one, regarding the length of the dream reports to be searched. The SDDb allows users to set a minimum and maximum word length for the dream reports to be searched. For most kinds of study, this feature is highly recommended. Some of the responses in the SDDb are not dreams *per se* – they may be people saying “I don’t know,” or “Can’t remember,” or sometimes colorful rebukes for my audacity in asking the question! Rather than removing those responses, I usually screen them out by choosing a minimum word length, usually 10 or 25 words. This means the search will not include many genuine dream reports of shorter length. For some studies, that might be a drawback; not in ours, which I’m setting at a minimum length of 25 words and a maximum of 300 words.

Then comes the last step, choosing the word or words to search for in the set of dreams we have just defined. The easiest way to get interesting results is to use the SDDb templates for word searching. The 2.0 version has 40 categories of content grouped into eight classes of dream content:

- Perception
 - Vision
 - Hearing
 - Touch
 - Smell/Taste
 - Colors
- Emotion
 - Fear
 - Anger
 - Sadness
 - Wonder/Confusion
 - Happiness
- Cognition
 - Thought
 - Speech
 - Reading & Writing
- Natural Elements

- Fire
- Air
- Water
- Earth
- Movement
 - Walking & Running
 - Flying
 - Falling
 - Death
- Characters
 - Family
 - Animals
 - Fantastic Beings
 - Male References
 - Female References
- Social Interactions
 - Friendliness
 - Physical Aggression
 - Sexual
- Culture
 - Architecture
 - Food & Drink
 - Clothing
 - Work & Money
 - Technology & Science
 - School
 - Transportation
 - Sports
 - Religion
 - Art
 - Weapons

Each of the 40 categories comprises dozens of words relating to that topic. These categories are not drawn from a generic coding scheme unrelated to dream research, but have been developed over time as a direct continuation of the system of the empirical study of dream content devised by Calvin Hall and Robert Van de Castle and refined by

G. William Domhoff and Adam Schneider.⁷ In this way, the SDDb templates provide an approach to digital dream research that is backward-compatible with pre-digital methods of study. I believe this is a key methodological principle: as we move into the technologically enhanced future of studying dreams, we should make sure we can integrate new findings with the hard-won knowledge of the past.

An Illustration: The Emotion of Fear

From the 2.0 template menu, let's select one of the emotions, the category "Fear," and hit the "Search" button. In the version of the database available as I write, the results page shows 1,667 dream reports that fit the search criteria (from males in all sources, in the most recent dream texts of 25–300 words in length), of which 266 have at least one reference to a word in the "Fear" category, a total of 16%.

The left column on the Results page shows the frequency of usage for each of the words in the category. In this case, the four most used words in these dreams were scared, afraid, fear, and frightened. In the right column are the dream reports themselves, with the word(s) from the selected category highlighted.

To be clear, these results show *every* use of the words in the selected category. The results may include references to fear that have nothing to do with the dreamer's emotional state. The results may include uses of the term that are metaphorical, or fictional, or incidental. (If desired, users can perform an additional screening process to remove dream reports from the search that are judged to be irrelevant to the primary search.)

For a general inquiry like this one, we can take the unfiltered results as a rough measure of the incidence of fear in men's dreams. To take the process a step further, we can perform the same search while changing the filter from "male" to "female." Here, the results page shows that out

⁷ Hall and Van de Castle, *The Content Analysis of Dreams*; George William Domhoff and Adam Schneider, "Studying Dream Content Using the Archive and Search Engine on Dream-Bank.net," *Consciousness and Cognition* 17 (2008): 1238–1247, <https://doi.org/10.1016/j.con-cog.2008.06.010>.

of the 1,984 dream reports that fit the search criteria (from females in all sources, in the most recent dream texts of 25–300 words in length), 437 have at least one reference to a word in the “Fear” category, a total of 22%. The four most used words from the category were scared, afraid, upset, and fear.

These findings can be taken as evidence suggesting that women’s dreams have considerably more references to fear than men’s dreams. However, as with all studies using the tools of the SDDb, care is needed in the interpretation of the results of any given word search. Many more studies would have to be performed, and other research findings consulted, before making a firm statement about a broad topic like fear in men’s and women’s dreams.

The findings of one search often lead to new questions requiring new searches. For instance, we can extend this line of inquiry by asking if the gender difference in fear references also appears in children’s dreams. The SDDb includes a set of dreams gathered from children aged 8 to 18 via an online survey administered by Harris Interactive in 2011. The participants were asked to describe their “most memorable” dreams, which are different from the most recent dreams in favoring unusual and emotionally intense types of dream content. The comparison is not perfect, but in this inquiry, we are exploring a general trend and we can refine the analysis at later stages if desired.

Using the same search parameters (reports of 25–300 words in length), the results show that for the boys, 37 of the 205 dream reports, or 18%, contained at least one reference to fear, with the four most used words being scared, nervous, afraid, and scare. For the girls, 80 of the 372 dreams, or 22%, contained at least one reference to fear, with the four most used words being scared, terrified, afraid, and fear. This is still a difference, though not as big as with the most recent adult dreams.

An Illustration: Nan’s Journal

This line of investigation could continue from this point in any of several different directions. But let’s turn to a different kind of word search strategy, one that can yield more personally relevant kinds of insights. The SDDb includes several lengthy series of dreams from in-

dividuals who recorded their dreams on a regular basis for an extended period of time, in some cases covering many years. The study of the patterns in these dream reports can often lead to the discovery (guided by the continuity and discontinuity hypotheses) of meaningful connections between the dreams and the individual's waking life concerns.

To illustrate how this kind of search process works, let's select "Nan Journal 2001–2002" from the menu. Clicking the search button at this point will show all 26 dream reports in her series, which range in length from 12 to 397 words, with a median length of 116 (meaning that half the dreams are longer than, and half the dreams are shorter than, 116 words). This is one of the shortest series in the SDDb, but it is a good one for quickly illustrating what can be learned using word search methods.

Nan (not her real name) kept a journal of her dreams for the six months she spent in a hospital following a near-fatal car crash. You would not know this from the dreams themselves, which never refer directly to the crash. This highlights a crucial finding of dream research: the patterns of dream content reflect people's waking *concerns*, not necessarily their waking activities or behavior. She did not dream about the car crash, but about the emotional and interpersonal implications of the crash.

In Nan's case, her dreams indicate that she definitely did feel strong concerns at this time, in a mostly negative direction. Of her 26 dreams, 8 of them (31%) have at least one reference to fear. There are also five references to death (19%), six to physical aggression (23%), and none to happiness. These frequencies accurately reflect the frightened and vulnerable quality of Nan's feelings in waking life.

Looking more closely at the characters in her dreams, a man named Phil appears in 6 of the dreams (23%), more than any other character in the series. Following the continuity hypothesis, we can infer that Phil is a person of great concern to her, and this turns out to be true. Phil is Nan's ex-husband. She divorced him ten years earlier, after which she started an independent career as an art teacher. After the accident, she recuperated in a hospital ward with several other women, all much older than her and all of whom had severe mobility problems. The sad plight of these women stoked Nan's fears and raised the darkest concern

in her life: she might have to return to Phil and become reliant on him again. Her dreams accurately reflected her strongly negative feelings about the possibility of Phil becoming more of a presence in her waking life again.

Nan's waking life interests in art are also reflected in her dreams, and one dream in particular had an especially strong psychological impact on her. This dream features a magical paintbrush painting a beautiful rainbow pattern on the walls of her childhood home. It is the only dream in the series with so many colors, the only one with a magical object, and one of only two dreams in which something is described as "beautiful." Following the discontinuity hypothesis, we can infer that an unusually creative and playful dream like this would prompt Nan to think beyond what *is* to imagine what *might be*, and that does seem to have been the case. She told me that she regarded this dream as a reassuring sign of hope and healing in her long, dark road to physical and mental recovery. Like the first green shoots of spring, Nan's "bizarre" dream of the magical paintbrush heralded the eventual return of color, beauty, and creative vitality to her waking life.

Other series in the SDDb have many more dreams covering much longer periods of time. As a general principle, the longer the series of dreams, the stronger the results of analyzing those dreams. Although even a short series like Nan's can yield valuable findings, the potential for meaningful insights and discoveries is greatest with a long series of dreams.

The Role of Baselines

Regardless of the length of the series, the analysis will be limited to the given individual's dreams. For example, in Nan's dreams discussed above, five of her twenty-six dreams, or 19%, included a reference to death. In light of her recent and nearly fatal automobile accident, it makes psychological sense that Nan's dreams would include references to death. But what can we say about that figure of 19%? Among people in general, is that a high or a low frequency of references to death in dreams, or about average?

If we only have the individual's dreams to analyze, there is no way to answer such a question. What is required is a means of comparison with other people's dreams that have also been analyzed in the exact same manner. For many years, dream researchers have used the Hall and Van de Castle (HVDC) Norm Dreams in this way, as a tool for comparing the empirical patterns of content in one person's dreams with the patterns of a large group of people. In recent years, the SDDb has provided a set of Baseline Dreams that include the HVDC Norm Dreams plus several thousand additional dreams from a wider and more diverse range of people. The SDDb provides the ability to compare the word search results of any set of dreams with the Baselines. Thus, we can quickly determine that Nan's frequency of death-related dreams, 19%, is indeed unusually high, as only 6% of the Baseline Dreams include at least one reference to death.

As this example suggests, the findings of word search analyses can often be prefigured by close reading and qualitative analysis. The claim here is not that word search methods reveal radically new dimensions of dreaming (although that may be the case someday). Rather, the claim in this paper is that word search methods, in tandem with a comparative resource like the Baselines, can provide results that are fast, reliable, easily shared, and easily verified. If properly used, this approach can support and enhance other methods of dream research by giving them a stronger empirical foundation than they would otherwise have. Returning to Nan's case once more, we can recognize the prominence of death by reading through the texts of her dreams, but the word search results, enhanced by the comparison with the Baselines, make that unusual feature of her dreams more distinct for others to observe and appreciate. You can now confidently assert that Nan's dreams have an unusually high proportion of dreams referring to death, not just because you personally read the dreams and believe this, but because an empirical method of dream analysis found it to be true. Nobody needs to take your word for it. If anyone doubts your claims, you can show them how to perform the same word search analysis in the SDDb, which will lead them to the same results.

The current version of the SDDb Baseline Dreams includes more than five thousand dreams, gathered by researchers using systematic methods. The dreamers do not represent a perfect sample of human-

ity, but they do reflect various kinds of diversity, including age, gender, nationality, educational background, and time of dreaming (from the 1940s to 2000s). Future versions of the Baselines will continue to expand in size and diversity, and it can be expected that other measuring systems will emerge, too. This will be a positive development as long as the new systems maintain a capacity for “backward compatibility,” meaning a relationship with previous approaches to the empirical study of dreams. The SDDb Baselines, for example, are designed in such a way that many of the findings can easily be compared with the results of older, pre-digital-era research studies. In this way, the valuable findings of previous researchers are not lost in the rush of new technologies. By combining the best findings of the past with the best empirical research tools of the present, we will stimulate the greatest advances in the future understanding of human dreaming.

Notable Findings

Even at this stage of the research, several basic findings can be shared. Future research will surely revise these propositions, but the empirical evidence so far points strongly in the following directions.

- Perception: Vision is the most frequently mentioned sense in dreams; hearing and touch are mentioned much less often, and smell and taste are relatively rare.
- Color: White, black, and red are the most frequently mentioned colors.
- Gravity: Falling dreams outnumber flying dreams.
- Emotions: Fear is the most frequently mentioned emotion, more than happiness, sadness, or anger.
- Friendly social interactions are more frequent than physically aggressive social interactions.
- Gender: Male characters and pronouns are mentioned more frequently than female characters and pronouns.
- Women’s dreams: Compared to men, women’s dreams have more references to fear, family, and friendliness.
- Men’s dreams: Compared to women, men’s dreams have more references to physical aggression, transportation, and money/work.

These findings derive from the SDDb Baselines and their use with numerous collections of dreams. There are exceptions to all of the above findings, but the overall trends seem quite strong and widespread across diverse populations. To be clear, this approach does not directly answer the question of whether these tendencies of dream content reflect innate features of the human brain/mind system or if they stem from the social and cultural influences of a specific historical moment. We do not know if nature or nurture plays a bigger role in shaping these oneiric patterns. Both factors clearly have an impact on dreaming, and yet we cannot say for sure how they interact in the context of particular dreams.

Blind Analysis

This may seem like a boundary situation for digital dream research, which thrives on the analysis of large collections but becomes unwieldy when applied to individual dreams. However, what appears as a limitation actually marks one of the greatest opportunities for innovative research in this field. The word search method, enhanced by the Baselines, provides an unprecedented ability to identify the most common themes and patterns in a set of dreams. By the same token, this method also provides the ability to identify the most unusual dreams in the set, the dreams that most dramatically deviate from the average contents of the other dreams. The ability to measure in precise terms what makes extraordinary dreams so extraordinary is a boon for qualitative research on anomalies and singularities in dreaming, e.g. using Jung's concept of "big dreams." Here again, the word search method adds a high degree of empirical support and statistical precision to findings that may have been originally generated through close reading or clinical practice. Back to Nan: she identified one of her dreams as having special meaning and healing power for her, a dream she titled "Ziggy Paints My Room." Interestingly, a word search analysis shows that this dream is unique in her series in having chromatic colors, positive emotions, and a magical object. This illustrates the larger point about the two different but complementary ways in which word search results can be used: to identify large-scale patterns, and to observe unusual and unique phenomena.

A series of experiments I conducted with G. William Domhoff explored these twin uses of the word search method. The experiments involved what we called “blind analysis,” meaning an analysis that proceeded purely on the basis of statistical patterns in the dream reports, without any additional input from the dreamer and without even reading the narrative texts of the dreams. The process generally had the following steps. Domhoff would approach me with a new series of dreams from someone unknown to me. After establishing a mutual agreement with the dreamer, Domhoff sent me the dream reports, which I immediately uploaded into the SDDb. Once there, I performed a word search analysis using a template of forty categories of content and compared the results to the Baselines. In this way, I was able to identify several kinds of recurrent patterns and themes. I could also identify several specific, measurable ways in which the dreams differed from the Baselines. Drawing these observations together, I prepared a list of inferences about the dreamer’s waking life concerns and activities. For example, if the person had an unusually high frequency of animals in their dreams, I would infer that animals are important in their waking life. If their dreams had no references to school, I would infer that they are not currently a student or teacher. After compiling this list, I sent the inferences to Domhoff, who forwarded them to the dreamer. The dreamer was then invited to respond to the inferences, confirming or disconfirming them and adding any relevant context. Domhoff sent me the responses, and at this point the veil of anonymity was lifted and we had an open discussion about the dreams, their empirical patterns of meaning, and the accuracy of the inferences.

Recently I reviewed the results of fifteen of these blind analysis experiments, conducted over several years, not all of which have been published yet. A more complete meta-analysis of the results will be forthcoming, but at this stage, it can be reported that a total of 167 inferences were made in the fifteen studies, and the dreamers confirmed 143 (86%) of them as accurate, 11 (7%) as partly accurate, and 13 (8%) as inaccurate. Several points can be noted about these results. One, the high accuracy rate is not due to my personal skill as a dream interpreter, but to the empirical patterns revealed by the word search analysis. All I did was translate the most significant statistical results

into specific inferences. Two, in many of the studies, it was the incorrect inferences that provided the most helpful insights about improving the word search method. Learning which inferences failed in one study enabled us to avoid making similar mistakes in subsequent studies. And three, in light of the value of *incorrect* inferences, the high accuracy rate should perhaps not be seen as a badge of honor but as a sign that the inferences are insufficiently bold and innovative. Making *more* mistakes might be the best way to tease out new dimensions of meaning.

Strongest Signals of Meaning

Several of the inferences revolved around specific areas of the dreamer's waking life, some of which are obvious in their relevance, while others are more subtle in how they relate to the individual's daily concerns and activities. The relatively high accuracy of these inferences justifies an attempt to provide a more generalized framework in which to categorize and interpret these findings. This provisional framework inevitably includes my own qualitative reflections on the dreams, which means that it will be shaped according to my personal and professional biases. However, the framework can still be grounded in empirical research and revisable in the light of new findings, so these factors need not become insurmountable obstacles to objective knowledge.

If, using a metaphor from data science, we think of dream content in terms of a varying ratio of signal and noise, the following are the three strongest signals of meaning as revealed by the blind analysis studies: The Self, Relationships, and Culture.

The category of Self, as I am using it here, includes the accurate inferences involving gender (male or female; little research has been done on people with non-binary gender identities); professional or public identity, such as student, musician, or journalist; concerns about health, both physical and mental; personality characteristics such as sociability and emotional expressiveness; and concerns about death and dying. These self-oriented dream themes can be interpreted as elements of the individual's basic psychological nature and ongoing experience.

The category of Relationships includes some of the strongest signals of meaning yet identified using the blind analysis method. In other

words, the word search results combined with the Baselines enable an especially clear view of the dreamer's most important relationships in waking life. References in dreams to family members and friends can be remarkably accurate indicators of their personal significance for the dreamer. To be clear, the relationship can be positive or negative, and the person can be present or far away; what matters is their emotional connection. The same is true of animals. To put it crudely but accurately, cat people tend to dream more of cats, and dog people tend to dream more of dogs.

The category of Culture includes a broad array of references to the collective world. The aspects of culture that seem to make the most discernible impact on dream content are reading and writing, school, sports, artistic interests, and religious/spiritual interests. For each of these topics, the Baseline frequencies are relatively low. It seems that among the general population, people do not often dream of art, for example, or reading and writing. This is helpful for empirically-minded researchers, because it suggests that when a dream series has a relatively high frequency on one of these cultural topics, there is likely to be a genuine connection with something important and meaningful in the dreamer's waking life. Hence the accuracy of many of the inferences in my blind analysis studies that focused on the dreamer's cultural concerns and activities.

Future Horizons

The future for research in this realm will be limited only by the investigators' imaginations—and by the consensus on ethical guidelines for digitally-enhanced dream research, which does not yet exist but must be developed soon. Some of the applications of these technologies could be turned toward abusive ends, and at a minimum, the research community should state its shared principles about the ethical issues at stake in this area of rapidly advancing knowledge. The goal is not to impose a top-down regime of morality, but rather to heighten everyone's awareness of both the benefits and the dangers emerging here. Anything that can reveal so much accurate psychological information about a person is worthy of a) great excitement and further

exploration, and also b) great caution and attention to personal privacy and dignity.

With this heightened ethical sensitivity in mind, the following topics for future research can be offered as having especially great potential for new insight and understanding. All of these involve the application of currently available resources toward a focused area of inquiry.

1. The general categories of Self, Relationships, and Culture can each be studied in more detail, with larger and more diverse groups of dreamers. The blind analysis experiments described above are suggestive but not exhaustive. There are certainly more, and perhaps many more, signals of empirical meaning in dreams. Tools of big data analysis are making it more feasible than ever to identify these signals. Especially if we can develop our analytical technologies with truly cross-cultural capacities, our empirical knowledge about the nature and functions of dreaming will become much stronger.
2. An especially promising area for new research involves the practical application of these technologies in the treatment of people with various kinds of mental and physical maladies. As a resource in caregiving and healing practice, dreams have several advantages: they are free, plentiful, universally accessible, and now quite easy to analyze for useful psychological information. New technologies of dream analysis can be developed into therapeutic allies, providing fast and accurate insights that are directly related to the client's unique experiences and emotional concerns.
3. The strong signals involving religion and spirituality are especially suggestive. For many people, religion and spirituality refer to a realm of special meaning, truth, and existential self-understanding. This adds significance to the empirical finding that dream content accurately reflects people's concerns in this area. Further research can build on this finding by exploring a) the types of dream content that seem most associated with religion and spirituality, b) the types of dreamers who seem most likely to experience such dreams, and c) the cultural/historical contexts in which such dreams seem most likely to occur.

4. All of the studies mentioned above will be enhanced by the development of new Baselines with an even larger and more diverse collection of systematically gathered dreams. The current Baselines available in the SDDb are useful, but new research will be able to determine the basic frequencies of common types of dream content with even more precision. Looking ahead, we can anticipate that, once a certain number of dreams have been gathered—let’s call them the Ultra-Baselines—the same stable set of basic frequencies will always appear, and adding more dreams to the analysis will not change the frequencies. For instance, if the number of dreams required for a stable set of Baselines turns out to be 10,000, it means that for all numbers higher than this, the basic frequencies of dream content will remain the same. This is an empirical question that new research will presumably be able to answer.
5. In the realm of art and entertainment, the empirical findings presented here could provide the deep architectural blueprint for the development of a virtual reality (VR) dream world. The frequencies of dream content from the Baselines can be seen as constituting a detailed portrait of what an “average” dream space might look and feel like. Such a portrait could be a valuable resource for developers and engineers interested in creating VR simulations of dreaming. The value could be both positive and negative, suggesting elements to include to make a VR dream space feel more authentically dream-like (e.g., more family and friends, falling, and friendliness) and elements to avoid because they tend not to be qualities of genuine dreaming experience (e.g., bright colors, magical creatures).

Conclusion

Those of us who study dreams are fortunate to be working in the field today. All the elements are coming together to create a prosperous future for empirically-grounded dream research. These elements include the increasing availability of powerful tools of analysis, large collections of dream data, and a century’s worth of psychological theorizing to pro-

vide testable hypotheses. The tools will surely become stronger and the dream collections larger, but a challenge will be expanding the range of hypotheses beyond modern Western psychology to include ideas about dreams from other cultures and periods of history. This might seem to lead in non-empirical, non-scientific directions, but the opposite is actually the case. I would emphasize the cardinal fact, supported by both historical and scientific research, that dreaming is a pan-species experience of humankind. We are a dreaming species. As such, an empirical approach to the study of dreaming can hardly limit itself *a priori* to the ideas of one culture during one period of history. The future study of dreaming will grow more vigorously to the extent that it seeks detailed empirical testing of *all* conceptions of how dreams are formed, what functions they serve, and how to interpret their meanings.

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

M a j a G u t m a n M u š i č

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

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, Hughes² 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-

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 Epidauros. 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 *symp-toma* (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,

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

⁸ Katie Glaskin, “Dreams, Memory, and the Ancestors: Creativity, Culture, and the Science of Sleep,” *Journal of the Royal 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

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

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

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 Publications, 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, Getsinger 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

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

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

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

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

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 archetypal 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

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 archetypal elements can be identified in dreams, and the example of Spiritual Agents serves as one of many archetypal 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,

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-ca40edo47b43/7be91eea-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.

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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A B S T R A C T S

Nina Petek

In that very body, within that very dream: *Soteriological dreaming technique in the tradition of Buddhist yogis*

The first part of the paper briefly outlines the role of dreams in early Buddhism and their importance in establishing the continuity of the whole tradition, before presenting in the second part entirely new aspects of dreams in the Buddhist eremitic tradition, influenced by the Tantric spiritual horizon, in particular by a transformed concept of the body. The central part of the paper follows an analysis of the soteriological technique of dreaming (Tib. *rmi lam*) in the tradition of Buddhist yogis and *yoginīs*, based on the fragments of *mahāsiddha* Tilopa (*Śaddharmopadeśa*), Gampopa's commentaries, collected in the treatise *Dags po'i bka' 'bum*, and findings from studies on Buddhist eremitic tradition in Ladakh in the region of the Indian Himalayas. The four stages of dream yoga are also highlighted in relation to other psychophysical soteriological techniques (the six dharmas, Skrt. *śaddharma*, Tib. *chos drug*). The philosophical and soteriological foundations of dream yoga are presented on the basis of the doctrine of consciousness in the *yogācāra* school, highlighting in particular the three modifications of consciousness presented by Vasubandhu. The last part the paper outlines the significance of training in the dreaming technique in the very process of dying that leads to the unconditioned state beyond life and death, *nirvāṇa*.

Keywords: dreams in Buddhism, Buddhist yogis and yoginīs, six dharmas, dream yoga, yogācāra, vijñāna, nirvāṇa

Victor J. Krebs

Dreaming in the Digital Age: Thoughts on the Technological Pharmakon

This article explores one way of understanding how digital media are affecting our ability to distinguish reality from fantasy, by reading Bernard Stiegler's diagnosis of our current cultural crisis, alongside Wilfred Bion's dream theory. The central claim of the paper is that we can understand the technological pharmakon, its both poisonous and therapeutic nature, in terms of Bion's definition of dreaming, as the commerce between consciousness and the unconscious negotiated by the

“alpha function”. Understanding how the digital impacts our capacity to dream provides us with a tool to counteract its toxicity and to combat the thanatic impulse triggered by technological power.

From a binocular point of view – both from Stiegler’s perspective of our technical or “organological” evolution and from Bion’s perspective on the constitution of reality in dreaming – we can begin to see more clearly how to modulate our technological drive, in order to prevent the pharmakon from short-circuiting the very psychic function necessary to distinguish between reality and illusion. The paper ends with a discussion of the algorithmic effects on the living imagination in support of this contention.

Keywords: Digital Age, dreaming, Bion, Stiegler, pharmakon, philosophy, psychoanalysis

Laura J. Vollmer

Toward a Historiography of Dreams: A Discursive Perspective

The historiography of dreams has yet to emerge as a distinct field, and key changes in dream research are worthy of consideration to reflect on tacit knowledge in academia. Gesturing toward such a historiography, the historical construction of the “dream” is examined from a discursive perspective via localization in the internal/external and subjective/objective, communicative and social imagined spaces of dreams, as well as the theoretical paradigms of essentialism and contextualism. Premodern to post-postmodern epistemes are considered as shaping forces in these discourses, involving power and authority in determining what counts as legitimate or significant knowledge. The discussion concludes with reflections on the current state of dream research from a post-postmodern perspective, suggesting the ontological multiplicity of the “dream.”

Keywords: historiography of dreams, history of dreams, discourse, epistemes, intellectual history, post-postmodernism

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Kelly Bulkeley, Toshio Kawai

Dreams, Sleep Quality, and Collective Trauma: An Investigation of the Impact of the COVID-19 Pandemic

The aim of the current study was to explore the impact of the COVID-19 outbreak on the dreams of a group of Italian participants. A total of 403 individuals were recruited online through a cross-sectional survey on Moodle. The qualitative content of their dreams was analysed using the Dream Interview (TKYDQ), a tool created by Bulkeley. In addition, the Pittsburgh Sleep Quality Index (PSQI) was used to assess the quantitative aspects of dreams. From the results of our study, three macro-categories of content in the participants' dreams were identified: 1) dreams with phobic content; 2) dreams with a persecutory theme and 3) "old normal" dreams. Moreover, some sleep-related difficulties such as problems falling asleep and mild clinical sleep disorders were identified in the sample. The prolonged quarantine and the lifestyle adopted during the pandemic have intensely influenced our dream activities, and it seems that COVID-19 has already entered our collective unconscious in a symbolic way and through the processing of images and scenes related to the epidemic. The study, therefore, aims to explore how catastrophic events affect mental health, specifically sleep quality and dream content.

Keywords: dreams, sleep, collective trauma, COVID-19, pandemic

Mary C. Walsh

An Ancient Disease in a Modern World: Epilepsy and Dream Research

For thousands of years people have attempted to understand epilepsy. Throughout our long history, healing traditions have incorporated dreams into both epilepsy diagnosis and treatment. Recent studies provide new information on the impact of epilepsy on sleep and dreaming, while research into epileptic dream content offers insight into the emotional and spiritual experience of people with epilepsy. Modern neurological research has increased our knowledge and improved treatment of this ancient disease, yet the stigma and misconceptions that have percolated for millennia continue to impact epileptic care and quality of life globally. While modern technologies afford better treatment, they can also impact sleep, dreaming, and seizure frequency in epileptics. This article provides an overview of current research into dreams and epilepsy and explores implications of this re-

arch for epileptic care in a modern world. Research surveyed includes recent studies into the protective role of REM sleep on seizures, epileptic dream content, the impact of epilepsy on specific populations and emerging paradigms for understanding epileptic spiritual experience. Studies suggest the need for a multi-disciplinary and multi-cultural approach to epilepsy. Implications for therapeutic and medical care, and avenues for future research are discussed.

Keywords: dreams, epilepsy, sleep, technology, spirituality

Sheldon Juncker
Dreaming with AI

Our goal is to highlight the capabilities of modern, generative AI systems using the widely used and accessible ChatGPT text completion models from OpenAI, focusing on how they can be used for the analysis of dreams and dream journals. We start with a brief overview of the nature of dreams, methods of dream interpretation, and the importance of the human-dream relationship. We explore the ways that technology, specifically AI, fits into this space and examine the ways in which AI can be used to help us understand our dreams. We progress from simple dream interpretations, to interpretations according to different schools of thought, to interpreting symbols within individual dreams, and finally to analyzing patterns in individual dream journals. We conclude with a discussion of the ethical concerns surrounding AI and dreams, providing insights from past technological revolutions and how they have both helped and hindered the human endeavor. We finally outline what we believe to be a practical, realistic, and hopeful vision of how we see this field progressing based on the experiments and methodologies that were explored in this paper.

Keywords: dreams, dream interpretation, artificial intelligence, generative AI, psychoanalysis, ethics

Kelly Bulkeley
New Approaches in the Empirical Study of Dreams

Dream research is entering a new era of accelerating insights and discoveries, thanks to the rise of powerful digital analysis tools that are enabling important

advances in the empirical study of dreams. This paper illustrates the use of these tools, drawing on the resources of the Sleep and Dream Database, a free online archive of information about sleep and dreaming. These tools include statistical analyses of survey responses, systematic word searches of large collections of dream reports, and a well-grounded set of baseline frequencies to help with comparative measurement. The goal of this paper is to provide readers with an initial orientation to the new world of dream discovery that has opened up because of tools like these. Several basic empirical findings are presented regarding clearly observable patterns of perception, emotion, and social interaction in dreaming. The paper will close with reflections on the emerging interplay of dreaming and technology.

Keywords: dreams, word searching, content analysis, continuity hypothesis

Maja Gutman Mušič

The Last Sanctum of Archetypes: Rethinking Dreams in the Light of Ancient Knowledge and Artificial Intelligence

Despite numerous attempts to integrate dream research into a vast array of scientific disciplines, there appears to be no consensus on why and how we dream. This millennia-old universal human phenomenon appears to be too elusive to be thoroughly understood by a single scientific discipline and too complex and data-rich to be studied only theoretically. However, another dimension to dreams and dreaming could promise an integrative approach: the culture-historical component that merges with recent advances in Artificial Intelligence. This paper briefly examines conceptual understandings of dreams before the dawn of modern science – specifically, the Native American, Mesopotamian, ancient Greek, and Hippocratic principles of dream practices and knowledge – in an attempt to understand the contemporary dream research field better and to outline future avenues for a data-driven approach while remaining grounded in its epistemological foundation.

Keywords: ancient dreaming, archetypes, artificial intelligence, dream data, cross-cultural dream analysis

POVZETKI

Nina Petek

Prav v tem telesu, prav v teh sanjah: *soteriološka tehnika sanjanja v tradiciji budističnih jogijev*

V prvem delu prispevka je na kratko orisana vloga sanj v zgodnjem budizmu in njihov pomen pri vzpostavljanju kontinuitete celotne tradicije. V drugem delu so predstavljeni povsem novi vidiki sanj v budističnem puščavništvu, na katerega je vplivalo tantrično duhovno obzorje, še zlasti predrugačen koncept telesa. V osrednjem delu prispevka sledi analiza soteriološke tehnike sanjanja (tib. *rmi lam*) v tradiciji budističnih jogijev (skrt. *yogi*) in jogini (skrt. *yoginī*), ki temelji na fragmentih mahasiddhe (skrt. *mahāsiddha*) Tilope, poznanih pod skupnim imenom *Ṣaḍdharmopadeśa*, na Gampopovih komentarjih, zbranih v razpravi *Dags po'i bka' 'bum*, ter na izsledkih raziskav budističnega puščavništva v pokrajini Ladakh na območju indijske Himalaje. Štiri stopnje joge sanj so predstavljene tudi v povezavi z drugimi psihofizičnimi soteriološkimi tehnikami (tj. šestimi dharmami, skrt. *ṣaḍdharma*, tib. *chos drug*). Avtorica predstavi filozofske in soteriološke temelje joge sanj na podlagi nauka o treh zavestih šole jogačara (skrt. *yogācāra*), pri čemer izpostavi zlasti tri modifikacije zavesti pri Vasubandhuju. V zadnjem delu je orisan pomen urjenja v tehniki sanjanja za sam proces umiranja, ki vodi v brezpogojno stanje onkraj življenja in smrti, v nirvano (skrt. *nirvāṇa*).

Ključne besede: sanje v budizmu, budistični jogiji in jogini, šest dharm, joga sanj, yogācāra, vijñāna, nirvāṇa

Victor J. Krebs

Sanjanje v digitalni dobi: razmišljanje o tehnološkem farmakon

Avtor v članku raziskuje enega od načinov razumevanja, kako digitalni mediji vplivajo na človekovo sposobnost razlikovanja med resničnostjo in domišljijo, in sicer skozi interpretacijo diagnoze aktualne kulturne krize, ki jo je postavil Bernard Stiegler, ter z obravnavo teorije sanj Wilfreda Biona. Osrednja premisa članka je, da tehnološki farmakon, njegovo hkratno škodljivo in terapevtsko naravo (konkretno v digitaliziranem avdiovizualnem komuniciranju) lahko razumemo v smislu Bionove definicije sanjanja, tj. kot trgovanja med zavestjo in nezavednim (ki

je odgovorno za spontanost, inventivnost in ustroj pomena), ki ga ureja »funkcija alfa«. Razumevanje, kako digitalno vpliva na našo sposobnost sanjanja, je orožje, s katerim lahko izničimo njegovo škodljivost in premagamo tanatični vzgib, ki ga v nas sproži moč tehnologije.

Binokularna perspektiva – ki hkrati zajema Stiglerjev pogled na človeško tehnološko ali »organološko« evolucijo in Bionov pogled na ustroj resničnosti v sanjah – nam omogoča jasneje videti, kako bi morali prilagoditi svoje tehnološke težnje v izogib temu, da bi nam pharmakon pokvaril psihično funkcijo, ki jo potrebujemo za ločevanje iluzije od stvarnosti. V zagovor svoje trditve avtor v sklepnem delu prispevka ponudi razlago o algoritemskih učinkih na živo domišljijo.

Ključne besede: digitalna doba, sanjanje, Bion, Stiegler, pharmakon, filozofija, psihoanaliza

Laura J. Vollmer

K zgodovinopisju sanj: pogled z diskurzivnega vidika

Čeprav se zgodovinopisje sanj še ni uveljavilo kot samostojno področje, so ključne spremembe v raziskovanju sanj vredne razmisleka o implicitnem znanju o njem v akademski sferi. V prispevku je zgodovinska konstrukcija »sanj«, ki napoveduje oblikovanje tovrstne historiografije, obravnavana z vidika diskurza preko lokalizacije v notranjih/zunanjih, subjektivnih/objektivnih, komunikacijskih in družbeno zamišljenih prostorih sanj, kot tudi skozi teoretični paradigmi esencializma in kontekstualizma. Predmodernistični do post-postmodernistični sistemi znanja ali episteme v teh diskurzih so formativne sile, ki določajo pravo oziroma pomembno védenje. Razpravo zaokroži razmislek o aktualnem stanju raziskav o sanjah s stališča post-postmodernizma, ki nakazuje ontološko večplastnost »sanj«.

Ključne besede: zgodovinopisje sanj, zgodovina sanj, diskurz, episteme, intelektualna zgodovina, post-postmodernizem

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*Sanje, kakovost spanja in kolektivna travma: raziskava o vplivih pandemije
covid-19*

Cilj naše raziskave je bil preučiti vpliv izbruha covid-19 na sanje pri skupini italijanskih izpraševancev. Preko spleta smo s pomočjo presečne raziskave v učnem okolju Moodle za raziskavo pridobili 403 posameznike. Kakovost njihovih sanj smo analizirali s pomočjo intervjuja o sanjah (TKYDQ), orodja, ki ga je razvil Kelly Bulkeley, za ocenjevanje količinskih vidikov sanj pa smo uporabljali pittsburški merilnik kakovosti spanja (PSQI). Na podlagi rezultatov smo pri udeležencih v raziskavi prepoznali tri makrokategorije sanj: 1) sanje s fobično vsebino; 2) sanje s preganjalno tematiko; in 3) »stare, normalne« sanje. V vzorcu smo med drugim odkrili tudi težave z uspavanjem in blažje klinične motnje spanja. Dolgotrajna karantena in način življenja med pandemijo sta močno vplivala na sanjanje in zdi se, da se je COVID-19 na simboličen način ter s predelavo podob in prizorov, povezanih s pandemijo, že vtakl v naše kolektivno nezavedno. Študija tako raziskuje vpliv katastrofičnih dogodkov na duševno zdravje, predvsem na kakovost spanja in vsebino sanj.

Ključne besede: sanje, spanec, kolektivna travma, COVID-19, pandemija

Mary C. Walsh

Starodavna bolezen v sodobnem svetu: raziskave o epilepsiji in sanjah

Ljudje že tisočletja poskušajo razumeti epilepsijo, pri čemer tradicije zdravljenja te bolezni že vseskozi vključujejo sanje tako v njeno diagnosticiranje kot terapijo. Nedavne študije so prinesle nove informacije o vplivu epilepsije na spanje in sanjanje, raziskave o vsebini epileptičnih sanj pa vpogled v čustveno doživljanje in duhovne izkušnje epileptikov. Čeprav se je s sodobnimi nevrološkimi raziskavami naše znanje o tej starodavni bolezni poglobilo, njeno zdravljenje pa izboljšalo, tisočletja razširjene zmotne predstave in stigmatizacija še vedno zaznamujejo skrb za osebe z epilepsijo in njihovo kakovost življenja po vsem svetu. Sodobne terapije sicer omogočajo boljše zdravljenje epileptikov, vendar lahko po drugi strani vplivajo na njihovo spanje, sanjanje in pogostost napadov. Članek ponuja pregled novejših raziskav o sanjah in epilepsiji ter preučuje, kako njihovi izsledki vplivajo na oskrbo epileptikov v sodobnem svetu. Pregled vključuje nedavne študije o

REM-fazi spanja kot varovalnem dejavniku pri pojavnosti napadov, o vsebini sanj pri epileptikih, o vplivih epilepsije na določene populacije ter o novih paradigmah razumevanja duhovnih izkušenj pri epilepsiji. Študije kažejo na potrebo po multidisciplinarnem in večkulturnem pristopu k preučevanju epilepsije. Avtorica v članku razpravlja o pomenu takega pristopa za terapevtsko in zdravstveno oskrbo ter predstavi poti za nadaljnje raziskave.

Ključne besede: sanje, epilepsija, spanje, tehnologija, duhovnost

Sheldon Juncker
Sanjanje z UI

Avtor osvetljuje zmožnosti sodobnih sistemov generativne umetne inteligence (UI) na primeru splošno razširjenih in dostopnih modelov ChatGPT za izpopolnjevanje besedil podjetja OpenAI, pri čemer se osredotoča na vprašanje, kako bi tovrstne modele lahko uporabili za analiziranje in beleženje sanj. Začne s kratkim pregledom narave sanj, metod interpretiranja sanj ter pomena odnosa med človekom in sanjami, nato raziskuje, kako se tehnologija, zlasti UI, umešča v ta prostor in kako nam lahko pomaga razumeti sanje. Od preprostih razlag sanj napreduje do interpretacij po različnih filozofskih šolah, nadaljuje z razlago simbolov v okviru posameznih sanj in zaključí z analizo vzorcev v posameznih dnevniki sanj. Članek zaokroži z razpravo o etičnih vprašanjih, povezanih z UI in sanjami, ter ponudi vpoglede v pretekle tehnološke revolucije, tako v njihove pozitivne kot negativne vplive na človeška prizadevanja. V zaključku predstavi praktično, stvarno in optimistično vizijo bodočega napredka tega področja, utemeljeno v eksperimentih in metodologijah, raziskanih v pričujočem članku.

Ključne besede: sanje, razlaga sanj, umetna inteligenca, generativna umetna inteligenca, psihoanaliza, etika

Kelly Bulkeley
Novi pristopi v empiričnem preučevanju sanj

Raziskovanje sanj vstopa v novo dobo pospešenega pridobivanja spoznanj in odkritij, predvsem zahvaljujoč razvoju visokozmogljivih digitalnih analitičnih orodij, ki omogočajo velik napredek v empiričnem preučevanju sanj. Prispevek predstavlja rabo tovrstnih orodij na podlagi virov iz brezplačno dostopnega spletnega

arhiva podatkov o spanju in sanjah (Sleep and Dream Database). Orodja vključujejo statistične analize odgovorov na anketna vprašanja, sistematično iskanje besed po obsežnih zbirkah poročil o sanjah in strokovno utemeljen niz izhodiščnih pogostosti, ki pomagajo pri primerjalnem merjenju. Cilj prispevka je orientirati bralce v novem svetu odkrivanja sanj, ki se je odprl z razvojem tovrstnih orodij. Podanih je tudi nekaj osnovnih empiričnih ugotovitev glede jasno vidnih vzorcev zaznavanja, čustvovanja in družbene interakcije v sanjah. Prispevek se zaključí z razmislekom o naraščajočem medsebojnem vplivu sanj in tehnologije.

Ključne besede: sanje, iskanje besed, analiza vsebine, teorija kontinuitete

Maja Gutman Mušič

Zadnje svetišče arhetipov: ponoven razmislek o sanjah v luči starodavnega znanja in umetne inteligence

Navkljub številnim poskusom, da bi sanje vključili v najrazličnejše znanstvene discipline, med strokovnjaki še vedno ni enotnega mnenja o tem, zakaj in kako sanjamo. Zdi se, da je ta tisočletja star občečloveški pojav preveč izmuzljiv, da bi ga lahko v celoti pojasnila ena sama znanstvena disciplina, ter preveč zapleten in podatkovno bogat, da bi ga preučevali zgolj teoretično. Vendar obstaja razsežnost sanj in sanjanja, ki bi lahko omogočila celostni pristop, in sicer kulturnozgodovinska komponenta v kombinaciji z najnovejšimi dosežki na področju umetne inteligence. Avtorica v članku na kratko pregleda in predstavi konceptualna razumevanja sanj pred razvojem sodobne znanosti – zlasti ameriška staroselska, mezopotamska, starogrška in hipokratska načela sanjskih praks ter vedenje o sanjah –, da bi omogočila boljše razumevanje področja sodobnega raziskovanja sanj in začrtala bodoče možnosti za podatkovno voden pristop, ki pa bi še vedno ohranjal epistemološko podlago.

Ključne besede: starodavno sanjanje, arhetipi, umetna inteligenca, podatki o sanjah, medkulturna analiza sanj

ABOUT THE AUTHORS / O AVTORICAH IN AVTORJIH

NINA PETEK

Nina Petek, PhD, is Assistant Professor at the Department of Philosophy, Faculty of Arts, University of Ljubljana, where she teaches courses on Asian philosophical and religious traditions, with a special focus on the philosophical traditions and religions of India. Her research interests involve ontology and epistemology in Hindu and Buddhist philosophical schools and Buddhist eremitic tradition in the Himalayas. She translates from Sanskrit into Slovene. She is also the Director of the Institute for Monastic Studies and Contemplative Sciences.

Dr. Nina Petek je docentka na Oddelku za filozofijo Filozofske fakultete Univerze v Ljubljani, kjer predava azijske filozofije, religije in kulture s poudarkom na indijskih filozofsko-religijskih tradicijah. Njena raziskovalna področja so ontologija in epistemologija v hindujskih in budističnih filozofskih šolah ter tradicija budističnega puščavništva v Himalaji. Prevaja iz sanskrta v slovenski jezik. Je direktorica Inštituta za študije menišтва in kontemplativne znanosti.

VICTOR J. KREBS

Victor J. Krebs (Ph.D., University of Notre Dame, USA). He is Professor of Philosophy in the Department of Humanities at the Pontifical Catholic University of Peru (PUCP). His current research revolves around psychoanalysis and the digital revolution. Author of *Of Soul and Art* (Editorial Arte: Caracas, 1998), *The Recovery of Meaning* (Equinoccio: Caracas, 2007), *The Pornographic Imagination* (Lápix: Lima, 2017), and (with Richard Frankel) of *Human Virtuality and Digital Life. Philosophical and Psychoanalytic Investigations* (Routledge: London and New York, 2022) (Gradiva Book Prize from the NAPP (2022), and Courage to Dream Book Prize from the APSA (2023)). He is a philosophical curator, founder of the Jungian Circle of Peru, coordinator of the Latinamerican Posthuman Network and of Hermes, a research group of the Center of Philosophical Studies at PUCP.

Dr. Victor J. Krebs, doktorant Univerze Notre Dame v ZDA, je redni profesor filozofije na Oddelku za humanistiko na Papeški katoliški univerzi v Peruju (PUCP). Njegovo raziskovalno delo je trenutno osredinjeno na psihoanalizo in

digitalno revolucijo. Je avtor del *Of Soul and Art* (Editorial Arte: Caracas, 1998), *The Recovery of Meaning* (Equinoccio: Caracas, 2007) in *The Pornographic Imagination* (Lápix: Lima, 2017), poleg tega je v soavtorstvu z Richardom Franklom izdal knjigo *Human Virtuality and Digital Life. Philosophical and Psychoanalytic Investigations* (Routledge: London in New York, 2022), ki ji je Ameriško združenje za razvoj psihoanalize (NAAP) leta 2022 podelilo nagrado Gradiva, Ameriško združenje psihoanalitikov (APsA) pa leta 2023 nagrado Courage to Dream. Krebs je filozofski kurator, ustanovitelj Perujskega jungovskega društva ter koordinator Latinskoameriške posthumanistične mreže in raziskovalne skupine Hermes, ki deluje na Centru za filozofske študije na PUCP.

LAURA J. VOLLMER

Laura J. Vollmer is an independent scholar and a prolific writer on a variety of topics related to religion, science, culture, health, and politics. She wrote a monograph on the relational structure of discourse, applying an innovative theory and method to the study of religion and science (Brill, forthcoming). Dr. Vollmer has been a freelance academic and general nonfiction editor for over eleven years, independently contracted by the University Press of Mississippi, McFarland, the *Journal of Religion in Europe*, and others, as well as by numerous scholars publishing with a multitude of journals and academic presses, such as Brill and De Gruyter. In the past, she has worked as an instructor at Washington University in St. Louis in the Department of Religious Studies.

Laura J. Vollmer je neodvisna raziskovalka in plodovita pisateljica o različnih temah, povezanih z religijo, znanostjo, kulturo, zdravstvom in politiko. Je avtorica monografije o relacijski strukturi diskurza, v kateri uporablja inovativno teorijo in metodo preučevanja religije in znanosti (v pripravi na objavo pri nizozemski založbi Brill). Dr. Vollmer je že več kot enajst let zunanja urednica akademske in splošne stvarne literature pri Univerzitetni založbi Univerze v Misisipiju, založbi McFarland, reviji *Journal of Religion in Europe* in drugod, sodeluje pa tudi s številnimi znanstveniki in raziskovalci, ki objavljajo v različnih strokovnih revijah in pri akademskih založbah, kot sta Brill in De Gruyter. Delala je tudi kot predavateljica na Oddelku za religiologijo Washingtonske univerze v St. Louisu.

CARMELA MENTO

Carmela Mento is an Associate Professor of Clinical Psychology at the University of Messina, Italy. She is also Analytical Psychologist, Consultant and Supervisor in Medical Settings in Psychiatric Unit of the Policlinico University Hospital in Messina.

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Maria Catena Silvestri is a Psychologist, Psychotherapist and PhD in Cognitive Sciences. Her areas of interest are mental health in adolescence and psychological rehabilitation. She is the co-author of articles published in international journals.

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TOSHIO KAWAI

Toshio Kawai is a full Professor of Psychology at the Kyoto University, Kokoro Research Centre, Japan.

Toshio Kawai je redni profesor psihologije in direktor Raziskovalnega središča Kokoro Univerze v Kjotu na Japonskem.

MARY C. WALSH

Mary C. Walsh, D. Min., LMFT is a licensed Marriage and Family Therapist, consultant, biofeedback trainer, dream researcher, and writer in private practice in Berkeley and Vallejo, CA. She has Master's degrees in Marriage and Family Therapy, Theology, and English Language and Literature, and a Doctorate in Ministry. Her doctoral dissertation studied the role of imagination and the neuro-physiology of trauma in the recovery of traumatized adolescents. Mary C. Walsh has taught as an adjunct professor in the graduate Certificate in Traumatology and Treatment Program at Holy Names University, Oakland, CA. She has co-founded and designed hospital and school-based treatment programs for traumatized and substance abusing adolescents. She has presented at numerous national and international conferences and workshops on dream research, dual diagnosis adolescent treatment, spirituality, healing, and trauma.

Mary C. Walsh je doktorica teologije, zakonska in družinska terapevtka z licenco, svetovalka, biofeedback terapevtka, raziskovalka sanj ter pisateljica z zasebno prakso v Berkeleyju in Valleju, v Kaliforniji. Magistrirala je na področjih zakonske in družinske terapije ter angleškega jezika in književnosti, doktorski naziv pa pridobila z disertacijo o vlogi domišljije ter nevrofiziologiji travme pri mladostnikih s posledicami travme. Walsh je poučevala kot začasna profesorica v podiplomskem programu za pridobitev certifikata s področja travmatologije in terapije na Univerzi Svetih imen v Oaklandu, v Kaliforniji. Je soustanoviteljica in oblikovalka bolnišničnih in šolskih programov za zdravljenje mladostnikov s posledicami travme in težavami z zasvojenostjo. Na številnih državnih in mednarodnih konferencah in delavnicah je sodelovala s prispevki o raziskavah sanj, zdravljenju mladostnikov s težavami z zasvojenostjo in pridruženimi duševnimi motnjami, o duhovnosti, okrevanju in travmi.

SHELDON JUNCKER

Sheldon Juncker, B.Sc. Computer Science, is a software engineer who works in the fields of dream research, data analysis, and artificial intelligence. He is a co-founder of Elsewhere, a company that pioneers the intersection of AI and dream research, both with their innovative dream journaling app and through associated research endeavors. He also provides AI and data analysis services for other research projects, including the development and maintenance of the Sleep and Dream Database. He lives in Portland, Oregon, where he spends his free time writing music, hiking, reading, and playing the occasional game of Dungeons and Dragons.

Sheldon Juncker je diplomiral iz računalništva in dela kot programer na področju raziskav sanj, analize podatkov in umetne inteligence. Je soustanovitelj podjetja Elsewhere, ki je kot prvo povezalo področji umetne inteligence in raziskovanje sanj v inovativni aplikaciji za beleženje sanj, nato pa še v drugih sorodnih raziskovalnih prizadevanjih. Storitve UI in analize podatkov zagotavlja tudi v zunanjih raziskovalnih projektih, med drugim sodeluje pri razvoju in vzdrževanju digitalnega arhiva The Sleep and Dream Database. Živi v Portlandu v ZDA, kjer v prostem času ustvarja glasbo, planinari, bere in občasno odigra kakšno partijo družabne igre Dungeons and Dragons.

KELLY BULKELEY

Kelly Bulkeley, Ph.D., is a dream researcher and author with a background in the psychology of religion. He is director of the Sleep and Dream Database (SDDb), a Senior Editor of the APA journal *Dreaming*, and a former President of the International Association for the Study of Dreams. He earned a B.A. at Stanford University, an M.T.S. at Harvard Divinity School, and a Ph.D. from the University of Chicago Divinity School. He is author and editor of several books, including *The Wilderness of Dreams* (1994), *An Introduction to the Psychology of Dreaming* (1997), *Dreaming Beyond Death* (2006), *American Dreamers* (2008), *Dreaming in the World's Religions* (2008), *Lucid Dreaming* (2014), *Big Dreams: The Science of Dreaming and the Origins of Religion* (2016), *Lucrecia the Dreamer* (2018), *The Scribes of Sleep: Insights from the Most Important Dream Journals in History* (2023), *2020 Dreams* (2023), and *The Spirituality of Dreaming* (2023). He lives in Estacada, Oregon.

Dr. Kelly Bulkeley je raziskovalec sanj, pisec in strokovnjak s področja psihologije religije. Je direktor digitalnega arhiva Sleep and Dream Database (SDDb), eden od glavnih urednikov revije *Dreaming* Ameriškega psihološkega združenja (APA) in nekdanji predsednik Mednarodnega združenja za preučevanje sanj (IASD). Diplomiral je na Univerzi Stanford, naziv magistra teologije pridobil na Teološki fakulteti Univerze Harvard, doktoriral pa na Teološki fakulteti Univerze v Chicagu. Napisal in uredil je več knjig, med njimi *The Wilderness of Dreams* (1994), *An Introduction to the Psychology of Dreaming* (1997), *Dreaming beyond Death* (2006), *American Dreamers* (2008), *Dreaming in the World's Religions* (2008), *Lucid Dreaming* (2014), *Big Dreams: The Science of Dreaming and the Origins of Religion* (2016), *Lucrecia the Dreamer* (2018), *The Scribes of Sleep: Insights from the Most Important Dream Journals in History* (2023), *2020 Dreams* (2023) in *The Spirituality of Dreaming* (2023). Živi v Estacadi v Oregonu, ZDA.

MAJA GUTMAN MUŠIČ

Maja Gutman Mušič is a research scholar whose work incorporates Anthropology, Philosophy of Mind, Media Studies, and Science and Technology studies to advance a fundamental understanding of two themes: the human-machine relationship and the psychological dynamics of dreams. Maja was a Fulbright Visiting Scientist at the Anthropology Department of the University of California, Los Angeles, in 2021, focusing on the automated recognition of archetypal patterns in an extensive collection of dream reports using Natural Language Processing tools. In 2023, she co-authored her first digital monograph called *2020 Dreams: Toward*

a New Understanding of the Dreaming-Waking Continuum, published by Stanford University Press. Maja is a researcher at the Institute of Philosophical and Religious Studies at the Science and Research Centre Koper and a lecturer in Media Studies and Humanities at Alma Mater Europaea, Slovenia.

Maja Gutman Mušič je raziskovalka, ki preučuje antropologijo, filozofijo uma, medijske študije ter študije znanosti in tehnologije ter skuša s povezovanjem spoznanj s teh področij razvijati temeljno razumevanje dveh tem: odnosa med človekom in strojem ter psihološke dinamike sanj. Leta 2021 je kot prejemnica Fulbrightove štipendije gostovala na Oddelku za antropologijo Univerze v Kaliforniji v Los Angelesu, kjer se je posvečala avtomatiziranemu prepoznavanju arhetipskih vzorcev s pomočjo orodij za procesiranje besedil v naravnem jeziku, ki ga je preučevala na primeru obsežne zbirke poročil o sanjah. Leta 2023 je v soavtorstvu napisala svojo prvo digitalno monografijo z naslovom *2020 Dreams: Toward a New Understanding of the Dreaming-Waking Continuum*, ki je izšla pri založbi Stanford University Press. Gutman Mušič je raziskovalka na Inštitutu za filozofske in religijske študije Znanstveno-raziskovalnega središča Koper in predavateljica medijskih študij in humanistike na fakulteti Alma Mater Europaea v Sloveniji.

P O L I G R A F I

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REVISITING DREAMS:
INTERDISCIPLINARY
PERSPECTIVES ON DREAM
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Kelly Bulkeley, Maja Gutman Mušič: *Revisiting Dreams: Interdisciplinary Perspectives on Dream Research and Science*

Nina Petek: *In that very body, within that very dream: Soteriological dreaming technique in the tradition of Buddhist yogis*

Victor J. Krebs: *Dreaming in the Digital Age: Thoughts on the Technological Pharmakon*

Laura J. Vollmer: *Toward a Historiography of Dreams: A Discursive Perspective*

Carmela Mento, Maria Catena Silvestri, Amelia Rizzo, Clara Lombardo, Hadipour Lakmesani Abed, Ferdinando Testa, Kelly Bulkeley, Toshio Kawai: *Dreams, Sleep Quality, and Collective Trauma: An Investigation of the Impact of the COVID-19 Pandemic*

Mary C. Walsh: *An Ancient Disease in a Modern World: Epilepsy and Dream Research*

Sheldon Juncker: *Dreaming with AI*

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