DOI 10.35218/tco.2025.15.2.11

Dream, Daydream, Memory

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Abstract: This article addresses the relationship between dreams and memory and focuses on the hypothesis that the process of dreaming contributes to memory consolidation. To understand this mechanism, the study considers dreams experienced in various stages of sleep and so-called "waking dreams," or reverie. Pro and con arguments, both enthusiastic and skeptical, are presented on the ability of dreams to influence memory and of memory to "dictate" dreams. The focus of this article is on the intersection of dreams, memory, and consciousness, a triad that emerges as a hypothetical fertile ground for the formation and understanding of theatrical dreams.

Keywords: dream, memory, consciousness, theater, daydream

Memory, understood as the psychological process of storing, recognizing, and reproducing sensations, feelings, information, movements, and experiences from a past moment, is an essential condition of theatrical culture and its interpretive practice. The study of dreams, this enigmatic witness that has accompanied humanity throughout its history like a faithful dog, and, in particular, the study of theatrical dreams, has revealed to me a fascinating relationship between dreams and memory, suggesting subtle and useful mechanisms that can be replicated on stage. "Our dreams speak," wrote Gaston Bachelard in his essay on the imagination of movement[1]. From these words, I would begin the sequence of ideas that seeks to carve out a useful theatrical mechanism that links dreams to memory. The perception that dreams are distinct from the knowledge we have access to when awake has been formulated in countless ways over time, in various fields. In the first half of the 20th century, Freudian and Jungian psychoanalytic schools gave dreams a strong symbolic substratum. The dominant tendency of their approaches was to consider dreams as

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[1] Gaston Bachelard, *Air and Dreams. An Essay on the Imagination of Movement*, Univers Publishing House, Bucharest, 1997, trans. Irina Mavrodin

symbolic messages sent by a powerful and equally enigmatic subconscious. Even a good part of modern, post-Freudian, and post-Jungian theories consider it necessary to distinguish dream processes from waking thought. In contrast to Freudian theory is Allan Hobson's highly influential mid-20th century model of "activation synthesis"[2] of dreams. In his theory, dreams are "hallucinations" generated by random neural processes in the brain stem during REM sleep. The cortex then "interprets" these neural triggers into "scenarios" that break down "factual memory." Although still invoked by researchers, this model has lost much of its influence, particularly as a result of recent evidence that dreams can also be experienced during non-REM stages of sleep. However, Hobson's model retains the hypothesis that dreams are distinct from waking cognition, that they are considered chaotic, emotional, and strange in relation to waking thought, that they are tangential to the nature of fiction and the intensity of theatricality, rather than to the logic and concreteness of reality. Gaston Bachelard initiates the first attempt to distinguish between dreams and reveries and creates a taxonomy of waking dreams, linking them inextricably to diffuse memory and a penchant for imagination. His theory is based on the materiality of consciousness. "Bachelard set out to search for subjectivity in reverie, the subjective study of imagination supported by the world of eidetic reality. The object perceived and subjectivized in the dream world loses nothing of its materiality; it becomes a specific image of the self, of its subjective experiences, which creates relationships that reverie makes inexhaustible," observes researcher Olesea Gîrlea.[3] As in a theatrical convention, within reverie "the subject never appears isolated, nor satisfied with living closed in on itself, but, on the contrary, it must surround itself with a multitude of dreamed objects in which to find itself."[4] In order to map the dream, drawing a boundary of reverie, Bachelard attributes to the dream the quality of "nocturnal," while reverie "is woven into the silence of the day, into the peace of rest—truly natural reverie— is the very power of being at rest"[5]. Bachelard's vision serves theatricality to the full, providing it with inexhaustible solutions, for in universal dramaturgy, the reveries of characters, as well as their power to leap through time, era, place, and state within the dramatic plot, are impossible to count. For

[2] J.A. Hobson, R.W.McCarley, ”The brain as a dream state generator: An activation-synthesis hypothesis of the dream process”, *The American Journal of Psychiatry* (1977), 134, pp. 1335-1348

[3] Olesea Gîrlea, ”Theoretical aspects regarding the concepts of "dream" and "reverie" in the studies of S. Freud and G. Bachelard”, *Philologia* LXII, September-December 2018, p. 35

[4] Gaston Bachelard, *The Poetics of Reverie*, Paralela 45 Publishing House, 2005, p. 204, trans. Luminița Brăileanu

[5] Ibid., p. 27

Bachelard, dreams and reveries belong to a dual universe: dreams are governed by the anima, and reveries by the animus. For, as O. Gîrlea remarks, "Reverie is feminine, and dreams are masculine. The poetics of reverie is, in G. Bachelard's view, a poetics of animus, for reverie means tranquility, while nocturnal dreams are associated with turmoil. (...) The study of nocturnal dreams, Bachelard reveals, is the domain of the psychoanalyst, while reverie is that of the phenomenologist"[6]. This perspective raises a question that is both provocative and inviting: is the theatrical dream a distinct category of dream or does it stem from reverie, mirroring it through the means of dramatic fiction? Does it have access to the character's deep self and the mechanisms to claim it from their self-awareness? The answer could stem from the very notion of consciousness, if we accept Bachelard's perspective, quoted as such in Gîrlea's study: "while the dreamer of nocturnal dreams is a shadow that has lost its self, the dreamer of reverie, if he is anything of a philosopher, can formulate a cogito at the center of his dreaming self. In other words, reverie is a dreamlike activity in which a glimmer of consciousness persists. The daydreamer is present in his reverie"[7]. With these considerations, Bachelard brings the effort to understand the notion of theatrical dreaming to a fascinating crossroads: is the dreamer a shadow that has surrendered its self to its character, or is reverie a process of intention of consciousness subjugated by the imaginary and memory? The answer may be found in the relationship between dream and memory. Bachelard perceives the imagination of poets, and writers in general, as artifacts of natural reverie, and one of the functions of reverie, like theater, is "to relieve us of the burdens of life"[8]. What Gaston Bachelard notes about poets and their relationship with dreams can also be applied to the theatrical universe: poets, Bachelard argues, "help us channel the fluid substance of our dreams, to keep it in a state where laws can be imposed on it. The poet remains quite clearly aware that he is dreaming in order to master his mission of writing his reverie."[9] However, dreams are not "representations" of past reality; they do not repeat or reconstruct previous experiences in their original form. "In both dreams and daydreams, fragments of recent and distant memory combine to form new imaginary scenarios."[10] The study cited invokes, as an argument, recent research that highlights fundamental similarities

[6] Olesea Gîrlea, 2018, art.cit., p. 36
[7] Gaston Bachelard, 2005, op. cit., p. 204
[8] Ibid. p. 80
[9] Ibid., p. 163
[10] Yvette M.Graveline, Wamsley, Erin J., ”Dreaming and Waking Cognition”, *Translational Issues in Psychological Science*, 2015, Vol. I, No. 1, p. 97

between dreaming and waking cognition at the phenomenological and neurobiological levels: "Dreaming as a wandering of the mind: evidence from functional neuroimaging" - K.C.R. Fox, S. Nijeboer, E. Solomonova et al., "Dreaming and offline memory consolidation" - E. J. Wamsley, "Dreaming and offline memory processing" - E. J. Wamsley and R. Stickgold. These lines of research converge on the hypothesis that the spontaneous association of fragments of recent and distant memory in new dream scenarios could be understood as a "direct reflection of ongoing memory processing during sleep. There is also an overlap between wakefulness and sleep at the neurobiological level. Patterns of regional brain activity are very similar during wakefulness and sleep. During wakefulness and sleep, the activation of medial temporal and frontomedial memory networks allows for the reactivation of memories of past experiences, as well as the creation of new imaginative scenarios"[11]. Memory is one of the most useful "tools" in performance art, and practicing it through specific techniques can be associated with performance, which it stimulates by providing the performer's concentration with mental comfort that allows for better management of emotion. In the case of probing, as a replicable theatrical mechanism, of the theatrical dream, the relationship with memory is one of biunivocal potentiation, as evidenced by numerous recent studies on the subject. In his study entitled "How Dreams and Memory May Be Related," Eugen Tarnow proposes a new theory of dreams and the structure of long-term memory, based on a variation of Freud's theory of dreams. Tarnow relabels Freud's conceptualized "unconscious" as the "long-term memory structure" (LTMS) and proposes a model of thinking in which "dreams are excitational responses that are always present to disturbances in perception and thinking, both during waking life and during sleep, which become conscious only when the executive function of waking life ceases"[12]. These excitational stimuli, whose response may be, deliberately, the theatrical dream, can be related to the disturbances of perception induced by the emotional transfer effort that the performer experiences "dreaming the dream of the character played," an experience that is assimilated by the actor's memory and reinterpreted in his own dreams. This "dream transfer" of memory from actor → to character → to actor could be the primary structure of a replicable mechanism for turning dreams into an instrument, a vehicle for theatrical content. For this transfer to become a replicable mechanism, a third element enters the equation: consciousness. Dream-memory-consciousness: the triad

[11] Ibid., p. 98

[12] E. Tarnow, ”How dreams and memory may be related”, *Neuro-Psychoanalysis*, 2003, vol. 5, no. 2, p. 4

is, hypothetically, complete, and arguments supporting it can be found both in current research and in ancestral cultures. "The idea that the waking state is like a dream state influenced by the senses, and that the dream state is a conscious state unrelated to the senses and fed by memory, is reminiscent of the ancient Indian conception in the Upanishads. According to this view, when we dream, we see an inner world created from the material stored in memory. We take the impressions left by the senses in the waking state, dismantle them, and transform them into mental images. But neither the impressions left by the senses nor the inner images produce consciousness; rather, one and the same consciousness illuminates the world of the senses in the waking state and the dream world in sleep.[13] Such a perspective, however, requires the definition and understanding of the third element, consciousness, and its relationship to those brain processes that influence dreams and stimulate memory. A vast body of literature has been and continues to be devoted to this essential subject by philosophers, psychologists, physiologists and neurophysiologists, cyberneticists and anthropologists, especially in recent decades. For example, the relationships between the brain and consciousness and the mechanisms that activate and control them have been addressed in seminal works by Sir Charles Scott Sherington (The Brain and its Mechanisms, 1934, and, especially, Man on His Nature, 1940). The path opened up by his research was further explored and expanded by an eminent generation of neurologists, neurosurgeons, and physiologists in the 1950s-1980s, a prolific period for scientific meetings, conferences, and symposiums on this subject, such as E. Adrian, F. Bremer, and H. Jasper ("Brain Mechanisms and Consciousness," Oxford, 1954), G. Wolstenhölme and M. O'Connor ("The Nature of Sleep," London, 1960), G. Moruzzi, H. Jasper ("Progress in Brain Research," Amsterdam, 1963), and J. Eccles ("Brain and Conscious Experience," Berlin, 1966). Progress in Brain Research, Amsterdam, 1963) or J. Eccles (Brain and Conscious Experience, Berlin, 1966), these being just a few of the most prolific examples. Sir John Eccles, a Nobel laureate, proposed a dualistic view of the mind-brain relationship, suggesting that while the brain is the physical basis of mental activity, consciousness involves a non-physical element that he called the "self" or "mind." He believed that the self interacts with the brain, particularly with the neuron modules in the cerebral cortex, to produce conscious experience and voluntary action, and, in a revolutionary approach for his time, suggested that these processes may have some continuity in the dreaming state. Eccles' theory, fundamental to understanding the concept of consciousness, is based

[13] Evan Thompson, ”Waking, Dreaming, Being. The Self and Consciousness” in *Neuroscience, Meditation, and Philosophy*, Curtea Veche Publishing House, 2021, trans. Oana Zamfirache, p.231

on several key ideas: the brain is not solely responsible for consciousness; a non-physical entity, the self, can influence brain activity; and quantum processes in the brain, especially at the level of synapses, could be the mechanism through which the self interacts with neural activity. At the same time, Eccles emphasized the importance of specific neural modules, called dendrons, in the cerebral cortex, each of which may be linked to a mental unit, called a psychon, for the generation of conscious experiences. "I express here my efforts to understand with deep humility a self, myself, as an experiencing being. I offer this in the hope that we, as human beings, may discover a transformative belief in the meaning and significance of this wonderful adventure that each of us has been given on this healthy Earth of ours, each with our wonderful brain, which we can control and use for our memory, pleasure, and creativity"[14], concludes the Australian Nobel laureate in his latest book. The introduction of the notion of creativity as the goal of the self's action on the brain is one of the most generous and promising associations that Eccles leaves to the current generation of researchers in the field, whether they are supporters or opponents of his theory. His theory, developed over more than three decades, has stimulated important discussions about the nature of consciousness, the potential contribution of quantum mechanics to brain function, and the role of the self, but it has also opened up a series of questions that are fertile ground for today's research. Among these necessary questions are several that also concern the field of dreams. Is the self capable of keeping consciousness awake, of maintaining it active at a certain level during dreams or reveries? What is the power and mechanism of the mind or self to transcend from "tangible," concrete reality into the dream world? And, more importantly, does the hypersensitive nature of the artist contain a double of the self? Can we intuit, if not measure, the existence of a self of the character played in scenes with dreamlike situations, which overlaps with the actor's self, that is, the awake mind of the person who enters the theatrical dream of another consciousness? Current research, inspired by Eccles' work, seems to offer possible answers. Eccles' ideas were controversial and met with resistance from many neuroscientists, who were followers of the materialist understanding of consciousness.

For Alexander Romanovich Luria, one of the most fervent promoters of materialism in neuroscience, credited as the father of modern neuropsychology, consciousness should not be perceived as a primary internal state of living matter, since psychological processes do not arise within the living cell, but from its

[14] John C.Eccles, *How the Self Controls Its Brain*, New York, Springer-Verlag, 1994, p. 180

relationships and interactions with the environment. Therefore, according to Luria, "consciousness is the ability to evaluate sensory information, to respond to it through thought and critical actions, with the aim of being able to use past actions in the future"[15]. An entire era of neuroscience in Romania unfolded under the influence of dialectical materialism and Luria's ideas, but Romanian research has nuanced aspects of subjective identity, detecting remarkable directions for research in the field of dreams: "Consciousness is the highest form of subjective reflection of the objective world. Consciousness is a complex psychophysiological process, which manifests itself through an assessment of one's own identity and which, in addition, is characterized by the objective aspects of behavior, and from a biological point of view, it constitutes a phenomenon that guarantees continuous and adequate processing of information, ensuring adaptation between the subjective ego, the nervous system, and the surrounding environment. Consciousness is a higher form of reflection, the fact of consciousness consisting in reproducing the particularities of the world outside the brain, in ideal form, as images, notions, judgments, and reasoning.[16] It should therefore be noted that even the materialist ideology of the second half of the 20th century does not deprive consciousness of its reflexive function, its predilection for images, and its search for the ideal form. A quarter of a century after Luria, a study reanalyzes the Soviet model through the lens of processes involving dreaming. This study, published in 2016, examined clinical and experimental neuropsychological research relevant to dreaming, covering a wide spectrum, from sleep disorders in patients with brain damage to brain function during REM sleep, using various methods of brain imaging. Its findings were analyzed within the framework of Luria's model of the three functional units of the brain, and a proposal was made to explain certain essential characteristics of dreaming. Thus, the research, taking Luria's model as a reference point, describes how, during dreaming, the first functional unit, which includes the reticular formation of the brainstem, is activated; which in turn activates the second functional unit—consisting of the parietal, occipital, and temporal lobes—and the L unit, which includes the limbic system, as well as the simultaneous hypofunctioning of the third functional unit, namely the frontal lobe. This activity produces a perception of hallucinatory images of various sensory types, as well as a

[15] A.R. Luria, "The human brain and conscious activity," in Schwartz, G.L. and Shapiro D. (eds.), *Consciousness and self-regulation*, vol. 2, *Advances in research and theory*, Plenum Press, New York, 1978, p. 6

[16] C. Arseni, I. Popoviciu, *Patologia stărilor de veghe și de somn*, București, Editura Științifică și Enciclopedică, 1984, p. 11

diminution or cancellation of the inhibition reaction, a non-self-reflexive thought process, and a lack of planning and direction of these dreamlike images. Dreaming is considered by the authors to be a type of natural confabulation, similar to that which occurs in patients with frontal lobe lesions or those with schizophrenia. The study also suggests that the confabulatory, bizarre, and impulsive nature of dreaming has a function in cognitive-emotional homeostasis that helps the brain function properly during the day. As a premise for their research, the authors pose the question, "Is dreaming a complex form of mental activity?" To answer this, they draw on the phenomenology of dreaming and the arguments of authors such as psychiatrist Martin Desseiles and neurologist Thien Thanh Dang-Vu ("Cognitive and emotional processes during dreaming" – 2011), Maria Corsi-Cabrera, and Arthur W. Epstein, and argue that "Dreaming is an active psychophysiological process involving the presence of hallucinatory images perceptible during sleep (i.e., visual, auditory, tactile, kinesthetic, and linguistic), as well as cognitively generated activity with varying emotional intensity. The content of dreams is naturally bizarre, the term bizarre being defined as the presence of incongruities and discontinuities related to time, space, and characters. In addition, there is a lack of control over the unfolding of dream scenes, in which the laws of physics are often violated. (...) Dream formation involves complex psychological activity that integrates memory, language, and thought itself."[17] Starting from Luria's model of the Three Functional Units of the Brain and analyzing their activation, the two authors conclude that "dreaming is a state similar to frontal syndrome or schizophrenia, but temporary, normal, and healthy, which allows the brain, the next day, to perform its homeostatic function and restore optimal functioning of the dorsolateral and orbitofrontal regions of the prefrontal lobe. In this way, the frontal lobe can perform functions such as planning, execution, evaluation, attention, working memory, self-reflection, impulse control, and decision-making, allowing the individual to have a functional social life"[18].

In my interpretive work and theater pedagogy, I have frequently formulated and used the assertion "Acting is controlled schizophrenia." It is a personal definition, formulated after decades of theatrical practice, which expresses the process of interpretive work through which you take on the thoughts of someone else, namely the character (you think their thoughts), which you control with your own thinking as

[17] Arnoldo Tellez, Teresa Sanchez, "Luria's model of the functional units of the brain and the neuropsychology of dreaming" *Psychology in Russia: State of Art*, vol. 9, Issue 4, Moscow, 2016
[18] Ibid.

an actor. The conclusion of the study cited supports my definition and has the merit of relating it to the subject of my proposed thesis, the theatrical dream. However, Tellez and Sanchez are not alone in affirming this relationship and, in turn, they refer to a host of researchers who support it.

Research coordinated by Martin Dresler discovers that in lucid dreams, the active brain regions are precisely those that malfunction in schizophrenia: "While in normal dreams working memory is strongly affected, activation in the dorsolateral prefrontal cortex, in combination with the parietal lobes—which we also found to be activated during lucid dreaming—may reflect the working memory demands related to the tasks in our study. We also observed increased activation in bilateral frontopolar areas, which have been associated with the processing of internal states, for example, the evaluation of one's own thoughts and feelings. The most pronounced increase in activation during lucid REM sleep, compared to non-lucid REM sleep, was observed in the precuneus, a brain region involved in self-referential processing, such as first-person perspective (...). While in normal dreams attention is often hyper-associatively directed toward the (pseudo-)external landscape of the dream, lucid dreaming is—by definition—characterized by reflection on one's own mental state. Interestingly, we found activation in the bilateral cuneus and occipitotemporal cortices. These areas are part of the ventral pathway of visual processing, involved in various aspects of visual awareness. Although these activations may seem surprising at first glance—since non-lucid dreams are also characterized by vivid dream images—they are consistent with the reports of lucid dreamers, who claim that lucidity is associated with exceptional brightness and visual clarity of the dream landscape"[19]. The vision of Dresler and his team in this research goes further and opens up an important question for understanding theatrical dreaming: can lucid dreaming be used to shape other particular dream manifestations, such as hypnagogic hallucinations or dream vividness? These being two of the manifestations frequently exhibited by the characters in the performances created and analyzed in the laboratory of this research, they constituted relevant elements of the experiments included in the chapter on theatrical practice and analysis of the thesis. "Although lucid dreaming is a fascinating phenomenon in itself, it can also serve as a tool for studying dream disorders. For example, lucid dreaming training has proven effective in treating recurring nightmares. (...) The increased activation of the lateral prefrontal cortex during lucid

[19] Martin Dresler et al., "Neural Correlates of Dream Lucidity Obtained from Contrasting Lucid versus Non-Lucid REM Sleep: A Combined EEG/fMRI Case Study," *Sleep,* 35 (7), July 2012

dreaming is therefore consistent with the therapeutic effects of lucidity training on recurring nightmares. It remains an open question whether lucid dreaming can also be used to treat other dream disorders, such as terrifying hypnagogic hallucinations or pathological dream vividness—an issue that requires further investigation. Consistent with recent EEG data, lucid dreaming has been associated with the reactivation of several regions that are normally deactivated during REM sleep. This pattern of activity may explain the regaining of reflexive cognitive abilities, which is the defining feature of lucid dreaming,"[20] concludes Dresler's study. The intersection of observations and theories drawn from this line of inquiry is the common view that dreaming is essential to the quality of wakefulness, as emphasized by Téllez and Sánchez: "We can say that the nightly dream madness is a necessary outlet that allows the individual to function healthily in the waking state"[21].

In contrast to the materialism of Luria and the school of neuropsychology he formed are not only theosophists, mystics, and "clairvoyants" for whom dreams are "echoes of the soul's movements," but also the most daring ideas and theories of advanced sciences such as theoretical physics, cosmology, quantum physics, and new research on the space-time relationship. In an article that caused a stir in the academic world, primarily because of its title ("God is a porcupine. The brain, consciousness, and space-time physics"), physicist Walter J. Christensen Jr., one of the most daring and innovative minds in the field of quantum gravity, consciousness, and space-time research, argues that "While the human body needs a large number of atoms to maintain its complex anatomical functions, we assert that the human brain needs 'something extra' to perform its higher mental and emotional functions. Recently, neuroscientists have begun to suspect that brain cells are not fast or complex enough to correlate complex space-time information into cognitive understanding. They conclude that space-time fields may be necessary to assist the brain during neurological processing—in the same way that magnetic and electric fields are essential for the propagation of light.[22] The premise put forward by the quantum physicist and philosopher of consciousness opens up an innovative perspective on understanding consciousness and memory. That "something extra," Christensen argues, is "space-time itself—where structures in the brain, called facilitators (somewhat like Descartes' pineal gland), have evolved biologically in such a way that

[20] Ibid.

[21] Arnoldo Tellez, Teresa Sanchez, 2016, art. cit.

[22] Walter J. Jr. Christensen, "God Is a Porcupine—Brain, Consciousness and Spacetime Physics", *Journal of Modern Physics*, 8, 2017, pp. 1294-1318

they can store and retrieve space-time quanta for the formation and generation of consciousness and memory. In this way, knowledge is not a complete thing. Rather, it is emergent and accumulates in the form of discrete space-time quanta in the brain so rapidly that we perceive our own consciousness as continuous, with events being spontaneous"[23]. Christensen Jr.'s provocative theory proposes a radical paradigm shift regarding the nature of consciousness, the mechanisms of memory, and their interconnections with psycho-emotional processes in a state that breaks down the accepted barriers in space-time perception. He also initiates, albeit peripherally and interrogatively, the orientation of this new approach towards the field of dreaming: "How can shadows create colorful dreams, when all that the brain is is nothing—emptiness? Where is the boundary between object and idea, between particle and perception?"[24], Christensen asks. Although he refers to "dreams" in a rather poetic sense, in the context of a philosophical reflection on the nature of consciousness, not as a systematic investigation of the realm of dreaming, Christensen formulates the first hypothesis regarding the effects of dreams on the space-time relationship. He considers space-time to be a field, like all quantum fields, which can be excited into quanta of particles called gravitons, and then applies this excitation of quanta to help explain the cognitive processes of the brain, including dreaming. If the brain has indeed evolved to interact with discretized space-time, Christensen argues, then with the advent of high-performance functional imaging equipment, we could hypothetically be able to map the detailed correlations between neural processes, conscious experience, and space-time. In this way, it might be possible to learn more about the fundamental workings of space-time itself, Christensen speculates. His hypothesis mirrors, magnificently, using the arguments of quantum physics and philosophy, the potential vectorial force of what we call the "theatrical dream." Intuition, then theatrical practice, conceptual analysis, and laboratory experiments conducted in the context of this research have revealed the infallible attribute of the theatrical dream to change eras, moments, temporal or spatial contexts, to instantly annul any previous convention, to place the action of the play and the mental presence of the character in any other time or place, to organize dramatic situations into quanta that it rearranges according to its own theatrical logic. And, according to Heisenberg's uncertainty principle, which does not allow these quantum fields to be completely

[23] Ibid.
[24] Ibid.

calm, like the surface of a lake without a breath of wind, the scenes furnished by the theatrical dream fluctuate continuously, similar to a quantum field.

Converging evidence from research that became notable in the early 1980s (for example, Harry Fiss – "An empirical foundation for a self psychology of dreaming") and amplified in recent years (exemplified by the work of researchers such as Joseph De Koninck – "Sleep, dreams and dreaming"), suggests that dreaming is significantly related to memory consolidation during sleep (in different phases of sleep, not just in REM sequences). "In a wide variety of memory domains—including verbal, emotional, motor, perceptual, and spatial learning—it has been shown that sleep after learning improves memory performance on a subsequent test. Could dreams be a reflection of this process of memory processing during sleep? (...) Current research confirms that dreams transparently reflect recently encoded memory. Meanwhile, recent discoveries in psychology and neuroscience suggest that reactivating memory networks during sleep helps to consolidate them, with both animal and human studies showing that the patterns of brain activity initially observed during learning are "replayed" during sleep," argued a thorough study a decade ago.[25] Less enthusiastic about admitting the consolidating relationship between dreams and memory are other researchers, such as Vertes, who argues that the hypothesis would be more credible if dreams reproduced waking experiences[26], while, more categorically, dream researcher Hartmann denies any compatibility between dreams and memory consolidation, arguing that dreams do not accurately reproduce lived events.[27] The moderation of this dialogue on the relationship between dreams and memory seems to come from the model proposed by Lewis and Durrant, expressed as "overlap to extract," according to which sleep stimulates cognitive processes by repeatedly reactivating associated information and interleaving it with new information in dreams.[28] The conclusions of the study conducted by Wamsley and his research team were that waking experiences do not appear in dreams in their original state, and that the combination of memory fragments into new and sometimes strange "scripts" may reflect the adaptive process of memory, that the brain mechanisms of

[25] Erin J.Wamsley, "Dreaming and offline memory", *Current Neurology and Neuroscience Reports*, March 2014, 14(3), p. 433

[26] Robert P.Vertes, *Memory consolidation in sleep: dream or reality*, Neuron, vol 44, September 30, 2004, pp. 135-148

[27] Ernest Hartmann, *The dreams always makes new connections: the dream is a creation, not a reply,* in www.ernesthartmann.com

[28] Penny Lewis, Simon Durrant, *Overlapping memory replay during sleep builds cognitive schema*, Trends in cognitive science, 15(8): 343-51, August 2011

dreaming are partly different from those of memory consolidation, and that dreaming reflects a functional brain process, namely memory consolidation, but there is no evidence that dreams themselves have a function: "As in the waking state, it is unlikely that a single cognitive or brain system can explain the entire complexity of subjective experience during sleep. Ultimately, it is possible that only part of the dream experience comes from memory consolidation—and even for that part, we do not yet have a satisfactory explanation. However, the memory consolidation hypothesis offers a promising framework for advancing the study of subjective experience during sleep"[29]. In this wake of concerns and ideas about the role of dreaming in memory consolidation, the dialogue is encouraging for the perspective it opens up on dreaming in theater. Exercising memory for the theatrical construction of dreamlike scenes enables a captivating mental process: elements memorized in working with theatrical dreams can arise in the process of dreaming, consolidating the memory of the dream on stage during real dreams, in sleep, or in waking dreams, in reverie. In this way, an area is revealed, vaguely explored scientifically, but all the more fascinating, of the intersection of two dreamlike planes, an ineffable territory that could be mapped as the birthplace of what we dare to call theatrical dreaming.

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[29] Erin J. Wamsley, 2014, art. cit., p. 433

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