The Structure and Dynamics of Dreams

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I recently had a dream that I vividly recall. I am on a stage in a community theater building. I am the lead in a play that I have not prepared for in any way. This is the dress rehearsal, and I don't know my lines. Furthermore, this is a musical and I must sing. I think it is Rogers and Hammerstein's' *Carousel* – so I do know this musical and some of its songs. I offer a few lines of dialogue (that I have just made up) and then start to sing. I think the song is "If I love you." My voice isn't great--but it is minimally acceptable, and I get away with it.

This scene ends. I am suddenly outside the theater. I am standing on the edge of a Bay (I think it is the San Francisco Bay). I am looking at the buildings of the city. They are magnificent. All shiny Black – almost as if they were made of obsidian. The buildings are very complex and delicate in their design—quite Baroque with many statues carved into small windows, niches, and shelves. Very intense. I spend quite a bit of time just looking at, marveling at, and appreciating the buildings of this city.

Then I have to move on and suddenly realize that I am actually at the top of a building. It is like a cliff. I somehow have to get to the bottom of the cliff/building. I am terrified. I slowly begin to make my way down from the top of the building. I often have to hang on to a ledge and lower myself slowly to the next level.

At one point, I must leap down about five feet to the top of a lower building. I am terrified. I want to stop but can't. I have to get to the bottom of the building. I have to get to secure ground. I am crawling along a ledge and then jump several feet to yet another roof of a lower building. I finally arrived on the ground. I walk a few feet and realize that I am now at the edge of an actual cliff. I look down and see that where I want to end up will require me to find a way down the cliff. I extend my gaze and see that I am looking at a landscape that is filled with many cliffs, ridges, and valleys. I have many challenges ahead as I consider how to navigate down the cliff. I am frightened and not confident that I can climb down from the cliff and navigate this rugged landscape. I am very tired and discouraged regarding the journey ahead. I wake up.

Interpreting the Dream and Setting the Stage for this Essay

As I reflect on this dream, it reminds me of my childhood fear of heights. As a child, I hiked with my family up the side of a tall hill in Illinois called Starved Rock. At the top of this hill, I am looking down from the top of the hill to the Fox River below. I am terrified. My brother teases me and threatens to push me off the cliff. I cry and want to return to our car at the bottom of Starved Rock. I often dreamt as a child of falling off this cliff down to the river.

I also reflect on my ambivalence regarding the buildings in this "wandering" dream. I admire the intricate design of the buildings and their detailed Baroque designs. However, I also worry about how I can somehow crawl down to the ground floor of these buildings. The beautiful Baroque niches become narrow ledges that I must cling to and traverse. As a child, I often played "cowboys and Indians" with my brother and several neighborhood kids. We raced around the grounds of a courthouse in our small town in Illinois. I always played the role of Indian and (with one of my neighbors) would climb up to a niche on

one of the courthouse walls (a reset in the thick stone calls where a window was placed). This niche was a source of not only security (hiding from the "cowboys") but also fear (high off the ground).

I also wondered about what I saw in the window, where a case was being tried. What were the people inside the courtroom thinking about children playing games outside the courtroom, given that serious business of a quite different nature was being played inside the building? What about me, Billy Bergquist? Was my fear of life on the niche intertwining with my sense of social injustice (playing the role of Indian and tangentially witnessing courtroom proceedings)?

Several other features of this lengthy, wandering dream stand out. This was a long, exhausting journey. Does my life sometimes seem to be exhausting, especially as I enter the senior years of my life. It is also noteworthy that I am faking it as a singing actor. I get away with the faking, but I am not doing a great job during the dream (at least by my standards). To what extent am I now faking it in my work, in relationships with my wife and family, and in my sense of self? There is the matter of impostorship that is highlighted by Kets de Vries (2003). To what extent am I an impostor? Has this dream (and other similar dreams) called me to the courtroom docket? Am I charged with the crime of failing to discover or enact my authentic self at this late point in my life? No wonder I am exhausted by the end of this dream and need to "bail out" into wakefulness!

Let me turn away from this personally challenging interpretation to the matters at hand regarding the structure and dynamics of dreams. I will be returning to this dream at times while providing a more detached analysis of dreams.

In the first essay in this series on dreams, I focused on the nature and function of dreams. In this, the seventh essay, I return to my consideration of the general principles that operate when we are dreaming. I focus specifically on the structure of dreams (what keeps them coherent) and the dynamics of dreams (what keeps them moving). Some of my observations and conclusions go against the usual assumptions made about dreams. I begin with an exploration of dream structure as it relates to the varying properties of dreams.

The Structure of Dreams: Properties

I propose that the structure of dreams varies quite broadly, as does their content. Six structural properties are to be found in all dreams: (1) length of the dream, (2) movement of the dream, (3) speed of the dream, (4) role played by the dreamer, and (5) level of creativity in the dream. I first consider the most obvious parameter: How long is the dream?

Length of the Dream

Some dreams are very short. Just a snippet of some theme or image. These short dreams tend to occur early in the evening. By contrast, other dreams are quite long and complex—such as the dream I shared at the start of this essay. Like my dream, these long dreams often contain multiple levels that might contradict one another. These multi-tiered dreams often contain powerful (and often creative) compressions, with a single image containing multiple meanings, such as the multiple ways "bridge" was used in the Pelican dream featured in the second essay in this series and the way fear and injustice tend to intermingle in the image of Starved Rock in the dream I offered at the start of this essay.

We can speculate about how the hypothetical dream-maker's motives for initiating the dream influence the length of the dream. Is there a complex message to be delivered in the dream, necessitating a lengthy dream? Perhaps, only a splash of cold water (a short, vivid dream) is needed to "wake up" the dreamer to some critical condition in their life. Obviously, there might not be any dream-maker and no good reason for believing that dreams are nothing more than random cell firings. Dreams are short or long depending on the duration of the REM period. Or is the length of a REM period short or long, depending on the dream's duration? This is a chicken-or-egg issue: which determines which (REM or Dream)?

Movement of the Dream

A second structural property concerns the movement of a dream. In some instances, there is no movement. The dream is a short, spectacular *Flash Bulb.* Either the dream itself is this quick glimpse, or the only thing we can recall when being awakened by the dream is this immediate segment of what might have been a longer dream.

Other dreams involve *Linear Movement*. A story is played out—be it fairly mundane or quite bizarre (such as my opening dream). A linear dream has to somehow come to an end, unless we wake up before the story has fully played out. Some dreams have a happy ending. We embrace our father (who died many years ago), or we finish writing that passage in our book (the content of which was never made clear in the dream). Sometimes, we are the hero of the dream. We end up slaying the dragon (or however the evil force manifests itself). At other times, we are the caring "Earth Mother" who nurses the wounded forest creatures or the protective "Divine Father" who takes care of the frightened child.

Other dreams do not end well. We end up being a Victim rather than a Hero. Everything collapsed in front of us. We roll off the bridge in our wheelchair, falling through space (as occurred in the Pelican dream). The evil force wins out, and we escape in defeat. One of the wise observations made by many dream interpreters is that we never die in our dreams. There is some truth in this observation, for it is hard to imagine what death would look like. Actually, we probably do die at the end of some negative dreams; it is just a matter of waking up and shuddering at what has just taken place in our world of dreams.

A third version of the linear dream closes much like my dream did. To borrow from T.S. Elliott, the dream ends with a "whimper rather than a bang." As in the case of my dream, the dreamer is simply tired out and doesn't have any energy to travel further. In these cases, the hypothetical dream-maker (if there is one) might simply have run out of lessons to teach the dreamer.

There is a third type of movement that occurs in some dreams. It is *Cyclical Movement*. We end up in the dream where we started. Much as in the case of the Wizard of Oz movie or Homer's Odyssey, we start at home and return home. At the start of the dream, we might instead start with a blank sheet of paper, work diligently on placing words on this page, crumple up what we have done, and end the dream with that blank piece of paper. This is the nightmare facing many of us who do a considerable amount of writing. Other people will have a similar journey, moving from the state of affairs at the start of a project to some activity and then some defeat. There is then a return to the state of affairs that existed at the start of the dream. This type of cyclical dream is just as nightmarish to the project planner as is the blank page to the writer.

Speed of the Dream

I would also point to a third structural property. This property concerns the different "speeds" at which dreams are moving. Some dreams move very fast, one episode leaping inexplicably into another (often unrelated) episode. Other dreams move very slowly, as did my dream. They spin out an entire tale, with intricate visual displays, extended dialogues, and exciting (but often stressful) portrayals of long-duration events.

One way to think about what is happening in both the slow-moving and fast-moving dreams concerns the consumption of energy. In the fields of psychoanalysis and the fine arts, the term "catharsis" is often used. This term refers to the purification or purgation of emotions (such as pity and fear) primarily through art or psychotherapy. In psychoanalysis, catharsis refers to the elimination of a deep-seated emotional conflict by bringing it to consciousness and enabling its expression.

Fundamentally, catharsis is about the expenditure and redirection of psychic energy. I would propose that fast-moving dreams are burning up (catharsis) at a very fast rate, whereas the slow-moving dreams are burning slowly. Brief, immediate concerns are addressed quickly (early at night), while deep-seated conflicts are displayed and slowly addressed in complex form late in the evening. We find fast-bursts of flame early on and long-burning fires later on.

We replicate both the fast and slow ways of working during the day. As Daniel Kahneman (2011) has proposed, there are times when we are fast thinking (often making use of convenient heuristics) while at other times we are slow thinking (making use of new perspectives and modes of problem-solving). When asleep, we similarly make use of existing, often repeatedly used dream elements in our fast-burning dreams. Our slow-burning dreams are more likely to contain novel, frame-breaking elements (needed to address deeply embedded focal conflicts).

Role of Dreamer

The dreamer in some dreams is sitting back as an observer of what is occurring in front of them. The action they are observing might be brutal, and death might be portrayed in abundance; yet the dreamer feels nothing. Maybe a bit curious or pessimistic about the evil that exists in this dream world, but not personally traumatized. At times, the dreamer might even serve as a narrator, commenting on the actions taking place (or at least thinking about this action).

At other times, the dreamer is a participant in the dream, but they play a secondary role. There is a brawl in a tavern (we lazily steal a scene from an old western movie we watched last night on TV). We are there in the middle of the mayhem, but are not touched by anyone or anything. Someone breaks into our home and ties up our spouse. We do nothing and just stand there. We awake and find ourselves feeling guilty about not doing something to "rescue" our loved one. Awakened from their dream, the dreamer might not even be sure if they were actual participants in the events that occurred in the dream.

Dreamers don't get away this easily in other dreams. They are fully participating in and are impacted by what is occurring in the dream. My opening dream certainly fits into this category. I am completely exhausted after participating actively in the dream. I leap from one building to the next. I am escaping from some evil force. As is the case with many dreams that people have, the evil force is never identified in my dream. Other challenging first-person dreams involve the death of someone close to us. And we grieve this death as much as we would if it had occurred in real life. Upon awaking, a moment must be taken to recognize that this death has not really occurred. Tears might still be shed, and there is a strong, welling up of gratitude for the continuing life of this loved one.

Creativity of the Dream

I introduce a fifth element to be found in the variations of dreams. This element concerns the level of creativity and generativity in the dream. Some dreams seem to be closely tied to what is called "day residue." These dreams tend to be rather mundane and are often forgettable. Dream researchers often portray early evening dreams as being black-and-white (or even gray), two-dimensional, and more "thoughtful" rather than "vivid."

Other dreams burst out of all boundaries and restrictions. My opening dream certainly fits in this category. The buildings are shiny black and contain ornate statues. The landscape might have been harrowing, but it was also beautiful. These generative dreams make extensive use of multi-level portrayals, are filled with strong colors, and have detailed backgrounds. People and other characters in these generative dreams are likely to be spontaneous, alternatively threatening and appealing, and both helpful and hurtful. Their portrayal is likely to be filled with insights about our relationships with people in our waking life (Fromm, 1951) and about our own multiple and conflicting senses of self (each character in the dream potentially representing an aspect of who we are).

Generative State and Peremptory Ideation

Clearly, there are times at night when our dreams are highly focused. One specific narrative or theme is dominant in the dream. It is as if we push everything else aside to get to the major point of the dream. Sigmund Freud (1900/2010) might suggest that we are just a bit "horny" and want to get on with the lovemaking in the dream. French and Fromm (1964) might instead suggest that the dream is being directed toward some focal conflict, as I suggested in my essay on the Pelican dream (Bergquist, 2023a). Yet, we might turn again to a more mundane perspective: the dream might simply be dominated by some daytime residue that needs to be "cleaned up" in the dream.

By contrast, there are times when we are sleeping that our mind is highly generative. Our dreams are filled with many images. There is a great diversity of images and themes. Even when we wake up, the dream images continue to pop out. We seem to be drawn back into sleep and dreaming. We can't wait to see what comes next. We reside in what might be called a *Generative State*. What produces or motivates this generative state? Perhaps we have had a stimulus-rich day. Alternatively, we have been sleep-deprived or dream-deprived and are trying to make up for lost time.

There is a third option. As I seek to make sense of this extraordinary power of dreams to be generative, I am reminded of the theory proposed by George Klein (1967) many years ago regarding a process he called *Peremptory Ideation*. As I have noted in several of my previous essays on dreams, Klein is proposing that in our internal world (psyche) we create a specific idea or image that begins to "travel" around our psyche (head and heart), picking up fragments of unconsciously held material (memories, feelings, thoughts). Much like an avalanche (and other forms of what chaos theorists often label "strange attractors'). This train of ideation becomes increasingly rich and emotionally powerful.

At some point, this ideation begins to pull in material from outside the psyche. External events suddenly take on greater saliency (more emotional power and vividness). It is because they are now connected to the internal ideation. Klein would suggest that the ideation now takes priority with regard to what is valued, attended to, and remembered in the external world. It assumes a commanding ("peremptory") presence. A positive (reinforcing) loop is created, with the external material now joining the interior material. They are all clustered

around the original (often primitive) ideation.

While Klein was primarily conceiving of this peremptory ideation operating when we are awaking (and influencing how we see and interact in our waking world), I have noted in previous essays that there is no reason to believe that it is not also operating when we are asleep. Furthermore, without the correctives of conscious processing of incoming stimuli during our waking hours, we might find that multiple peremptory ideations are moving about and bumping into each other when we are asleep. The state of generativity might be operating in full force during our sleep and when we first awake, precisely because one or more preemptory ideational trains are passing by.

Structure and Dynamics of Dreams: Varieties

Given these different properties of dreams, I turn to the many varieties of dream that are commonly found (or not so commonly found) in the domain of sleep, where we spend many hours each day.

Daydreams

We go through cycles all day long—when we are awake and when we are sleeping. It is not surprising, therefore, that we generate dreamy states during the day when we are moving through a sleeplike cycle. Of course, we might also daydream when we are bored, when we are frustrated with the current state of affairs, or when we simply prefer to live in an "alternative world." All of these states are likely to occur frequently during our childhood.

Furthermore, as children, daydreaming is enhanced by the constraints imposed on our preferred circadian cycle. While our wake and sleep cycle as children often pushes us toward a later time to sleep and a later time to wake, we are commonly regimented by a wake and sleep schedule that fits more with our parents and school system than with our own childhood cycle. We thus sit in a boring classroom, as a child, feel sleepy, and are drawn into a state of daytime dreaming.

While daydreaming might be demeaned as a dysfunctional process of childhood ("we should grow beyond our daydreams"), this form of dreaming is commonplace. The American Psychological Association suggests that up to one-third — and in some cases, one-half — of our waking thoughts are daydreams. Daydreaming is particularly common during midday. It may often disguise the need of human beings at all ages for sleep at midday.

Many societies permit (or even encourage) siestas in the early afternoon. In my teaching of adults from Asia, there was often an hour taken after lunch for a brief nap. I have taken to napping in the early afternoon during my current retirement years. Deirdre Barrett (2001) even encourages the use of afternoon naps as a way to bring in the "committee of sleep" to solve problems we are facing, whether as corporate executives or authors of pulp fiction. I will be devoting an entire essay in this series to a more extended analysis of Barrett's important work.

I find most daydreams to be rather short and often "fleeting" (fast burning). Though they take place during the day, daydreams are often quite generative—they tend to take us far away from our current world (whether it be a stuffy New England classroom or one of Márquez's sultry Mexican bedrooms).

Epic Dreams

With this kind of dream, we are likely to be in for the long haul. These dreams tend to be slow-burning and are likely to get increasingly complex – like a long, Russian novel. We are being taught slowly and carefully, because the lesson to be learned is not simply—like most of the problems and dilemmas we face during our waking life (Bergquist and Mura, 2011). We are in for the long-haul because Epic dreams can be profound, with long-lasting repercussions and life-changing potential. Even if these dreams are not life-changing, they can be exhausting. After a night spent playing out and replaying an epic, we may wake up not recalling the epic but knowing that something happened that interrupted a relaxing night of sleep.

Personally, I find the long and slow-moving epic dreams to be highly generative. These are the dramatic, linear enactments that fill books about dream content and that inspire novels, theatrical productions, and movies. The dreamer is usually an observer of this epic enactment. To quote a line from the Broadway musical, *Hamilton*, the dreamer "is in the room where it happened," and this is sufficient. They don't have to be an active participant, though we occasionally find that we are playing an epic role as a hero or as a tragic victim. When we do play a role in the epic dream, it might be a sign that our ego has gotten a bit too big!!!

Nightmares

The first dream I presented in the second essay in this series (Bergquist, 2023a) was a nightmare. It concerned the dreamer facing a horrible image (the 'Pelican" beak) of her face in a mirror. And then she sought to escape from this horror, only to find herself rolling in a wheelchair off the end of a bridge into a vast nothingness. According to the American Psychological Association, a nightmare is "a frightening or otherwise disturbing dream in which fear, sadness, despair, disgust, or some combination thereof forms the emotional content."

Most of us wake up quite suddenly from nightmares because they are torturous. Like all torture, these nighttime tortures can come in many forms: slow, agonizing torture or fast, highly painful torture. Some nightmares are fast-burning, shocking, often surprising, and recoverable. They are like a horror movie that is filled with nasty folks leaping at us from behind the closed door. Other nightmares play out like a Shakespearean tragedy. They mix the nightmare with an epic dream form. We are fortunate to be observers of this tragedy.

However, this is not always the case. In some nightmarish dreams, we are slowly being torn apart by evil forces and must at some point cry "uncle!" We wake up in a sweat and dread going back to sleep, with the expectation that we will be repeatedly abused, humiliated, or at least threatened. Our fear is based

on the complexity and long-burning nature of the terror we are facing when asleep. Even when we are awake, the terror haunts us. We regress to our childhood fears of a boogieman lurking beneath our bed.

Night Terrors

Night terrors are also known as sleep terrors. The Mayo Clinic indicates that many people experience "episodes of screaming, intense fear and flailing while still asleep … and sleep terrors are often paired with sleepwalking." They're more common in children but usually stop in adolescence, although some adults have them, too. While some episodes last mere seconds, others can be a few minutes or longer.

These night terrors tend to be short-bursting, fast-burning, and noncomplex terrors. We are the victims of these Flash-Bulb dreams. They are more like the monster pouncing on us when we open that forbidden door than an alien figure (dressed as a human being) who is slowly changing our genetics.

Progressive Dreams

These are a sequence of dreams with a seemingly continuous narrative unfolding nightly or sporadically. It's like reading a book (that is not an epic) or watching a series on Cable TV. A routine is established that can be quite repetitive and annoying: "I got the message already. Please leave me alone!" Or: "Not more of that. How long is this story going to last!" I am an "expert" on this type of dream and often find them both frustrating and interesting. They tend to be rather mundane, making use of "regular" daily obligations (such as writing) and characters (such as myself as author). They are just a set of dreams that move me relentlessly through a set of activities or encounters with other people.

On the other hand, these dreams can be quite long and slow-burning—as is the case with my opening dream. Perhaps, for me, they are long and drawn-out because they are trying to teach me something, and I am a slow learner! This might also be the case with other dreamers. Our dream-maker decides to fashion the dream as something similar to what is happening when we are awake. And then the dream-maker pushes the lesson again and again, hoping that we will pay attention and learn something! This is where the negative reactions often come in.

This type of dream relates directly to the matter of memories in dreams that I will address later in this essay. A series of dreams can only progress with continuity if there is some recall of the previous dreams in this progressive sequence.

Prophetic Dreams

The fascination with dreaming began with cultures all over the world divining a sense of purpose from predictions of the future. From the ancient Hebrews, Egyptians, and Greeks to untold religious leaders throughout the world, to Freud and Jung, the idea of dream precognition is woven through human history. Again, anecdotally, this ability is real to some people. The shattered glass mobile featured in my essay on Dreamer Beware (Bergquist, 2023b) exemplifies the apparent capacity of some

people to portray the future in their dreams or at least come to a remarkably accurate understanding of their relationship with other people (Fromm, 1951).

These dreams often contain archetypal images, making these prophetic dreams more likely to be success predictors (since human beings have operated pretty much the same over the centuries). Prophetic dreams, like the progressive dreams, require some detail, for the lessons to be learned are not easily delivered. Some context has to be provided for the prophecy to make sense. Credibility is critical, so the dream-maker (serving as the prophet) must provide sufficient evidence and draw out a lengthy, detail-filled story. Though an appropriate analogy and a parable or two always help!

Recurring Dreams

Recurring dreams contain the same characters, the same surroundings, and usually the same dominant theme. They often seem to address an unmet need or an unresolved issue. French and Fromm (1964) would suggest that these dreams focus on focal conflicts that are not easily resolved. I introduced their concept in my essay on the Pelican dream (Bergquist, 2023a). At other times, the recurring dream concerns an unresolved traumatic experience from earlier in life. The dreamer keeps trying out ways to address or avoid this trauma. These trauma-based dreams often appear as repeated nightmares (yet another form of torture).

As in the case of the progressive dream, the recurrent dream is likely to be long, drawn out, and slow-burning. Though one of the later recurrent dreams might be short and brutal, if a cautionary message is to be delivered. This short version of the recurrent dream serves as a “wake-up” reminder of the theme(s) conveyed in previous editions of this recurrent negative dream. Fortunately, some of the recurring dreams are very positive. They need not be very creative. Instead, they may repeatedly convey a pleasant experience that actually occurred, or a pleasant experience that we hope will occur (or wish had occurred) in our life.

The recurring dream might even be a lesson taught us by our dream-maker regarding how we might better live our life. These dreams often come with an envisioned reward for “good behavior.” It is interesting to note (and perhaps disturbing to note) that my own studies of recurring dreams suggest that men often receive their “reward” standing alone on the podium, whereas women often accept the award while gathering with their entire family on the podium. Unfortunately, the differing socialization of many men and women (in traditional societies) often shows up in their dreams: men tend to be individualists while women tend to be collectivists (Chodorow, 1999).

Task-Based Dreams

Some of our dreams are focused on tasks that align with the work we are doing during the day. We are planning during the day, and now we are planning in our dreams. We are writing a novel during the day, and now we are engaged in writing for our novel in a dream. Unfortunately, the work we have done in

our dream can't be saved. It is hard work that goes to waste (in most instances). There is an adage: "dreaming doesn't make it real." This appears to be the case.

These task-based dreams are most likely to occur early in the dream cycle. They may even occur during our hypnagogic state. Unlike many other early-night dreams, the task-based dreams tend to be fairly long and slow-moving. They are linear and tend to move in a systematic manner (given their work-related focus). We are participants in these dreams and are rarely highly creative or imaginative in addressing the work-related task.

This lack of creativity is usually not a great loss since we typically can't remember the results of what we have been working on in our dreams. While we often regret the lack of recall when we assume that the dream work was highly creative, this assumption is rarely accurate (as determined by dreams that are collected in a sleep laboratory). Mostly, the work-based dreams motivate us to turn to the task after we have gotten up in the morning and perhaps rushed through breakfast.

Vivid Dreams

As the name implies, these dreams tend to be quite forceful (fast-burning). As Flash Bulbs, these dreams are rarely complex or drawn out. Under conditions of high fever and with our active participant in the dream, the message to be delivered is often straightforward: "Get me out of here!" Or "I dream of better times." The imagery can be quite vivid, but it is usually not very creative.

We are anchored in the pain of reality and are rarely very creative; though, with a dose of some strong painkiller, our dreams can become quite bizarre and can bleed into our waking life. I remember once being on a major painkiller while in a hospital bed and reading a book. New characters were soon coming into my book! I asked them to leave, but they remained to enrich the story I was reading. I soon came to welcome them into my waking life and found the book I was reading to be even more interesting than when I was "sober."

An unusual condition known as *REM Rebound* is often the cause of vivid, intense dreams. REM rebound is defined as the increase in Rapid Eye Movement (REM) sleep that occurs after a period of sleep deprivation or reduced REM sleep. This phenomenon happens as the body compensates for lost sleep by extending the duration and intensity of REM sleep in subsequent sleep cycles. It is a natural response to ensure adequate restorative sleep. REM rebound can also be our mind's response to being excessively stressed. So, when we're asleep, we experience heightened brain activity, which creates more powerful imagery. Some people might also experience vivid dreams when struggling with high fevers or (as I did) with heavy medications.

Hypnagogic and Hypnopompic States

The hypnagogic state takes place in the period of drowsiness immediately preceding sleep. Hypnagogia operates as the transitional state from wakefulness to sleep. It is the waning state of consciousness during the onset of sleep. The opposite state is identified as hypnopompia. This hypnopompic state

operates as the transition from sleep to wakefulness. It is the state of consciousness leading out of sleep. Both the hypnagogic and hypnopompic states operate as periods between dreaming and waking that often generate vivid hallucinations, which can be visual, auditory, or tactile. Our toes suddenly swell up or our legs extend out several additional feet. Our train of thought becomes random, as do our feelings.

These two states reside at the border between sleep and wakeful consciousness. As border conditions, hypnagogia and hypnopompia might be particularly important regarding evolving human cognition and affect. While these two states receive little attention, they might like other threshold experiences (Turner, 1969; Csikszentmihalyi, 1990) provide us with "cutting-edge" thoughts and feelings. We stretch our body, stretch our mind, and perhaps reveal answers to important life issues.

A hypnagogic state often involves free associations and the swirling around of multiple visual and auditory images. Apparently, we don't need costly psychoanalysis to generate multiple images for subsequent interpretation. These swirling images can be very entertaining (like a great light show!). Furthermore, they might allow us to review the day's activities from a new perspective. They may yield new insights, much as Deirdre Barrett (2001) suggests regarding the unique functions that may be played by dreams. This state might even help to inaugurate the memory consolidation processes that occur during the night.

At the same time, hypnopompia can provide a platform for review of nighttime production (including dreams and memory consolidations) and for potential transfer of these productions to daytime awareness. Once again, swirling and distorted images can yield insights. If nothing else, the hypnopompic (and hypnagogic) states can provide us with an opportunity to more fully appreciate the creativity of our unconscious when it is unbridled from conscious life, yet available to us during these two threshold states.

Lucid Dreams

We come finally to the most intriguing of the dream types. These are the so-called "lucid dreams." These are the unique dreams that cross over the border between unconscious and conscious awareness of being in a dream state. We don't just stand on the edge of sleep and wakefulness, as we do during our dream-like hypnopompic and hypnagogic states. There is a remarkable borderland in the *Lucid Dream* where the dreamer is dwelling between dream and awake states of consciousness. A small percentage of individuals report having lucid dreams. In many instances, they indicate that they are aware of being in this state. Furthermore, in some cases, the dreamer can actually control the narrative of their dream or can communicate with other people in that state.

In general, lucid dreams are Linear, long, and slow-moving. They usually are simple and participant-based. The distinctive feature is that you know you are participating as the dreamer. In some cases, the lucid dream is complex and multi-tiered. The dreamer might not only know that they are dreaming but also know that they are observing the dream as it unfolds. In essence, the lucid dreamer is both a participant and observer. Lucid dreams are usually not creative. But they are memorable, so whatever creativity and generativity is present can be retrieved and used during waking hours.

It may be possible to train oneself to produce a lucid dream, though the task would no doubt take discipline and practice. Multiple strategies have been employed to increase lucid dreaming (e.g., Bryan and Singh, 2024). Without spoiling the excitement about lucid dreams, I suspect that sometimes the lucid dreamer actually is operating in a hypnagogic or hypnopompic state. We might try to encourage folks to appreciate what is occurring in these transitional states between sleep and wakefulness. They might prove to be just as generative as the lucid dream. And the content of these hypnagogic and hypnopompic states can often be controlled just as effectively as can the content of a lucid dream. It should also be noted, however, that dream states of all types may yield the most interesting and insightful content precisely because we can't control their content!

I turn next to the matter of dreams "in action" (the dynamics of dreams). Attention is directed to the matter of memory. The central question is: Do we retain a memory of our dreams? And if we do, where is this memory stored?

Dynamics of Dreams: Memory

I have a recurring dream about someone in refugee capacity who is on a series of long journeys (often with his family) to find freedom. He is often on a train traveling between Europe and Asia (probably Afghanistan). But he is repeatedly thwarted in his attempt to find a safe place where he and his family can live. I see him and his family at one point living in a series of cardboard boxes with a very large box containing all of the smaller cardboard boxes.

Until recently, when I was dreaming or was half-awake, I thought this was a real story, written by someone I knew, and that I was going to publish it in my digital library. I then realized, when fully awake, that it was all a dream and that I was the author. The remarkable thing is that this is a series of dreams over many nights that build on the narrative of previous dreams. There appears to be some sort of memory that enables me to retrieve content from previous dreams that were produced in earlier nights. If this is happening, then we need to change the assumption that dreams are engaged independently of the brain's memory system (hippocampus).

As we all know, dreams are not often recalled. We wake up in the morning and know we have had a dream, but cannot recall it. Or we recall elements of the dream for a few moments, and then these elements fade away. Those of us who wish to "save" our dreams often keep a notepad and pen by our bed. We write down what we remember immediately upon waking up after a dream. Then some of us claim never to be dreaming. Yet, if they are brought into a sleep lab, these "non-dreamers" record REM sleep at the same rate as dreamers. It appears not to be a matter of having no dreams. Rather, it is a matter of either not waking during or at the end of the dream or simply being "not in the business" of dream recall.

Why We Can't Remember Dreams

From a psychodynamic perspective, it might be very appropriate that we rarely remember our dreams. Our dreams can express unacceptable thoughts and behavior precisely because psychic barriers are erected to prevent their conscious recall. From a neurobiological perspective, it is understandable why

we often can't recall our dreams, for dreams are often not associated with the neurochemicals that allow for retention (Cassidy, 2025):

> One key aspect is the neurochemical environment of the brain during REM sleep, which is distinctly different from during wakefulness. Levels of neurotransmitters such as norepinephrine, which are crucial for memory formation, are significantly lower in REM sleep. This reduction may result in the brain being less efficient at storing dreams as long-term memories.

While this is a straightforward neurochemical reason for lack of memory, the picture actually is more complex, especially when it comes to the production of a certain kind of dream (the previously identified "lucid dream") that is usually recalled. According to Elisa Filevich and associates (Filevich et al., 2015):

> During lucid dreaming, there are higher levels of neural activity occurring in the prefrontal regions of the brain. Researchers began studying lucid dreaming extensively in the 1970s and it was discovered that lucid dreaming occurs during REM sleep. It's most likely that lucid dreaming will occur during REM sleep later in the night. One study using functional magnetic resonance imaging (fMRI) found that during lucid dreaming, the brain's frontal and prefrontal regions, which are associated with higher-level cognition and self-awareness, showed increased activity.

A more specific identification of the link between neurotransmitters and lucid dreams was made by Aswin Iskander (someone who specializes in the production of lucid dreams) (Iskandar, 2024):

> Neurotransmitters critically influence lucid dreaming by regulating the sleep cycle and enhancing cognitive functions during REM sleep. Acetylcholine initiates REM sleep and fosters self-awareness, increasing the likelihood of lucidity. Glutamate enhances neural connectivity, contributing to dream vividness. Serotonin modulates sleep quality and emotional tone, while dopamine improves dream recall, enriching the lucidity experience. The complex interactions between these neurotransmitters establish an intricate balance necessary for dream manipulation and retention.

Iskander (2024) uses somewhat different terms in reinforcing the role of neurotransmitters in the initiation of lucid dreams and enhancement of many other kinds of dreams:

> Acetylcholine is crucial for initiating REM sleep and enhances self-awareness, which correlates with increased lucid dreaming occurrences. Glutamate, as a primary excitatory neurotransmitter, modulates cognitive functions and enhances self-awareness during dreaming. Serotonin influences dream quality and emotional tone, with SSRIs potentially reducing REM sleep and impairing lucid dreaming. Elevated dopamine levels improve dream memory retention, enhancing the likelihood of experiencing lucidity in dreams. The interplay between acetylcholine, glutamate, serotonin, and dopamine establishes a balance essential for regulating lucid dreaming experiences.

While Filevich and Iskander were focusing specifically on Lucid Dreams, one can't help but wonder if neurotransmitters do play a role in the formation and retention of other types of dreams. Memories

might be formed at some level based on this neurotransmitter's assistance. Given the activation of prefrontal and frontal regions of the brain, and the introduction of acetylcholine, glutamate, and serotonin in the activation of lucid dreams and their content, it is hard to believe that these chemicals are only activated when lucid dreams occur.

We Remember from Dream to Dream

Several of the types of dreams (recurring and progressive) that I identified earlier in this essay would seem to indicate that we do retain some memory of past dreams. My own sustained hypnopompic work on a fictitious essay or course I am supposed to be teaching would also require some memory of what I have already done on this fictitious task. My increasingly elaborated Starved Rock nightmares that repeatedly appeared during my childhood dreams would seem to require not only memory of actual daytime fear of the Starved Rock cliffs, but also memory of previous nightmare content.

On the one hand, we might dismiss this conclusion by suggesting that the "memory" comes not from some dream-source but rather from our waking recall of past dreams offering a recurring theme or progressive dream. There is also the very real possibility that the "memory" is just another one of the highly creative productions we have made inside the current dream. In other words, each dream can contain its own "reality" regarding memories of past dreams. These alternative explanations for the source of "memories" in our dreams are certainly warranted since, as reported by many biological scientists, no neurotransmitters are aiding in the storage of dream memories.

Yet, as noted regarding lucid dreams, there are significant neurotransmitter interplays with at least this distinctive type of dream. As I have already noted, it is hard to believe that there is no neurotransmitter involvement in the production (and potential retention) of "regular dreams." I find in my dreams that there is very convincing evidence of retention from previous dreams. I find many dreams building on a theme or story from a previous dream (the progressive dream).

I "know" that the progression is not just made up for the sake of the current dream, because I have recorded the previous dream and can see the clear line of progression from that dream to the current one. I realize that I could be simply bringing my recorded dream (rather than the actual dream) into the current dream; however, the time gap between the recorded dream and the current dream is often quite large (perhaps one or two weeks). It is hard (though not impossible) to believe that the current dream is picking up this stored memory of the recorded dream.

I also have had many recurrent dreams during my lifetime, especially during my childhood. As noted in the research on dreams, these recurrent dreams were often nightmares when they occurred during childhood. As I shared at the start of this essay, I especially recall many dreams in which I was falling off a Starved Rock cliff located on the Fox River near our home in Illinois. While the memory might be based on my recurring fear of falling when I actually stood on this Fox River cliff, the recurring nightmare often "embellished" on the actual experience of standing on the cliff. For instance, I frequently fell off the cliff during the nightmare or was pushed off by some "evil" person (such as one of my siblings). I also imagined the reenactment of actual history. Starved Rock was named in memory of the Native

Americans who were trapped on this rock and were starving to death. I imagined that starving Native Americans were jumping off the cliff!

I am not alone in reporting on the content of previous dreams appearing in a recurrent or progressive dream. These dreams are powerful and often haunting when recalled in the morning precisely because they are rich with content and seem to be “repositories” of collected and combined memories.

What then might be the nature of a structure or micro-region in our brain that holds the memories from past dreams? If these memories are not held in the hippocampus (like most other memories) and if these dream-based memories are often only available when other dreams are being produced, then there might somehow be a separate structure of micro-region for their storage. Perhaps, in some way, this separate memory unit is related to the important function served by REM sleep in the consolidation of memories from daytime experiences.

Memory Consolidation

Recently, attention has been directed to the role played by REM-sleep (and dreams) in the nighttime selection, consolidation, and storage of daytime memories. Much of this attention evolved from the widely acknowledged dysfunction of sleep-deprived people in their capacity to remember events of the previous day. Many of us are acutely aware of this phenomenon, having stayed up all night to prepare for a college exam, only to discover (painfully) that we “forgot” almost everything when asked to recall specific facts during the next day's exam.

We now know that our failure to retain important information doesn’t just relate to fatigue or excessively compact retention of important information. It relates to a process of memory consolidation that should have occurred during the previous night of sleep. This consolidation includes sorting through short-term memories. Which do we want to keep, and which do we toss out? Then, a consolidation takes place that involves integrating multiple experiences and extracting generalities. These creative, integrative processes seem to be taking place in our dreams or in processes that parallel our dreaming.

I recall the retention process being used by someone called a “mnemonist” by the noted Russian neuropsychologist, Alexander Luria. In his book about the mnemonist, Luria (1987) reported that this man, who could remember everything, would imagine a city street and place what he had been asked to retain in store windows along this street. Later, the mnemonist would revisit this city street and recall what he had placed in the windows. I wonder if something like this is occurring in our dreams. Are we using the visual (and perhaps auditory) displays in our dreams to somehow store our consolidated memories? We might even be creative in bringing several consolidated memories together in one store window (or whatever visual or auditory display we invent).

Perhaps we place the new memory in a store window that we have previously constructed, creating the schema suggested by Frederick Bartlett (1995) in his classic studies of memory. His schemata might be engaged when dreams are built on top of previous dreams (progressive or recurrent). My Starved Rock nightmares might be made up of memories regarding not just my fearful experience of the Fox River cliff but also stories I heard or read about Indians starving on the rock. These memories are gathered

together in a store window or schemata that powerfully and poignantly consolidate *Fear* (falling off the rock) and *Injustice* (starving Native Americans and courtroom proceedings). This schema seems to be operating throughout my life, and it has motivated many of my social reform thoughts and actions in adulthood. It might have been forged or at least reinforced through my Starved Rock dreams.

With all of this occurring, might some of our store windows be reserved for content from old dreams, especially if they can be placed in one of the existing windows (schemas)? We might even bring in Carl Jung's (1959) concept of universal archetypes, suggesting that some of the windows might be frequently constructed and used by all of us. I am being highly speculative at this point; however, I would like to gain some appreciation for the complex –and perhaps elusive – way in which we retain memory of past dreams when producing new ones.

Conclusions

In exploring the structure and dynamics of dreams, I have turned to both the "soft" (interpretative) side of dreams and the "hard" (neurobiological) side. When appropriate, I have also presented research findings regarding how the hard and soft interact (especially regarding lucid dreams). The challenge is to prepare or find a theory that takes this interaction into account. Fortunately, there is a Neurocognitive Perspectives on Dreaming that has been offered by William Domhoff and his associates (2022). Domhoff proposed that dreaming occurs when the mature brain is adequately activated and disconnected from external stimuli without self-reflection. Similarities are noted between dreaming and mind wandering. I would note that mind wandering occurs during daydreaming and both the hypnagogic and hypnopompic states.

While Domhoff has offered a formal theory regarding dreams in recent years (Domhoff, 2022; Domhoff, 2023), it is useful to go back to an earlier essay (Domhoff, 2011) in which he is offering his first set of conclusions about dreams and mind wandering based on extensive research and literature review:

> [D]reams can be seen as a unique and more fully developed form of mind wandering, and therefore as the quintessential cognitive simulation. They are the quintessential cognitive simulation not only because they have elaborate story lines that are often enacted with exquisite sensory, motor, and cognitive involvement, with some dreams unfolding over a period of several minutes to half an hour or more. There is also the striking fact that they are usually experienced as real while they are happening.
>
> At the cognitive level, the understanding of dreams would begin with the idea that they are based on many of the same conceptions and concerns that shape thinking and behavior in waking life . . . At the neurocognitive level, dreaming would be understood as the product of a subsystem of the brain's default network, perhaps augmented by the recruitment of parts of the dorsolateral prefrontal cortex.

Domhoff (2022) has focused on neural subsystems that are centrally involved in the default network of our brain. The default network supports the brain's 'intrinsic' activity, including its resting state and forms of abstract cognition, such as self-referential thoughts, reminiscing, and future planning.

Subsystems of the default network relate directly to dreaming and mind-wandering. Specifically, the dorsal medial prefrontal cortex subsystem and the medial temporal cortex subsystem of the default network are activated during dreams. These subsystems are involved in supporting imagination and mind-wandering while awake, suggesting that dreaming is a form of spontaneous imaginative thought.

As Domhoff (2023) notes:

> These two subsystems, which are the primary neural basis for dreaming, are also involved in supporting imagination and mind-wandering in waking life when the frontoparietal control network, the dorsal attention network, and the salience/ventral network are not constraining the default network to the degree they do in task-oriented contexts. . . . Although the two subsystems of the default network are relatively activated during dreaming, the "zones of integration" (the areas in the default network that connect it to the other association networks during waking) are relatively deactivated throughout sleep. Their relative deactivation contributes to the independence of the default network at the times when it is relatively activated during sleep.

When we are awake, the medial temporal subsystem is activated by thinking about personal situations and decisions in the future. During a state of dreaming and during a state of mind-wandering, the Dorsal medial subsystem is activated. This could explain why dreaming, as intensified mind wandering, is often focused on the dreamers' concerns about their relationships with significant others, regrets about the past, and worries about anxiety-arousing future events. This phenomenon is also found in mind wandering. In his earlier essay, Domhoff (2011) offers the following consideration:

> If the default network could be added to the list of waking cognitive systems that have adaptive value due to the new associations and ideas it provides via mind wandering and daydreaming, then it might be argued that dreaming may have similar functions as a residual by-product of the activation of a subsystem of the default network during sleep.

Domhoff believes that dreams probably have no function, but they do have coherence and meaning, which is often conflated with function. Dreaming might be a by-product of the evolution of sleep and consciousness. In his concluding comments related to his 2011 essay, Domhoff offers the following opinion:

> [T]he mind may dream simply because it can. . . .[Dreams] have been put to use by people in many different times and places as important parts of religious and healing ceremonies, which means that they have an emergent cultural function due to human inventiveness. However, they may or may not have any adaptive value as evolutionary theorists use the term. They may simply be dramatic simulations of our conceptions, concerns, and interests that occur when a specific constellation of neural regions is activated in a context where there is no engagement with the external world. If that proves to be the case, then psychological meaning and cultural usefulness have to be distinguished from each other and from the issue of adaptive function in order to develop an adequate theory of dreams.

While I appreciate the detailed and evidence-based analysis of dream functioning that Domhoff provides, I hesitate in accepting his conclusion that dreams are "simply" what our mind (and brain) can manufacture. I have already presented numerous examples of dreams that have provided dreamers

with important insights. I will soon be presenting an essay that is devoted to Deirdre Barrett's (2001) remarkable research on dreams serving as insight-providing and problem-solving "committees of sleep." So, stay tuned . . .

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