I wish to convey the enthusiasm that I feel about dreams, their significance in clinical work, and the many new ways that we have learned to understand them. I would also like to familiarize the reader with some findings about dreams that have come from neurobiologists and cognitive scientists. Some of those researchers have made broadside attacks on the psychoanalytic theory of dreams and the practice of dream interpretation; psychoanalysts have either returned the hostility or simply ignored the empirical research. My own view is that both empirical researchers and practicing psychoanalysts could benefit by a serious exchange of information.

The current gap between psychoanalysis and neurobiology did not exist when psychoanalysis was founded. Freud's first scientific research (1877) was on animal neurology, the development of the nervous system of the eel. Later, one of Freud's major works was the Project for a Scientific Psychology (1895), which attempted to create a model of human mental functioning based on the neurological knowledge of his time. This work is still appreciated by cognitive neuroscientists today. If one studies the Project carefully, one realizes that most of Freud's later thinking about psychoanalytic metapsychology had its origins in the psychoneural model that he developed in the Project.

Over the years, however, psychoanalysis, cognitive science, and neurobiology have become estranged from one another, although something of a dialogue (not always friendly) between the fields has continued, especially in the area of dreams.

I would like to reconsider the relation of psychoanalysis to cognitive neuroscience by focusing on the theory of dreams. We will look at how modern psychoanalysis theorizes about dreams, how we approach dreams clinically, and how we can integrate the data from cognitive neuroscience with clinical observations about dreaming.

The psychoanalytic view of dreams has changed dramatically in the hundred years since Freud published The Interpretation of Dreams. Many psychoanalysts, from Jung to the present, have questioned Freud’s conclusion that all dreams are caused by unacceptable wishes. The White Institute has been among the leaders in revising psychoanalytic dream theory. In 1950, Frieda Fromm-Reichmann argued that many dreams do not deal with wish-fulfillment. Erich Fromm (1951) saw in the dream an attempt to express psychodynamic conflict. Paul Lippmann (1998) sees dreams as responding to both private concerns and social factors. Edgar Levenson (1983, 1991) has shown how dreams often portray the most simple truths about the dreamer's experience, truths so blunt that in the clinical setting, neither patient nor analyst may fully understand them without first reenacting them during the process of dream interpretation. I have argued (Blechner, 1983) that dreams may express things that are not expressible by any other means, and I expand that viewpoint here.

I address three main questions: (1) Where is the meaning of the dream? (2) How do we arrive at that meaning in clinical dream analysis, and to what degree is that meaning analyzed or created? and (3) What is the significance of bizarreness in dreams?
Freud's view was that dream interpretation is a process of undoing the disguise of the dreamwork. We *reconstitute* the original latent dream thought, which is something like a grammatical, understandable sentence. This basic Freudian theory of the formation of dreams, which dominated psychoanalysis during its first half-century, has been seriously questioned during the last half-century, not only by clinical psychoanalysts but by laboratory dream researchers. Freud thought of dreams as minipathological events, but this viewpoint had to be revised when Aserinsky, Dement, and Kleitman discovered that we dream regularly throughout the night, and much more often than we consciously realize (Aserinsky & Kleitman, 1953; Dement & Kleitman, 1957a, b).

The fact that dreams occur so regularly, along with other new findings, has led some dream researchers to postulate that dreams do not start with a fully formed verbal thought. One of the best known of these theories is that of Allan Hobson and Robert McCarley (1977), which they call the “activation-synthesis hypothesis.” They propose that the basic stimulus of the dream is an image produced by periodic firing of the pons, a structure in the brain stem. Such images, which Hobson and McCarley believe to be random, are then synthesized by the higher levels of the brain into an ongoing narrative. The process is very much like the brain administering, to itself, a TAT (the Thematic Apperception Test), showing itself an image and then elaborating a story based on that image. Antrobus (1991) suggests that the primary input may be even more obscure, for example, just a visual feature, which the conceptual or higher perceptual modules transform into a recognizable object or person.

There are many objections that can be raised about Hobson and McCarley's original theory. Most recently, Mark Solms (1997), studying patients with brain injuries, has found that patients with damage to the pons still dream. So there may have to be revisions to the activation-synthesis hypothesis.

But let us consider what Hobson and McCarley's original theory implies about our first two questions. About the first—where is the meaning of the dream?—the activation-synthesis hypothesis says that we do not start with meaning. We start with a relatively meaningless image that has been generated by neural firing. Then, in the synthesis stage, the higher levels of the mind construct a more cogent narrative out of such internally generated stimuli. So the dream starts as meaningless, and then becomes more meaningful.

What does this theory say about our second question, namely, How do we arrive at that meaning when we do clinical dream analysis? In my view, it suggests that when we interpret a dream, we may be continuing the brain's process of creating meaning. In other words, dream interpretation is not taking the dream back to its original sources in the latent dream thought. According to activation-synthesis, there is no latent dream thought at the start of the dreaming process. Instead, if the dream interpretation does decode meaning, the meaning comes only from the synthesis stage of dream formation.

Another theory of dreaming is that of Francis Crick, Nobel prize winner for DNA research, and Graeme Mitchison (1983). They have proposed the theory that dreams are not meaningful; instead, they are waste products. They draw the analogy with large computer systems, which at night perform certain operations to clear out spurious material. Crick and Mitchison see this sort of house-cleaning as the function of dreaming, the brain expelling useless material; the conclusion they draw is that the analysis of dreams, or any focused attention on dreams, may be harmful.

When this was advanced in the journal *Nature*, it was seen as a major challenge to Freud. The fact is that Freud has already responded to it, in one of its earlier incarnations—the theory of W. Robert (1886). According to Freud (1900),

> Robert describes dreams as “a somatic process of excretion of which we become aware in our mental reaction to it.” Dreams are excretions of thought that have been stifled at birth. “A man deprived of the capacity for dreaming would in course of time become mentally deranged, because a great mass of incomplete, unworked-out thoughts and superficial impressions would accumulate in his brain and would be bound by their bulk to smother the thoughts which should be assimilated into his memory as completed wholes.” … What Robert is clearly doing is to infer from these two features of the material of dreams that by some means or other an expulsion of worthless impressions is accomplished during sleep as a somatic process, and that dreaming is not a special sort of psychical process but merely the information we receive of that expulsion. Moreover, excretion is not the only event which occurs in the mind at night. Robert himself adds that, besides this, the suggestions arising during the previous day are worked out and that whatever parts of the undigested thoughts are not excreted are bound together into a rounded whole by threads of thought borrowed from the imagination and thus inserted in the memory as a harmless imaginative picture. (p. 79)

Note how similar this is to Crick and Mitchison's hypothesis, except that the computer analogy is not invoked.
The question of whether dream meaning is decoded or created is not just a theoretical controversy. It has implications for questions of how best to analyze dreams in the clinical setting. Actually, it harks back to the old debate between Jung and Freud about using free associations to interpret dreams. Free associations, Jung believes, “always lead to a complex, but we can never be certain whether it is precisely this one that constitutes the meaning of the dream…. We can, of course, always get to our complexes somehow, for they are the attraction that draws everything to itself” (Jacobi, 1973, p. 84). Jung felt that Freud's stated procedure of relying primarily on the patient's associations led to a reduction of the dream. We will get to a reflection of the patient's complexes, but that is not the true meaning of the dream.

In a way, Jung's view was prophetic for psychoanalysis. In 1967, the members of the Kris Study Group on dreams, at the New York Psychoanalytic Institute, came to the conclusion that dreams have no special significance in clinical psychoanalysis (Waldhorn, 1967). They felt that all of the psychodynamics that are derived from dream analysis can also be derived from analysis of a patient's free associations. When Freud wrote The Interpretation of Dreams, he had not yet discovered the basic techniques of psychoanalysis, and much of his self-analysis was devoted to the analysis of his own dreams. But, they argued, today's analysts have no special need of dream analysis. Had Jung been alive when this report came out, I presume he would have laughed. He would have said that this so-called finding was the logical outgrowth of the Freudian process of dream analysis. Free association to the dream takes you back to the patient's complexes, and if that is all that you do in your dream analysis, then of course dreams will yield nothing special to you.

The question of whether dream analysis is useful, harmful, or something else seems especially significant when we study bizarreness in dreams. Is the bizarre material in dreams critical to dream analysis, as Freud thought, because of the intensity of the operation of the dreamwork on that material? Is bizarre material mainly to be dismissed as meaningless, as Allan Hobson has argued, the result of the cortex “making the best of a bad job” in having to integrate imagery and eye movements that are not under its control? Or is there some other, special significance to bizarre material in dreams?

To discuss these questions, I turn to one of Hobson's own dreams, which he recounts in The Dreaming Brain (1988). It is of special interest to me for three reasons. First, the dream is addressed to psychoanalysts. It is a good example of what Paul Lippmann means by a dream that has both private and social ramifications. Second, Hobson uses his dream to consider whether bizarre aspects of the dream have any meaning, let alone whether they have special importance. Third, the dream shows some of the basic metaphors that Lakoff and Johnson (1980) have identified, but elaborates and recombines them in unusual ways. Here is Hobson's dream, along with his own commentary on it.

I am in Williamstown, Massachusetts, talking to a colleague, Van, who is wearing a white shirt (he usually wears blue) open at the neck (he is normally neck-tied, and even collar-clipped) and khakis (he usually sports flannels). Casual. Van says, as if by the way, that he attended the committee meeting that had yesterday considered my candidacy for an invited lecture series. (I know from his tone that he is going to deliver bad news.) The committee has decided against it because “They don't feel that psychoanalysis should be confronted with laboratory data.”

I allowed as to how bad an idea that was. “It's the wrong reason,” I said. “And their timing is off, because Adolf Grünbaum is just about to publish his important new book in which he insists that this is precisely what psychoanalysis must do.” Van ignores this statement, appearing never to have heard of A. G.

Van then begins a gentle pirouette and tosses me a piece of hardware, something like the lock of a door or perhaps a pair of paint-frozen hinges. It is as if to say, “Here, take this as recompense.” Despite my scavenger nature, I think I should refuse this “gift,” and so I toss it back to Van on his next choreographic spin. He insists that it is meant for me, and the scene changes without clear resolution of whether or not I will keep it.

We go out a door (which is on the corner of the building) to behold the beautiful Williams campus. A red-brick walk extends down a green lawn to the classic white Puritan buildings.

Van says, “They chose Mary” (or seems to say that), “reflecting their priorities, to attract a speaker who might help them with their fundraising efforts.”

“That is why you have such beautiful buildings,” I note, “and why there is nothing in them.”
Hobson then tells us,

_The narrative significance of my dream should be transparent. My task is to change the psychoanalytic mind: not only mine, but my colleague's (and, indeed, in this book, my readers' as well). The psychoanalyst, always on the lookout for latent meaning, might be interested in the fact that my father also lives in Williamstown, and wish to see my motives as quixotically oedipal! Also a resident is a mutual friend, Bart, whose first wife was named Mary. Perhaps these are clues to a deeper, formative motive of my dream which is cloaked by the dance with Van (itself a thinly veiled homosexual desire?)._

But I think my dream has more clearly and openly to do with my annoyance at my old friend Van, who left me in the lurch at Harvard and went to Williams to take an endowed chair in psychoanalytic psychology. I obviously wonder whether he is friend or foe. Is he a faithful ally or a self-serving turncoat? In view of the latter possibility, I get my revenge by accusing him (via displacement to Williams) of mercenary motives that lead to graceful forms devoid of substance. This all seems very transparent to me. Almost naked. Perhaps I also wonder if my theory of dream form will be architecturally appealing but uninhabitable.

So why is Van dressed incongruously? Why does he pirouette? Why does he suddenly toss me a piece of hardware? Why is the hardware “something like” the lock of a door? Why is it “perhaps” a pair of paint-frozen hinges? Why does the scene change? Why does Van “seem to say” that the committee chose Mary? Answers to these questions, which relate to the only features of the report that make it distinctively dreamlike, are all too easily ascribed to defenses whose meaning is to be sought in my mental associations. But viewed as disguises they are inadequate. And viewed as symbols they are unnecessary.

In addressing some of the questions Hobson raises about his dream, my intent is not to do an exhaustive analysis of the dream. Rather, I focus on those aspects of the dream that are relevant to the theory of dreaming.

Hobson asks us, “Why is the hardware ‘something like’ the lock of a door? Why is it ‘perhaps’ a pair of paint-frozen hinges?” We can answer that both of them are means of blockading. They describe different kinds of defensiveness. A lock is an absolute defense. It allows one to choose whether to let others in through the door or not; hinges allow a door to open, but if they are paint-frozen, they work something like a lock, although they are less impenetrable and they do not give one the choice of locking someone else out or not. The paint-frozen hinge is frozen, but this is considered a dysfunction. This part of the dream is a typical dream formation. The lock-frozen-hinge is a composite creation that may represent various gradations and kinds of defensiveness. This defensiveness blocks the passage, between psychoanalysis and cognitive neuroscience, of information about brain hardware and mental software.

Hobson says that he usually would take the lock-hinge due to his “scavenger nature,” but he thinks he should refuse it. He sends it back, but Van insists that it is meant for him, and the scene changes without clear resolution of whether or not Hobson will keep it. The dream may represent the relationship between Hobson and Van, between neurobiology and psychoanalysis. Each of them is defensive, and they are playing a game of “hot potato” with the lock-hinge, that is, with their charges of defensiveness. It is as if Van is saying, “You are blocked, and this lock-hinge symbolizes the way you are blocked,” and Hobson sends it back, as if to say, “No, the blockedness is yours, Van.”

What is the nature of the barrier between Hobson and Van? Is it something like a lock that a person can choose to open at will, if he is willing to open the latch or if he has the key? Or is it perhaps like paint-frozen hinges, which do not budge even if you want them to? To get frozen hinges to move is a tougher task; you have to soak them in solvent for a long time, which is messy and time-consuming. And maybe Hobson and Van, neurobiologist and psychoanalyst, are not sure if they want to engage in that slow, messy process to free up the hinge in their relationship.

Of course, in interpreting the dream this way, we could also be enacting the dream. As Levenson (1983, 1991) and I (Blechner, 1995) have pointed out, that is often the case in dream interpretation. The content of the dream is enacted between the dreamer and the interpreter during the process of dream interpretation. In his commentary on the dream, Hobson doesn't fully engage the possibility of psychoanalytic interpretation. He dares analysts to find formulaic oedipal and homosexual themes in his dream. He seems to have a misconception about psychoanalytic dream interpretation, which is not limited to a few sexualized clichés. My initial reaction to the dream and to Hobson's commentary was that they are about Hobson's defensiveness, which he will not acknowledge. But in making that interpretation, I would be, in effect, doing what Van does in the dream, trying to give the frozen hinge back to Hobson, and he could then try to give it back to psychoanalysis. We could easily get into a deadlock (pun intended). So I think, instead, that interpreting the dream as representing the dialectic between easygoing playfulness and rigid defensiveness, between neurobiology and psychoanalysis, may be more to the point of the dream, and it may get out hinges unstuck.
Hobson also asks us, “Why is Van dressed incongruously?” In the dream, Van is dressed more casually than usual. Perhaps Hobson wants Van, that is, psychoanalysis, to be more casual than usual. And I would like to say, the dream sees the truth—modern psychoanalysis is more casual than it used to be. Perhaps Hobson is used to the formality and rigidity of certain psychoanalytic institutions. Perhaps, too, instead of the rigidity and adversarial nature of some scientific disputes, Van's dance signifies a kind of gentility, grace, and an openness to mutuality.

Hobson also asks, “Why does the scene change?” Within the interpretation of the dream that we have pursued so far, we can answer, because Hobson wants not to deal further with this issue of his, or Van's, defensiveness. But let's look more closely at the scene change. The characters of the dream go from indoors to outdoors.

Here is where George Lakoff (1993) can be especially helpful to us. If we apply his notion of the unconscious metaphoric underpinning of the dream, we can see the scene-change as going out for a “breath of fresh air.” This is another attempt to defuse a confrontation. The shift captures the affective essence of the dream, which may be the dialectic between easygoing playfulness and aggressive confrontation.

Thus, in my view, the central image of the lock-hinge, with all of the words modifying it, is not a random bizarre creation. Instead, it forms the nexus of meaning in the dream. This question of whether bizarre dream formations have special meaning is crucial in my opinion. It touches on the fundamental question of why we need to dream, and of whether dreams have a special place in our thought processes. I suggest an alternative to both Freud's view of wish fulfillment and Hobson's view of periodic biological causation.

In my view, what is extraordinary about dreaming is that it allows us to have thoughts that cannot be put into words. Dreaming allows extralinguistic thinking, thinking that extends beyond the bounds of language. Psychoanalysis has focused in recent years on what Bollas (1987) calls “the unthought known” and Stern (1997) calls “unformulated experience.” Both of these concepts imply that the thoughts could be expressed with words, but are not. In my view, dreams allow us to express literally unspeakable thoughts, thoughts that cannot be expressed in words because we do not have the words to say them. And that is why dreams can tell us things that no free association can.

Thus the dream allows the mind to think without the constraints of language. Language is certainly crucial to formulating thoughts in ways that can be communicated easily and efficiently from one person to another, what Sullivan (1953) called the syntactic mode of thought. But language is also very constraining of thought. Dreams allow us to supersede the constraints of language; dreams allow us to think the unspeakable. (I mean unspeakable here, not only with its connotation of something taboo, but more literally, as something that cannot be spoken, because it is not expressible with words.)

Psychoanalysis was founded on the idea that translating the neurotic symptom into something spoken in words would lead to cure. This was the principle behind the treatment of hysteria. The bodily symptom was expressing something that cannot be spoken. But the source of this “unspeakability” was usually dynamic repression; in other words, it could not be spoken because certain emotions, like guilt, or cultural taboos militated against its being spoken. For instance, women who had been sexually abused were under strong cultural pressure not to speak about it. But the unspeakable thoughts that are reflected in dreams may not all be subject to repression because they are unacceptable; it may be, rather, that they cannot be spoken because they employ concepts for which we do not have words in our language.

Many of you know the Whorf-Sapir hypothesis (e.g., Whorf, 1956), which is that language shapes and limits the kinds of thoughts we can have. In waking life, it is very hard for us to think of things for which we have no words. The Whorf-Sapir hypothesis holds that speakers of different languages may have different thoughts, because they have different vocabularies that allow those thoughts.

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1. Because I am also a musician, I have always had good reason to believe this. Music allows a kind of organized cognition and mentation that is both highly structured and significant, but still nonlinguistic (Jackendoff, 1987; Blechner, 1977; Blechner, Day & Cutting, 1976).
A good example of the way language limits thought is very salient in today's cognitive neuroscience. In our language, we have the words “mind” and “brain.” These two words enforce the Cartesian viewpoint that the mind and brain are separate. When we say “brain,” we mean the bodily organ. When we say “mind,” we mean the collection of mental processes and faculties. But many of us are becoming more and more uncomfortable with this division. The aim of modern neuroscience, as well as Freud's aim in his *Project for a Scientific Psychology*, is to be able to account for mental events in terms of neurobiological processes, and vice versa, so that ultimately we will understand them as unitary phenomena. Thus many of us have come to talk about the “mind/brain.” This compound term is the closest we can get in English these days to bypass Cartesian dualism. Maybe someday we will have a single word for the mind/brain. Perhaps we will say “mind/brain” often enough, and it will be slurred into a new word like “mibron.” Or maybe a completely new word will be coined. Maybe one of us will create a new word in a dream.

In my view, dreams allow us much more flexibility in our thinking because we are free in our dreams to think thoughts that extend beyond the bounds of language. When we try to report such dreams, we inevitably have to resort to language, but the vagueness or complexity of these descriptions shows how far the dream has ranged from the constraints of language—as when Hobson says “something like” a lock or “perhaps” a hinge. We then often characterize these parts of the dream as bizarre. But they are the truly creative and informative aspects of the dream. Ideally, in interpreting them, they should not be reduced to phrases that sound more linguistically coherent but are further from the original dream percept. Perhaps they should not be interpreted at all.

Not interpreted at all! I suppose that does not sound like proper psychoanalysis. But I mean that some percepts, especially the more bizarre ones, should be left intact, in their original wording. Instead of translating them, we can make their meaning clearer by describing the overall context of the dream, perhaps as a question.

In this way, dream interpretation may be like the game *Jeopardy!* in which you are provided with the answer, and you have to come up with the right question. In dream interpretation, if you provide the right question, the dream image will function as the answer. If you set up the right context, then the seeming nonsense will make sense.2

One of the questions addressed by Hobson's dream is, “What is the relationship between Hobson and psychoanalysis like?” The answer it provides is, “It is something like a cross between a paint-frozen hinge and a lock, with neither party wishing to hold onto it, work it, or fix it.” Actually, when we translate a dream into secondary process language, as I have just done, we make the dream more communicable, but we probably lose something of the original, precise significance of the dream.3 In this, I agree with composer Ned Rorem (1994), who wrote, “Dreams are dreams, with their own integrity, not symbols designed to keep us asleep. Like music, whose sense and strength and very reason-for-being can never be explained by mere intelligence, the meaning of dreams forever evades us, not because that meaning is too vague for words but because it is too precise for words” (p. 517).

Probably, in the dream, the object that Van tossed to Hobson was something never before seen and something for which we have no precise word. Hobson relates this in-between quality well. If he had not written it down, over time he would probably have changed this object to fit more neatly into our world of objects, as classified by familiar language, and we would lose something of the dream's essential meaning.

Dreams are extralinguistic in several ways. As I have already noted, they can create objects for which we have no name. But they are also extralinguistic in that they step beyond the bounds of acceptable metaphor. They create entirely new metaphors, and they also extend and combine commonly used metaphors in brand new ways.

Let me explain what I mean. Lakoff and Johnson, in *Metaphors We Live By*, have shown us how our everyday

Lakoff and Johnson (1980) provide an example from waking life: “Please sit in the applejuice seat.” While in isolation this sentence has no meaning, it did in the context of its creation. “An overnight guest came down to breakfast. There were four place settings, three with orange juice and one with apple juice. It was clear what the apple-juice seat was” (p. 12).

Masud-Khan (1976) stressed the important difference between the dream report and the actual experience of the dream. Others (e.g., Kernberg, in Curtis & Sachs, 1976) have stated that this distinction is useless and mystical. But while we may not ever be able to recover all of the dreaming experience, it is an important distinction to keep in mind. It may lead us to be more careful about “conventionalizing” our memory of a dream.
speech is filled with common metaphor. We are usually unaware of most of these metaphors as we use them, although it is easy to bring them to our attention. For instance, they point out that a commonly used metaphor is *Ideas are food*. We often say, “We have the raw facts,” or, “His ideas are half-baked.” But there are limits, at least in waking thought. As Lakoff and Johnson say, there are “half-baked ideas, but there are no sautéed, broiled, or poached ideas” (p. 109). I agree with this statement for conventional speech. A sautéed idea feels ungrammatical when used in everyday speech, but not in dreams. In dreams there can be sautéed ideas. The understanding of dreams requires us to open our minds to unconventional metaphors, or metaphors expanded into new ranges of detail.

Another common metaphor pointed out by Lakoff and Johnson is *An intellectual discussion is a sport*. We say, “Let's toss around some ideas.” With baseball in mind, we may say, “My opponent in the debate threw me a curve ball,” or “You hit a home run with that idea.” Golf devotees may say, “That point was a real hole-in-one.” Tennis players may say, “He's not good on the return.” Boxing devotees may say, “Now he's really taking off his gloves.” All of these metaphors are easily understandable as idiomatic English.

Hobson's dream takes this metaphor, *An intellectual discussion is a sport*, but he expands it. He and Van play catch, but in a very special way. While most of us would understand, “In the debate, he threw me a curve ball,” we would be startled if, in waking speech, we heard someone say, “In the debate, he threw me a paint-frozen hinge,” or “He threw me a lock.” But these sentences create a new metaphor: *An intellectual discussion is collaborative construction*. Thus, Hobson's dream joins together two metaphors, *Intellectual discussion is sport* and *Intellectual discussion is collaborative construction*. The crossover, a conjoint metaphor, produces a game of catch with a piece of hardware, and this hardware is itself a condensation of multiple ideas. Such conjoint metaphor, which may be a special feature of dreaming, is worthy of further study.

The analysis of dreams remains one of the most vital aspects of psychoanalytic work. Some analysts seem to have lost their enthusiasm for dream interpretation, and some analysts hardly pay attention to dreams at all. Some experimental dream researchers have also raised doubts about the psychological significance of dreams. That is a great loss, and as we approach the hundredth anniversary of Freud's publication of *The Interpretation of Dreams*, I think it is time for us to rethink our theory of dreams, to incorporate the findings of cognitive science and neurobiology, and also to suggest lines of research that we would like pursued by researchers. Their efforts, from an empirical standpoint, and our efforts, from a clinical and experiential standpoint, together can sharpen and revitalize our understanding of dreaming and our practice of dream interpretation.

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