

The Central Image (CI) Makes “Big” Dreams Big:  
The Central Image as the Emotional Heart of the Dream

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**Running Head: Central Image as Heart of Dream**

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## Abstract

There is widespread agreement that some dreams are “big dreams” though this term is not clearly defined. This paper considers “big” dreams under several more easily definable and studiable subcategories: memorable dreams (remembered for a long time); important dreams (labeled important by the dreamer); significant dreams (labeled significant by the dreamer); and impactful dreams (having an impact on the dreamer’s life or work).

Anecdotal, clinical and research studies are reviewed leading to the suggestion that a powerful Central Image (CI) is what distinguishes “big” dreams in all the subcategories. Five new preliminary studies are presented showing that 1) Dreams labeled “important” by the dreamer have higher CI intensity scores than dreams labeled “unimportant” or “less important.” 2) Dreams labeled “especially significant” have especially high CI intensity. 3) Dreams that are impactful in the sense of having led to new scientific or artistic discoveries show a very high CI intensity. 4) The dreams of a small group of people who score very “thin” on the Boundary Questionnaire (BQ), especially women who score “thin” have higher CI intensity than the dreams of people who score “thick.” (People with thin boundaries have been called “dream people.”) 5) In a separate, larger group, there is a positive correlation between CI intensity and SumBound – the total score measuring “thinness” on the BQ.

It appears that CI intensity is an important measure of the “bigness” of dreams in many senses. Past studies have suggested that the CI carries the emotional power of the dream. The present results are consistent with the Contemporary Theory of Dreaming which states that dreams involve making connections guided by emotion, that the dream – and especially the CI of the dream – pictures or “contextualizes” the emotion, and that the CI intensity is a measure of the power of the underlying emotion. “Big” dreams are dreams with great emotional power and have powerful Central Images.

## Introduction

Are there some dreams that are “bigger” or more important than others? Many insist that there are not. Psychoanalysis, and the multi-headed creature made up of the various dynamic psychotherapies and dreamwork traditions, often emphasize that everything in the dream is important. Even the slightest sliver or detail, if examined carefully, can lead to important self-knowledge for the dreamer. In this sense every dream can be considered an important dream, and I cannot disagree with this. Every dream or sliver of a dream can be a path to important unconscious material, and in fact so can every sliver of a daydream or fantasy or slip of the tongue. I am willing to agree that everything is important in this sense of a path to the unconscious, and since it’s hard or impossible to measure importance, we might as well say that every dream or piece of a dream is or can be equally important.

However, this is not entirely satisfactory. Even the dynamic therapists who feel every dream can be clinically important (including myself), and in fact most people who remember and record their dreams (including myself), report sometimes having “big” dreams or “memorable dreams” that stay with them and seem especially significant. And many have reported “impactful dreams” (Kuiken & Sikora, 1993) that had a definite influence on their life. Certainly Jung and his many followers, speak frequently and sometimes reverently of “big dreams,” even though they are happy to work with and explore little dreams as well. Historically there is widespread agreement that some dreams are especially “big” or important. In ancient Greece some dreams were said to come from the gods. In many cultures serious life-decisions such as choice of career are based on a powerful dream or vision, usually experienced in adolescence. In recent years there has been considerable interest in “big” dreams, “significant dreams,” “memorable dreams” and “impactful” dreams.

But what are the characteristics of a “big” dream? What characterizes the dream that is considered big, important, memorable? Let me start by looking at some examples that have made an impression on me, from the literature, from my clinical experience and from my personal dream experience.

Freud mentions that he had only one memorable dream that remained with him since his childhood. It occurred during “my seventh or eighth year:” *It was a very vivid dream and in it I saw my beloved mother, with a peculiarly peaceful, sleeping expression on her features, being carried into the room by two (or three) people with birds’ beaks, and laid upon the bed* (Freud, 1900).

Jung often mentions a dream he had in early childhood, “a dream that was to preoccupy me all my life” in which he goes down a series of stairs into a basement and sees *a huge phallic pillar on a magnificent throne*. He is told: “*that is the man-eater.*” (Jung, 1965)

William Dement, well-known sleep-researcher and one of the founders of the field of Sleep Medicine, describes a powerful dream in which he saw a vivid image of his own chest X-rays showing widespread lung cancer (Dement, 1999). This dream caused him to immediately stop smoking!

Kathleen Sullivan, who directs a long-running radio program on dreams in California describes a dream from early adulthood which has stayed with her, and which she says was so powerful that it caused her to change her career (Sullivan, 1998). It was a dream of a large eagle, with a wingspread of maybe eight feet, caught, splayed out, in a huge spider web. She says she is still working on this dream.

I had one dream which I've remembered clearly for at least twenty years, which seemed and still seems incredibly powerful. Walking on a beach I saw a huge, beautiful cliff made of glass – a green glass cliff perhaps 100 feet high rising up straight out of the ocean. I'm still working on this dream too.

We are all familiar with famous dreams which were important and impactful in the sense of leading to important discoveries. One of the best known is Kekule's dream of snakes catching their tails in their mouths, which led to his discovering the ring structure of the benzene molecule. Likewise Elias Howe's dream of natives boiling him in a huge pot while they danced around him with spears that had holes through their points – a dream which led him to his design of the sewing machine.

What do all these dreams have in common? In each case what stands out is one powerful image. Following up on this, I have written down ten dreams – one dream from each of ten friends and colleagues – which the dreamer considered especially big or important. Examining these led me to the same conclusion: the dreams are characterized by one powerful central image (occasionally two images) which stands out. In these cases the image was always visual.

It seems that we very rarely consider a dream big or memorable or life-altering because of its detailed plot structure, its character development, its interesting thoughts, its exquisite language, or some particular words appearing in it. (Rarely but not never! Having examined thousands of dreams, I have to admit that all of these possibilities can occur, though very infrequently.)

Based on these informal or anecdotal findings, my impression is that a powerful central image seems to be what carries the lasting emotional power and what makes the "Big" dream big. The central image can be studied systematically. Relevant past research studies will be described below, and this paper will add five new studies, all small and preliminary as of now.

For research purposes, I believe the overall category "big dreams" can be broken down into at least four subcategories, which might be easier to study: 1)

Memorable dreams, defined simply as dreams remembered for a long time. 2) Important dreams, defined simply as dreams labeled “important” by the dreamer. 3) Significant dreams, again as defined by the dreamer. 4) Impactful dreams – those judged as having a definite impact on the dreamer and his life or work. Of course these are not entirely distinct separable categories; there is considerable overlap.

Memorable dreams have been the easiest to approach, clinically and in research studies. First of all, in many years of experience working on dreams with patients and colleagues, I have often asked the dreamer to retell a dream already told previously – usually a dream that had stayed with them (was memorable) that they wanted to work on. I have found that when the dream is re-told or re-remembered several times, the details of the story often change, but the powerful central image, if there is one, remains constant – it is the best-remembered part of the dream, and does not change in retelling, though the surrounding story may fade or be forgotten or be altered with each telling.

*I was on a beach with a friend of mine; I think it was Jane. The sun was shining. But suddenly the sky grew darker, a storm came up, and **this huge wave broke over us and swept us away.** I got turned over and over. I’m not sure I made it to the surface.* In this, the typical “tidal wave dream,” the central image (the part in boldface type) is always remembered, while the rest of the dream changes with retelling.

My collaborators and I found the same thing in interviews with participants in our several studies of nightmares (Hartmann, 1984; Van der Kolk et al., 1984). The central image – which in the nightmare is usually the vivid frightening image just before waking – is remembered clearly and retold with little change. (*The huge hairy monster reached for my throat.*) (*He stabbed me and I could see my blood flowing out in the water as I woke up.*) (*The whirlwind carried us away: we were spun around, we were helpless.*) The rest of the dream may fade or change, but that image remains.

A recent research study (Hartmann & Kunzendorf, 2005-2006) examined memorable dreams in two different ways, asking students to write down a “dream that stands out in your memory and “the earliest dream you can remember” in addition to writing down their most recent dream. Scored on a blind basis, the “dreams that stand out” and the “earliest dreams” both had significantly higher Central Image intensity than the “most recent dreams.” (Central Image intensity has been used in a number of studies starting about ten years ago. It shows good reliability ( $r = .70$  to  $r = .92$ ) between scorers (Hartmann et al., 1998; Hartmann et al., 1999, Hartmann, 2001).

The subcategories of “Big” dreams labeled “important” or “significant” dreams have not been specifically examined previously. The preliminary studies reported here (studies 1 and 2) represent a beginning. “Impactful” dreams have been the subject of considerable interest and have been studied especially by Don Kuiken and his collaborators (Kuiken and Sikora 1993; Kuiken 1995). These researchers have studied dreams considered by the dreamers to have had an impact on their lives, and they have tried to measure the effect or impact of such dreams on mood, cognitive processes, self-awareness, etc., after the dream. They have identified at least three separate groups of

impactful dreams – nightmares, “existential dreams” and “transcendent dreams.” These impactful dreams have not yet been studied in terms of Central Image, but we hope to do this in the future. A preliminary study is presented below ( study 3) examining a group of impactful dreams that were impactful in a very obvious sense – dreams that led to a new scientific discovery or artistic work, judged important by history.

It is generally recognized that persons with “thin boundaries” tend to remember more dreams, to be more interested in their dreams, and to be more likely to have dramatic or “big” dreams than those with “thick boundaries.” (Hartmann, 1990; Hartmann, 1991; Hartmann et al., 1991; Hartmann et al., 1998; Hartmann & Kunzendorf, 2006-2007) Those with thin boundaries have in fact been called “dream people,” as opposed to the thick-boundaried “thought-people.” (Hartmann 1999 XXX(399),Hartmann 2001). Thus it is of interest to examine whether the dreams of people with thin boundaries are also characterized by higher CI intensity scores. One study found a significant correlation between thin boundary score (SumBound) and CI intensity in the recent dreams of a group of 286 students (Zborowski et al.,1998). In another study CI intensity was found to be significantly higher in the recent dreams of a group of thin-boundaried students than in thick-boundaried students (Hartmann and Kunzendorf, 2005-2006). Two additional studies are reported here. Study 4 re-examines a small group of “recent dreams” reported by people with very thick or very thin boundaries, described originally before the Central Image ratings were available (Hartmann et al., 1991), and study 5 examines the correlation between CI intensity and thin boundaries in a larger group, also reported on before CI ratings were available (Hartmann et al., 1998).

## **Study 1: Methods**

Study 1: Participants for this study were obtained online through a notice board maintained by the International Association for the Study of Dreams dealing with dream research projects. We asked people to send us two recent dreams, one they considered important and one they considered unimportant or less important. A total of 65 responses were obtained. Some respondents sent only one dream, or a discussion of their dreams rather than the actual dreams. A total of 57 sets consisting of two dreams, each over twenty-five words in length, were used in the study. No information is available about the age or gender of the 57 participants. These 114 dreams were assigned random numbers, and were scored on a blind basis for CIs by one experienced scorer, whose CI intensity scores showed a correlation of  $r = .80$  with another scorer on a separate set of dreams ( study 5).

Scoring for CIs in studies 1-5 used the CI rating sheet (figure 1), which has been used in a number of studies (Hartmann et al., 1998; Hartmann, 2001). The scorer is asked to read a dream report, decide whether or not there is a CI, and if so to estimate its intensity on a seven-point scale running from 0 ( no CI), by half-pints to 3 ( about as intense as any image you’ve seen). CI intensity has shown good interrater correlations ( r

= .70 to  $r = .92$ ) in these studies. The scorer then is also asked to guess what emotion or emotions might be pictured by the CI. Since there are eighteen emotions to choose from, it has been more difficult to obtain good inter-rater reliability on individual emotions. The ratings of specific emotions pictured will not be presented here.

For instance the tidal wave dream ( introduction) would be scored 3.0 on CI Intensity, Here are two less dramatic dreams, both from a recent study, to indicate how the scoring works.

*A. ( an old girlfriend) shows up in my apartment. Apparently I'm in the process of moving out of a three-room apartment. I argue with A about some of the stuff in the apt. She says little. Some people in bright- colored clothing come in and start dancing and singing. Soon the rooms are full of young New-Age people dancing. They pay no attention to me. I'm annoyed at the dancing and at A for moving my things. Some talk about fishing poles being moved. Then B. ( new girlfriend) shows up. I ask her: " you mean you've been here watching all this?"*

Two scorers agreed that there was a CI and that it involved the apartment full people singing and dancing. It's a definite vivid image, though not as powerful as the tidal wave, and not described in great detail. Scorers gave it a CI Intensity of 1.0 or 1.5.

*I am visiting with a woman friend.. We have a discussion about religion. After we eat I tell her I need to go on an errand and I'll get back to the discussion about religion later. She seems happy that I'll do this. As I head out I realize I never really got the address of the place I'm headed to. But I've been there before and I have a pretty good feeling I can find it again. I drive on this busy road, near water, and I'm not sure how to get to this other road I need to be on. I am passing a motorcycle. I hear some music playing on the radio and an announcer says something about a new album being more popular. At some point I realize I promised to stay at this place for three nights, but had stayed home last night.*

Scorers agreed that this dream had no clear Central Image. The dream is a narrative story without an image that could be called in any way powerful, detailed or bizarre. Thus the CI Intensity is scored as 0.

After blind scoring, the code was broken, dreams reassigned by participant, and CI Intensity scores analysed by a t-test for correlated samples.

## **Results**

CI Intensity was significantly higher in the "important" dreams (Mean for Important dreams 1.19, mean for Unimportant dreams 0.81. Difference = 0.38, S.D. 1.048;  $t = 2.78$ ,  $p < .007$ ).

## **Study 2: Methods**

A group of 23 “especially significant dreams” was obtained from Dr. Roger Knudson, who has been studying significant dreams and their place in the life narratives of the dreamers ( Knudson ). The group of dreams consisted of one dream each from 23 persons, all interested in dreams, who each reported in detail one dream they considered “especially significant” and wanted to discuss and work on further. The participants were predominantly female graduate students, age 19 to 55. Each of the 23 dreams was scored for CIs, as in study 1. Scoring here was by two experienced scorers, who achieved good interrater agreement. Means of the two scores were used. Unfortunately no “recent dreams” or “less significant dreams” from the same dreamers are available for as direct comparison, therefore the results for these dreams will simply be reported as such. They will also be compared to our largest group of recent dreams from other groups of students ( N= 286 ).

## **Results**

The mean CII in these 23 dreams was 2.62 ( mean scores of two experienced raters). This is the highest mean CII score of any group we have seen, much higher than means of recent dreams in various studies. Comparing these “highly significant” dreams with our largest group of recent dreams, from 286 students, showed a highly significant difference: (Mean for these study dreams 2.62, S.D. 0.48; mean for students’ recent dreams 0.75, S.D. 1.03. (  $t = 16.0$ ,  $p < .0001$ ).

## **Study 3: Methods**

I have done a brief informal study examining one sort of impactful dream – dreams that had an impact by producing a scientific discovery or new work or art. Deirdre Barrett presents a number of such dreams in her book *The Committee of Sleep* (2001). Usually these are dreams which the artist or scientist describes as solving a problem they had been struggling with in their work. In many cases the scientist or artist is quoted as saying that a discovery or work came from a dream but the dream is only roughly described, not presented in detail. I found a total of 34 cases in which a definite visual dream was related which led to a new discovery or new work. A few other cases involved dreams that were either not visual or not clear, and could not easily be scored. I scored each of the 34 dreams for CI intensity, as described above. Unfortunately there was no way to score these dreams on a blind basis, and there were no other ( non-impactful) dreams from the same persons available for comparison, so this is a very preliminary attempt.

## **Results**

All 34 of the 34 visual dreams were scored as containing a CI. The CIs were usually quite vivid and striking, almost always scoring 2.0 to 3.0 on CI intensity. Means score was 2.54 with a Standard Deviation of 0.40. Again, this is an extremely high group

mean, much higher than scores in our student groups, and almost as high as the means for “highly significant dreams” in study 2.

#### **Study 4: Methods**

The subjects in this study were twenty persons who had taken the Boundary Questionnaire, had scored at either the “thick” or the “thin” end of the distribution (at least 1.5 Standard Deviations from the mean) and were willing to come in for further testing, which included writing down their most recent dream. The sample included eleven ( seven women and four men) who scored very “thin,” and nine ( four women and five men) who scored very “thick.” The original scoring of these dreams, part of a larger study was reported ( Hartmann et al., 1991) at a time when CI scoring was not available. One experienced scorer scored each of the twenty dreams for CI intensity ( as above) on a blind basis.

#### **Results**

For these four small groups, the mean CI Intensity for the “thin” women was 2.3, “thin” men 0.5, “thick” women 0.5, “thick” men 0.9). Two-way ANOVA found a significant interaction (  $F = 7.8$ ,  $p = .013$ ). The main effects showed only a trend towards higher scores in “thin” subjects and higher scores in women. The clear finding was a higher score in “thin” women than in the other groups.

#### **Study 5: Methods**

Eighty patients seen at a sleep disorders center filled out the Boundary Questionnaire and also wrote down their most recent dream as part of their evaluation. The results relating Boundadry scores to various measures of dreaming have been reported previously. ( Hartmann et al 1998) when CI scoring was not available. Fifty-eight of these dreams ( from 40 women and 18 men) were over twenty-five words in length and were used now for CI scoring. One experienced scorer rated all dreams on a blind basis. Another scorer rated 30 of the dreams for inter-rater reliability.

#### **Results**

The ratings of CI Intensity by the two scorers showed a correlation of  $r = .80$ . There was a correlation of  $r = .307$  ( $p < .02$ ) between CI intensity and SumBound ( thinness of boundaries).

## Discussion

These new studies add to the material summarized in the introduction suggesting that “big” dreams, defined in various ways, are characterized by powerful Central Images, measured by high CI intensity scores. The present studies found consistent results in three types of “big” dreams, not previously studied in this way -- Dreams labeled “important,” dreams labeled “especially significant,” and dreams that were “impactful” in the sense of leading to important scientific or artistic work.

These studies also show that the dreams of persons characterized by thin boundaries, especially women, have high CI intensity. The group of dreams examined in study 4 had, as mentioned, been previously reported (Hartmann et al 1991). At that time the dreams of the “thin” women were scored as longest of the four groups, and with most emotion, most detail, most interaction, most dream-likeness and most nightmare-likeness. Judges who examined the groups of dreams on a blind basis at that time commented on the rich content and emotion in the dreams of the “thin” women. Though the terms “big” and the other terms we are discussing here were not used in reporting that study, there is little question that the “thin” women’s dreams were most likely to be “big.” In fact two of the twenty dreams were accompanied by comments, suggesting that the dream was memorable in one case, and important in the other. Both of these occurred in women scoring “thin.” Thus the finding in study 4, that CI Intensity was clearly highest in the group of “thin” women is very consistent with the other studies presented.

All the present studies and the past studies reviewed indicate that CI Intensity is measuring something characteristic of “big” dreams. But one might question whether CI Intensity is simply something that occurs in longer more exciting or more dream-like dreams, as opposed to short dull or thought-like ones. In other words would we find the same results if we had used some well-known measures such as dreamlikeness or vividness, or simply dream length rather than CI Intensity? I can say with considerable confidence that this is not the case. The other measures do not show the effects found with CI Intensity. For instance in the largest study using CI scoring, a study of 880 dreams before and after 9/11, we examined many measures other than CI Intensity, all on a blind basis. Our finding was that the after- 9/11 dreams had significantly higher chance of having a scorable CI ( $p < .001$ ) and higher CI Intensity ( $p < .004$ ), but they were not longer, and they were not scored more “dream-like” or more “vivid” overall (Hartmann and Basile, 1993; Hartmann and Brezler, submitted for publication). Similarly, in our study of recent dreams, dreams that stand out and earliest dreams, the scores for “dream-likeness” and “bizarreness” did not show the clear differences between the three dream types that was found in the CI Intensity scores (Hartmann and Kunzendorf, 2005-2006).

In addition to our findings that high CI Intensity characterizes “big” dreams, defined in many ways, we have also reported data showing an increase in CI Intensity after trauma of many kinds ( ), as well as in dreams after 9/11/01 compared to dreams before ( ). Students who report on a form that they suffered abuse, either in childhood or more recently, had higher CI intensity in their recent dreams than students who report no abuse ( ). All this makes it clear that CI Intensity is measuring something emotional. It might be called a measure of emotional arousal. And of course ‘big’ dreams are generally considered to be emotional and emotionally important

The studies summarized above, showing the presence of powerful Central Images in “big” and emotionally important dreams fit well into what we have called the Contemporary Theory of Dreaming ( ). The theory postulates that:

1) Dreaming is a form of mental functioning (basically cerebral cortical functioning) at one end of a continuum running from focused waking thought, through looser thought, reverie, daydreaming and finally dreaming.

2) Dreaming (mental functioning at the dreaming end of the continuum) is hyperconnective. Material in the mind is brought together, combined, connected, more readily and more broadly in dreaming than in waking thought.

3) Dreaming is hyperconnective but the connections are not random. Dreaming avoids certain regions in memory which involve serial processing, logical A-leads-to-B leads-to-C thinking, and overlearned activities such as reading, writing and arithmetic (Hartmann, 2000).

4) The connections are guided by the dreamer’s underlying emotion and emotional concern. The dream -- especially the Central Image (CI) of the dream -- pictures or “contextualizes” the emotion. The intensity of the CI is a measure of the strength of the emotion.

5) The making of broad connections guided by emotion has an adaptive function, which we conceptualize as “weaving in” new material – in other words taking new experiences and gradually connecting them, cross-connecting them, into existing memory systems. This process helps build memory systems based on what is emotionally important. This process may be especially useful after trauma or stressful events. Once the new traumatic or stressful material has been woven in, integrated, the system will be more stable, and subsequent similar trauma or stress will be less disturbing.

6) This basic function of dreaming occurs whether or not a dream is actually remembered. When the dream is remembered, it can have further functions in terms of seeing broader connections and possibilities useful in self-knowledge, life decisions, and producing works of science and art.

7) In addition to these suggested functions of dreaming itself, the entire focused-waking-to-dreaming continuum has an adaptive function. It is obviously useful for us to be able to think in a clear, focused, serial fashion at certain times, and at other times to associate more broadly, and loosely – in other words to daydream and to dream.

The studies we have reviewed on the CI clearly fit into this theory, and help establish the central postulate 4. The CI appears to be related to underlying emotion and emotional concerns. The imagery seems to carry the emotional power even when no emotion is specifically reported in the dream. Scoring for central imagery, including CI Intensity and the emotion that might be pictured by the CI, is an approach to the underlying emotion which we can use even in the many dream reports that include no mention of an emotion.

### **Implications for Psychotherapy, Counseling and Dreamwork**

The clear presence of the CI in “big,” (memorable, important, significant and impactful) dreams, and its direct connection with the dreamer’s emotion has implications for clinical work with dreams. I would suggest that the CI may be a good place to start working on a dream in order to connect with underlying emotions and concerns, especially if time for working on a dream is limited.

The traditional Freudian approach is to obtain free associations to each element of a dream and gradually examine where these lines of association converge. They should eventually converge on, or at least suggest important underlying areas of emotional concern. (The strictest Freudians manage to find not only a concern but a wish in this material underlying the dream, called the “latent dream” or “latent dream thoughts.”) The free association approach is very thorough and it can certainly be fruitful, but it takes a long time. Several sessions are sometimes required to work on a single dream, which is no problem in an analytic patient seen four or five times a week, but presents problems in other settings. I agree with Freud that the dream is the “royal road” to the unconscious, and I would suggest that the Central Image may be the fast lane on this royal road. In a patient seen once a week or less, in psychotherapy or counseling, there is almost never time for the full free association approach. What happens in practice is that dreams are often neglected altogether, while all the time is taken up by immediate daytime concerns. Or, even if a little time is available, a long dream can look too complicated and overwhelming. “There’s too much. I wouldn’t know where to start.” I suggest that starting with the striking Central Image, when there is one, can often lead very quickly to an important underlying emotion or concern. Sometimes this leads to a totally obvious emotion or concern, that hardly needs mentioning. But sometimes an emotion or concern emerges that was not quite conscious before, and can be worked with. If something important emerges, the patient and therapist can then decide to work further with the dream in whatever way is comfortable for them, and insofar as time allows. The CI is only a beginning.

Each clinical situation is different, of course. There may be times when a therapist judges that starting with the CI will lead too quickly into disturbing material, and it might be safer to begin with easier or more peripheral material. And therapists have their own styles too. I’m not suggesting any one way to work on the Central Image. One can obtain free associations to it, play with it, or “amplify” it in the Jungian manner. In fact several Jungian analysts have told me that when they or their patient/client choose a

dream image to “amplify” -- to become immersed in, to work on in detail, what they choose is frequently the Central Image we have been discussing. In any case, I am not recommending any one way to work with dreams. Most therapists have developed their own ways. But however they like to work, I suggest they consider starting with the Central Image when time is limited.

### **Implications for Research on Dreaming**

If we accept that indeed the Central Image of the dream is important, in that CIs are more intense in memorable, important, significant, and impactful dreams, and after trauma, we can ask whether this matters, and in what way. Where does it lead in terms of our knowledge of, and research on, the basic psychology and biology of dreaming?

First of all it suggests that we should be studying and scoring CIs in any serious study of dreams, whether we are studying different psychological conditions, medical conditions, population differences, etc. -- any situation in which emotional factors may be important, which is more or less always. As mentined we have done one large study showing that the events of 9/11/01 -- which produced at least some emotional arousal, if not actual trauma, in everyone in the U.S.-- resulted in a systematic change in dreams measurable by CI proportion and CI Intensity, but not measurable by any of the other scales used (Hartmann and Basile 2003; Hartmann and Brezler, to be published). This certainly suggests the usefulness of CI measures in future studies.

There is an understandable tendency, in dream research and in other fields, to look at what is most easily studiable and replicable – in other words to find measures with high reliability. We can indeed achieve great reliability in measures such as number of words in the dream report, number of nouns, verbs, adjectives, etc. Likewise number of characters, gender of the characters, and the other measures usually examined in Content Analysis. These measures can certainly be useful. A summary of many large Content Analysis studies concludes that we basically dream of people and things that are of interest to us and of concern to us (Domhoff, 1996; Domhoff, 2002). This is important, if hardly surprising! And of course “interest” and “concern” clearly implies “emotionally important.”

I certainly appreciate reliability in any measure we use, and I have no objection to standard Content Analysis studies of dreams, at least as a beginning. But Content Analysis does have features of “looking where the light is best” rather than where the object was lost. Or to put it another way, are we reliably measuring Juliet’s height and weight and the frequency spectrum of light reflected from her hair while what we really want to know is “what is she feeling? does she love me?” I suggest that examining the Central Image can bring us closer to the emotional questions at the heart of the dream. Scoring of CII has good inter-rater reliability and is related to important issues such as our emotional state after personal trauma or stress, or after the events of 9/11. Scoring the Central Image for “emotions that might be pictured” does not have quite as high an inter-rater reliability, but allows us at least to approach the language of the dream, described as

“picture metaphor” or “explanatory metaphor” for the dreamer’s emotions and emotional concerns (Hartmann 2001, ch 6)

The Central Image may also be important in our further understanding of the biology of dreaming, and the brain pathways underlying dreaming. For instance, perhaps the clearest findings of brain imaging studies of sleep, replicated several times, is that the amygdala is highly activated (bilaterally) during REM sleep, compared to NREM sleep and waking (Maquet et al., 1996; Sutton et al., 1996; Braun et al., 1997; Maquet et al., 2004). A great deal of evidence indicates that the amygdala and amygdalar pathways are involved in processing of emotion -- especially in attaching emotional significance to material that is to be stored in memory, and using emotional significance to decide what is to be stored. This is highly consistent with the importance of emotion in dreams. So far the imaging studies have not been subtle enough to examine activity during a specific dream, whether in REM or NREM sleep. And there has not yet been a study relating amygdalar activation to specific dreams or even to specific types of dreams. This will happen soon, however, and I predict that amygdalar activation will be especially high in powerful dreams such as nightmares, and it will correlate with the CII of the dream.

If such results are found, they will help in our understanding of the multiple roles of sleep in memory processing, and will also help in our understanding of the specific role of dreaming in memory processing, perhaps lending support to Point 5 of the Contemporary Theory of Dreaming, above. And an important point for understanding sleep and memory emerges from these studies of the Central Image. The image, as we have noted several times above is a creation, not a replay. Though some animal studies suggest that daytime experience is replayed in the brain during sleep, the results we have reviewed make it clear that, at least in humans, considerable connecting and combining is happening. The dream image is a new creation, not a replay of daytime experience.

