

Affect and Dream Work from an Information Processing Point of View

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Data relevant to the emotional information processing function of dreams are reviewed from a study of the dreams of women undergoing a stressful life event (divorce). These data show that there were both structural and content differences in the dreams of women who were experiencing depression in relation to the event from those who were not, and differences of both of these from dreams of married controls living stable lives. Dream sequences show problem-solving progress when waking dysphoric affect is moderate, and poor quality dream work when affect levels are too high.

Dreams have not been given much of a place in most modern models of human cognition. Whether or not this is a serious omission is the subject of this paper. What is proposed here is a test of the information processing function of dreaming as a specialized mental activity for the processing of self-relevant emotional material, and to organize this into appropriate memory categories.

It was understandable that dreams were not given much room in the psychology of the 1930's and 1940's. At that time the field was self-consciously putting aside introspectionism as a method of study in favor of the more objective methods of replicable observations and experimental manipulations. Dreams being inaccessible to direct observation, and subjects' own reports of these experiences not being verifiable, these data were ruled out of the realm from which "legitimate" generalizations could be drawn.

When the University of Chicago studies of the 1950's were first published (Aserinsky and Kleitman, 1953), establishing that the presence of dreaming can be identified by the periodic appearance of a group of objectively observable indicators, hope was raised that this would lead to insights into previously unexplored areas of the mind. The laboratory recording of sleep provided the increased precision needed to bring the investigation of this

aspect of mental behavior into the arena of science. There was an expectation that not only would the laboratory data from systematic sampling of the products of the mind in sleep lead to a more complete understanding of how the mind works, but also that light would be shed on the differences between normal and psychopathological mental organizations. Many psychiatrists had drawn parallels between normal dreams and hallucinations of the mentally ill (Jackson, 1958). Perhaps data from dream studies would be useful in creating models of the mind which would distinguish between the balanced mind and those in which the balance between reality and unreality is lost. Perhaps, at last, the model of mental organization proposed by Freud could be tested and confirmed, refuted, or modified on the basis of a respectable scientific approach to the unconscious. After all, Freud had proclaimed that dreams provide the royal road to an understanding of the unconscious mind, and now subjects would be able to give reports of that landscape as they trod that road.

During the decade that followed the discovery of REM sleep in the 1950's, many persons of all ages, normals and members of various psychiatric groups, from this and other cultures, were studied by within-group and between-group designs under free-report and various experimental conditions. Subjects slept in laboratories for varying numbers of nights, wired to polygraphs, were awakened during REM and/or NREM sleep episodes and asked to report on their immediately preceding mental experiences.

What was learned from this period is now well-known: dreaming is not sporadic nor is it rare, but a regular, plentiful, distinctive type of cognitive behavior. Judges can separate it reliably from NREM reports and from pre-sleep samples of mentation. It occupies 20-25% of all of the sleep time of normal human adults. Beyond these first descriptive studies laying out the framework of "when" and "how much" we dream came the harder questions of "what" and "why."

Studies that compared differences in dream reports between groups by sex, age, economic status, and ethnic membership were, for the most part, not conducted in the laboratory but were based on dream diaries (Hall and Van de Castle, 1966) or questionnaires yielding dreams recalled under home conditions. These content analyses wound up confirming the obvious: that the content of remembered dreams reflects the waking sex-role characteristics, age-related concerns, and sociocultural values of the group studied. If dreams do not add anything beyond what can be learned from interviewing or testing persons during wakefulness, why bother staying up all night? But perhaps the approach was at fault and group comparisons yield only culturally common material. Probably this is another example of the principle evolved from perception studies, that delayed recall is shaped by what best fits our waking mental habits. Before abandoning the quest for whether dreams are truly

unique, studies are needed that are more idiographic in approach. Although the question "why this dream on this night" is not an appropriate one to tackle with current methods of science, the studies of recalled dreams forced the issue of whether or not to abandon the pursuit of understanding dream content or to find a new approach.

The question of why we dream always starts with the need to address the opposite point of view: maybe there is no psychological need served at all, and dreaming is only an epiphenomenon of the activated brain state of REM sleep (Hobson and McCarley, 1977). This point has been debated by many researchers over the past three decades and many extreme positions have been taken. One position is that dreaming serves to clear the mind of the useless clutter of the day, that we dream to unlearn (Crick and Mitchison, 1983). At the other end of the spectrum is the position that dreaming serves a distinctive emotional information processing function and is necessary to assimilate and organize new experience into affective memory schemas that have proved successful in the past in handling such data (Breger, 1969). Although a few laboratory studies that have examined all the dreams of a night recorded in series suggested that dreams deal not with the unimportant daily overload but with the more emotionally relative aspects of current experience as it relates to the past (Cartwright, 1977), clear experiments have proved difficult to perform. Studies by Hartmann (1973) and Cartwright (1979) reporting that subjects recall more dreaming during times of increased emotional stress and blue moods than during times when all is going well, do not necessarily support an emotional information processing hypothesis. Such studies may only prove that during periods of anxiety and depression sleep is lighter and subject to more mini-arousals. That lighter sleep is more conducive to dream recall is probably also the explanation of why there is a higher rate of retrieval of dream content from the last dream period of the night, when sleep lightens to prepare for awakening, than from the first REM period, following which deep sleep returns. Thus, depth of sleep and degree of recall are correlated independently of waking emotional state, but since both anxiety and depression disturb sleep, waking emotional state interacts with depth of sleep.

Another important variable that has proved difficult to control is the effect of the laboratory setting and the relationship of the sleeper to the experimenter on the dreams that are dreamed as well as what aspects of those dreams are reported (Cartwright and Kaszniak, 1978). Comparisons of the dreams reported in the sleep laboratory with those recorded by the subject from home sleep have consistently shown differences in the direction of less affect in the laboratory dreams: there are fewer bad dreams, dreams with strong aggression or sexuality, even when there has been every effort to make the data collection methods similar across settings (Weisz and Foulkes, 1970). Thus,

the experiment itself distorts the content data, at least for the first night or two, in most normal subjects, for whom the laboratory is a novel experience. This has proved to be a stumbling block for those studies which have attempted to manipulate the pre-sleep state to heighten some drive through deprivation, such as thirst, or by stimulation, such as sex, through showing erotic films (Cartwright, Bernick, Borowitz, and Kling, 1969). The affect induced by the sleep laboratory appears to have a more powerful effect on dream content than the experimental manipulation. It is difficult to test Freud's contention that dreams are a safe way to discharge drives if drive expression is dampened by the laboratory situation. It is no wonder that there has been a progressive decline in the studies of dreaming as more questions were raised about whether the yield was worth the effort. Scientific progress on the nature of the cognitive behavior of sleep and its relation to waking mentation slowed almost to a halt before any psychological dream function had been adequately tested.

The Emotional Information Processing Hypothesis

Breger's suggested information processing function of dreams was endorsed by Greenberg and Pearlman (1975), who stated that dreaming is involved with and perhaps necessary for handling psychologically important events, that it is an emotional problem-solving, adaptive process. If so, it follows that this function might best be tested under conditions of naturally occurring events with high emotional impact. Also, if dreaming is specialized to handle affect-related information to input problems and output solutions, how well this is accomplished may vary with the level of affect involved. It is possible that when affect is too low, the process cannot be observed at all, and when affect reaches an extremely high level, the process may break down. Previous work on the relation of dream content to the kind and the amount of affect aroused prior to sleep, shows that dreams relate directly to real-life events that evoke moderately strong affect, such as impending elective surgery (Breger, Hunter, and Lane, 1971).

To test the adaptive, information processing proposition, a life event must be chosen which arouses affect to varying degrees. Another factor that needs to be taken into account is the meaning of the event to the individual—whether subjects have existing cognitive structures, memory schemas adequate for the assimilation of this information, or whether reorganization of a major type must take place to accommodate the new information. Although many psychotherapists have felt that dreams provide important information on the emotional life of the patient, and many emphasize that intellectual insight is not enough to bring about a change in waking emotional patterns or response, few if any have attempted to work directly with the dreams

themselves to change the nature of the way the emotional data are being handled in sleep. Such a view, drawn from Breger's (1969) model, would suggest that there are two main information processing systems. The first is the rapid, action-oriented system primarily concerned with objective reality information and keyed to the development and maintenance of networks of information relevant to the organism's instrumental behaviors. The second is a slower system which pertains more to subjective information geared to the development and maintenance of an organized pattern of personality traits known collectively as the self.

In the usual action-oriented, reality-dominated waking life, the first system predominates. Information relevant to the self, the emotional meanings and implications of the ongoing interactions with reality as well as the spontaneous internal feelings and fantasy behaviors that occur during waking, is for the most part carried over into the slower, off-line processing of sleep. In the well-functioning normal individual, both systems operate throughout the 24-hour cycle, and although they shift in dominance from waking to sleep, they can also shift with intention in waking, as they do during psychotherapy or withdrawal of focused attention in daydreaming. Both systems are capable of the assimilation of new information to the appropriately organized system and the reorganization or accommodation of the system when its principle is no longer functional. Reorganization will take place if the old system can no longer serve to assimilate current experience.

The self is made up of many roles, which can shift in dominance as daily life events shift, for example, from work to wife—or which can shift with growth and development; for example, the role of daughter will change as development takes place, from dependency to independence from mother. The job of keeping a steady sense of self, of assimilating and accommodating new emotionally relevant and self-defining experiences, is apparently not too difficult when change is gradual. When there is a sudden, unanticipated role change such as the traumatic loss of a partner or failure of a marriage, then the new self-relevant information requires that extensive changes be made in the emotional information schemas in order to organize this experience into memory. The more central a role is to the self-concept and the greater the positive values attached to the defining characteristics, the more disruptive its loss will be. The dream information processing system, being a slow one, may lag behind the reality change. The first dream response may be to deny the reality of the change altogether, such as when a deceased person is dreamed of as not dead but still alive. Another effect may be that this kind of emotional processing becomes more prominent through all sleep, NREM as well as REM, and even intrude into waking mentation where it interferes with the carrying out of the external action-oriented system and its responses. This seems to happen in the case of post-traumatic stress disorders (Horowitz, 1970).

Dream Function During Divorce

The life event chosen for this study was the transition for women from being married to being single again through divorce. This is a sufficiently important life event to test the hypothesis that dreaming is responsive to self-relevant affect arousing information in an adaptive fashion. The degree of affective arousal surrounding this life event was measured on a depression scale and the meaning of the event, its importance to the individual's self structure, was measured by the centrality of the role of wife in the personality of the subject—how traditionally feminine she was in sex-role identity. Loss of the wife role will require more reorganization of the informational systems related to self-esteem for a traditional woman than for a woman who has a major investment in work or other roles as well as that of wife.

The rationale for choosing divorce as the affective event was that it is associated with high rates of depression, and because of the REM system changes associated with major mood disturbance. An early first REM period with a latency of less than 60 minutes has the status of a biological marker of major affective illness (Kupfer, 1976; Kupfer and Foster, 1972; Kupfer, Foster, Coble, McPartland, and Ulrich, 1978). Not only is REM latency reduced but there are other distortions in the REM system of the depressed: increased REM phasic activity in the first REM period of the night (Foster, Kupfer, Coble, and McPartland, 1976; Hauri and Hawkins, 1971; Wehr, Wirz-Justice, Goodwin, Duncan, and Gillin, 1979), a prolonged first REM period, and a displacement of REM sleep into the first half of the night (Vogel, Vogel, McAbee, and Thurmond, 1980)—all have been reported. These suggest that dreams might also be affected during major mood disturbance. If dreaming serves a psychological function, it might well be "malfunctioning" under these circumstances. It should be noted that no previous studies have examined dream content when REM parameters were normal versus abnormal, in persons undergoing the same stressful life event. In fact, very few studies have examined the dream content of psychiatrically depressed persons when they were unmedicated (Beck and Ward, 1961; Hauri, 1976; Kramer, Whitman, Baldrige, and Lansky, 1966; Kramer, Whitman, Baldrige, and Ornstein, 1968). The existing studies do suggest that such patients have less affect in their dreams than do normal controls, and that the dreams do not become reinvested with affect until the depression begins to lift. Another characteristic of depressed persons is the tendency of their dreams to be set in the past rather than the present or future and for the dreams to be characterized by masochism and dependency needs. Hauri (1976) reported that some of these dream traits were found not only when subjects were depressed but also during periods of remission. It has further been suggested that the dreams of the depressed show a lack of progress from dream to dream across the night,

excessive preoccupation with former relationships, and excessive blame-taking (Beck and Ward, 1961). All of this suggests a chronically poor working through of emotional information. This raises the question whether those who do not show REM sleep characteristics of depression while undergoing a major life change will demonstrate a better-functioning dream information processing system, with progress from dream to dream, some resolution that relieves blame by the night's end, and a dealing with the present and the future with some hope and positive affect. With these issues in mind, a small study comparing the sleep and dreams of women going through divorce was undertaken.

Sample

The sample selected for the present investigation¹ was drawn from volunteers responding to newspaper ads in a large city and surrounding suburbs. Following an interview and testing which included the *Beck Depression Inventory* (BDI) (Beck, 1967), the *Adjective Check List* (ACL) (Gough and Heilbrun, 1980), the *Social Adjustment Scale* (Weissman and Bothwell, 1976), and a role inventory entitled *Who Are You?* (developed by the author), 30 women were selected to spend six nights of recorded sleep in the laboratory on three consecutive weeknights for two consecutive weeks. One subject had to be dropped from the data analysis because she began antidepressant medication during the course of the study. Nineteen women were depressed on the BDI (range: 15–36) and ten not depressed (range: 2–10). Eighteen of the sample scored as Traditional on sex role measures derived from the ACL (Cartwright, Lloyd, Brown, and Bass, 1983) and eleven as Liberated in terms of not having the classical feminine sex role identities.

A small comparison group of married women was also interviewed and tested and recorded in the sleep laboratory. These nine women were not significantly different from the experimental sample in age, number of years married or number of children, but did differ in reporting a high degree of marital satisfaction. Their BDI scores fell within the nondepressed range (2–10); they had no personal or family history of clinical depression.

Results

The first question to be asked was "Would a sample of women volunteering for a study of divorce, and meeting self-report criteria of depression on BDI, show the REM sleep markers of depression?" As previously reported (Cartwright, 1983), REM latency was reduced in many of these women. The Pearson r between the BDI and REM latency was significant at $-.45$; the more

¹This study was supported by a grant from USPHS, MH 31920.

depressed the subject, the earlier the REM onset. There was also a positive correlation between eye movement density and BDI scores (.39). Eye movement density showed the normal increase from REM to REM across the night in those who were not depressed on BDI criteria but had a flattened distribution for those who scored as depressed. Something was wrong with the REM system in those divorcees who were most emotionally distressed by self-report. Those who were most unable to handle the affect surrounding divorce were those who scored as most traditional. The Pearson r correlation between BDI and Traditionality was .57.

A small subset of the experimental group ($N=13$) was followed-up one to two years later with additional dream collections. The significant positive correlation of sex role identity and depression was maintained at follow-up. Those subjects most traditional in their investment in the marital role were also most depressed $r=.57$. These women again displayed reduced REM latency and higher eye movement density in the first REM episode. In other words, the effect of divorce on REM sleep was most severe and long-lasting in those for whom this life event would be expected to induce the most affective upheaval and whose traits required greater cognitive reorganization. These findings lead directly to the question of whether the content of dreams also varies systematically with the kind and amount of emotional work required to integrate this affect-inducing information and to reorganize in response to it. Some of the differences in the dreams of the depressed and nondepressed divorcing women and the married control subjects have been reported previously (Cartwright, Lloyd, Knight, and Trenholme, 1984; Trenholme, Cartwright, and Greenberg, 1984).

A preliminary question that needed to be considered was will the immediate experimental situation take precedence over the life event and become a focus of the dream content? This was tested by blind ratings on the *Experimental Relatedness Scale* (Wood, 1979). Here an interesting difference was found. The married control subjects had a significantly higher proportion of dreams with experimental/laboratory content (28%) than did the divorcing subjects (12%)². It appears that when there is a significant degree of life stress, this will override the situational stress associated with laboratory sleeping. This finding of less effect of the laboratory on the dreams of the experimental subjects leaves the road clear for looking into dream content for signs of dream work associated with divorce.

The content analyses were divided into five categories: (1) structural characteristics; (2) affective characteristics; (3) motivations and coping styles; (4) roles of self and others; and (5) across-the-night sequence differences from

²Statistical tests where n =dreams were two-tailed t tests, and where n =subjects, χ^2 or z tests. The .05 level was accepted as demonstrating significance.

first to last dream. All ratings were made by two blind raters on standardized scales (Winget and Kramer, 1979).

One of the most striking differences found between groups in terms of structural characteristics was that of the length of the report. All subjects were given the same amount of REM time prior to being aroused to give a report, 5, 10, 15 and 20 minutes for the first, second, third and fourth REM. Any differences in length of the dream report therefore cannot be attributed to differences in amount of prior REM. The average number of words in the reports from the nondepressed group was significantly higher than the reports of either the controls or the depressed experimental group. In fact, the mean length was almost double that of the other two groups. Not until one to two years later at follow-up did those who had been depressed at the time of their first study increase the length of their dream reports to equal those of the nondepressed.

Time orientation in the dream was another structural difference favoring the nondepressed group. The married subjects' dreams were almost exclusively set in the present, the depressed subjects favored the past, but the nondepressed subjects used the full range of past, present and future. This difference in variance was significant at the .05 level at initial testing, close to the time of the marital breakup. Again, this difference disappeared at follow-up time, when the dreams of those who had been depressed showed a significant expansion in their dream time references.

The mood of both divorcing groups was significantly more negative than that of the dreams of the married women. This, too, changed at follow-up time where there was a significant shift to more positive mood in those who were formerly depressed. Anxiety dreams were frequent in all the women but most common in the dreams of the non-depressed (54%). This percent was significantly higher than in the dreams of the married controls (36%). When anxiety was present in dreams it was most often attributed to the self character by the depressed group (82%). This percent was significantly higher than the percent of self-directed anxiety for the nondepressed (60%) or the control subjects (55%). Threat also was common but, again, more divorcing women reported dreams with threat content (86%) than did control women (56%).

Dream motives were classified as either positive or negative and also divided into three types: (1) Belongingness and safety needs (such as affiliation, nurturance, succorance, harm avoidance) were the most basic category. (2) Esteem and control needs (such as achievement, autonomy, dominance, endurance, social recognition, abasement) were the next level. (3) Aesthetic and cognitive needs (such as play, understanding, and need for change) were classed as higher needs. The three groups of women differed in their most frequent dominant dream motive. The most common motive in the dreams of married subjects

was affiliation; 44% of the sample had at least one affiliation dream. The most dominant motive in the nondepressed divorcing sample was harm avoidance, with 50% having at least one such dream. The depressed subjects expressed two motives equally: harm avoidance and nurturance, with abasement being the next most frequent motive, appearing in 26% of the dreams. Eighty-three percent of the nondepressed subjects had dreams with positive motives, whereas only 30% of depressed dreams were characterized that way. Belongingness and safety motives appeared most often in the dreams of both the control and depressed subjects, whereas the most frequent dream motives for the nondepressed were esteem and control motives.

What roles did the characters play in the dreams of these three groups? The divorcing sample as a whole portrayed the dream self as more often inadequate than did the control sample. More depressed women (74%) had at least one dream in which no other character appeared. This was higher than the comparable figure for the controls or nondepressed subjects. A striking difference was the degree to which the depressed and nondepressed subjects dealt with their marital role in their dreams. The self characters in the dreams of the nondepressed were designated as Wife, Separated or Ex-wife, or Alone frequently. However, these characters rarely appeared as self roles in the dreams of the depressed women. For these subjects the self appeared in friendship roles, family roles such as Mother, Daughter, Sister, or work roles to the exclusion of heterosexual roles.

Lastly, there were some interesting differences comparing the first and last dreams of the night. The depressed women showed a significant increase in masochism between the first and last dream. Both divorcing groups showed increases in threat level from first to last dream, but only the nondepressed group showed a significant increase in anxiety between first and last dream. There was also a difference in the number of positive motives expressed in the last REM collection. The depressed subjects were more likely to wake at the end of the night from a dream in which negative motivations dominated (70%) than the nondepressed subjects (17%).

Many of these content differences support the view that the manifest dream reflects the way in which this life-event is being handled emotionally under differing levels of dysphoric affect. Dreams with threat were more common in all the divorcing subjects than in the control subjects, and for both of these groups threat increased at the end of the night. For those who were not depressed most of the differences from the other groups were in the direction of more adaptive dream work: the reports were longer, had a wider time perspective, included the self in the marital roles, had more positive motives in the last REM period, and the needs of self-esteem and control were the most frequent in accounting for dream behavior. In contrast, the dreams of those who were depressed were locked into a narrow past-oriented time frame,

failed to display any identification with the marital role or its loss in the dreams, located more of the anxiety and threat in the self character than in the other dream characters, had more dreams in which there were no others, expressed more negative motives, and these dominated at the end of the night. The subjects seemed more needy in terms of the prominence of safety and belongingness needs, with specific needs for nurturance and abasement being frequently expressed.

Given that the dreams involved here comprised a very small sample and were collected under unusual circumstances, they still show marked differences between those traditional women needing to make a major reorganization in their cognitive-affective structures to adjust to the loss of the spouse and those independent women whose adjustment is less extensive. These data are suggestive of support for the position that dreams have meaningful relations to waking traits and states, yet the results leave us unable to state that cognitive structures are being affected by this process or that emotional problems were resolved. This would require a longitudinal study with more frequent REM collections.

Another kind of analysis can be brought to bear on the dream accommodation hypothesis by comparing the dreams of pairs of our women subjects. Few researchers have looked into dreams in this manner. Trosman, Rechtschaffen, Offenkrantz, and Wolpert (1960) investigated the relation of the material reported from dream to dream across one night. They found that sometimes disturbing themes and tensions accumulate alternately with dreams which discharge that tension. French and Fromm (1964) also suggested that a gratifying dream solution might be followed by an even bolder gratification in a subsequent dream, and this in turn might stimulate reactive motives such as fear, guilt, or shame in the next dream. Alternatively, Kramer, Whitman, Baldrige, and Lansky (1964) reported that in some cases a problem or conflict shows no resolution from dream to dream but a repetitive restatement. We might expect this latter pattern to be more characteristic of the traditional depressed woman while the former pattern may be more characteristic of nondepressed, effectively coping women.

Wherever possible, women were cross paired in age and education, length of marriage and length of time of being divorced. When looked at this way differences in dream sequences become clearer. One pairing will illustrate this contrast.

The Dream Sequences of Two Women

Marj is 31, has an M.A. degree in education and had a traditional stay-at-home marriage for ten years with two children. The marriage ended by her leaving after a long unhappy time period. Marj and her husband were living

in a trailer at a school where her husband was enrolled in a training program. Marj felt stuck, without friends, and totally dependent upon her husband. One weekend while the husband was drinking he once again beat her and dragged her around by her hair. She called the police to charge him with assault. They laughed at her and refused to act, calling it a family matter. That was the final humiliation and she left.

At the time of our interview, Marj had been continuously depressed for eight months. She reported she had cried a lot, lost weight, had trouble sleeping unless she took Dalmane or Valium. Her relationship to her children was also troublesome. She had little patience with them. Financially also she was having a hard time. She was looking for a glamorous job while working at routine, part-time employment. She was dating a man younger than herself and felt demeaned by this relationship. She reported strong heterosexual needs. Her testing showed she also needed to be given to and cared for. Her self-control was poor and she was both hostile and headstrong. Although she admitted that she should work at becoming more responsible for herself, she seemed unable to handle the job realistically. She was looking for magical solutions through work in the theater or films to "show them all" rather than be bogged down in the grubbiness of her situation.

Marj's dream sequence began with a very short report from the first REM: *Someone was after me. I was in a street by myself walking from a parking lot. Someone jumped out from between parked cars. It was very frightening.* This reminds us that she actually walked away from her marriage during the time Marj and her husband lived in a parked trailer where her husband violently attacked her. This dream restates her past marital situation and her continuing sense of vulnerability.

The second dream report was also short: *Two men got up and went to the waiting room toward the coleslaw on a tray when I finished. They walked behind me. I lost my tray. I was ticked off about them doing things behind my back. They could have waited.* In this dream we see that men make her angry, that she feels cheated of her sustenance in some way. We know that she is having a hard time financially and feels impatient for more of the good things in life.

This theme is carried forward in the third dream report: *I was eating some cat hair by mistake. It was in the cafeteria. There was a white counter that had condiments and two cats on it. I got half of one of the two cats instead of the condiments and put it in my mouth with my hotdog. I said, yuk! The cats were sleeping. Their heads were down in a curled position.* Here Marj makes a mistake and gets cat hair along with her hotdog. This symbol of an oral sexual act is disgusting to her. It does not involve any relationship with the cat. It was a casual encounter with a sleeping animal. The dream does not give us much confidence that she is making progress in taking care of herself. It reflects her heterosexual neediness, poor control, and tendency to get herself into demeaning situations.

The last dream of the night is rather confused: *I was ready to get up and two men who were with me in this sleep program were ready to go, and this other man was letting two policemen that were trying to steal my place rush ahead to get out first, get their electrodes off. We were rushing to a little booth to get electrodes off. We were sitting in cars in front of the hospital. One car was a convertible like my ex-husband had.* In this sequence Marj shows how much she distrusts men. They are not safe, they gang up on her, are sexually disgusting, push her around and compete to beat her unfairly. By the end of the night she is still associating to her former husband and has strong angry feelings.

The second subject, Susan, was also married for ten years, held an M.S. degree in health education and had no children. Her marriage had been happier than Marj's. Susan and her husband were known as an ideal couple. She worked and supported her husband while he went to graduate school. He was then to give her a turn at school. Instead, he accepted an offer in a far-off state. She had been accepted into a graduate program and wanted to stay behind. Her husband wanted her to join him and give up school to do things his way. He told her "if not, there's no reason to stay married." Susan was surprised when her husband "let her down." She was scared at being on her own and angry with him. In the interview she cried a lot as she told her story, but she was clearly not depressed. She had grieved when he left, had trouble living on her own, and so took in a roommate. She gradually developed women friends and found them interesting and stimulating. She started a small business with a woman roommate oriented around a service for women. She was redefining her own potential and taking back her investment as half of an inseparable couple. Susan displayed a high degree of self-confidence and the need to achieve. She was one of the confident and comfortable divorcees.

Susan's dream sequence began with no recall from REM 1 and REM 2. Her first recalled dream is from REM 3. *I was standing near the window, petting my cat. He was trying to get out and kept pawing at the screen where it had a hole in it. I was holding him tightly and he was turning around trying to bite me. He got away from me and ran across the street. He was scaring me, running back and forth, but he didn't get hit. I didn't try to catch him. I was standing on the porch of the house, watching. A man came up and wanted to join the co-op where I seemed to be living with a group of others. It was a nice house.* Susan symbolizes her former husband as a cat who wants to get out of her arms and run off. She lets him go in the dream, just as she did in reality when she chose not to join him but to stay on for her own self-development. She even surrounds herself in her dream with people who share her living situation and entertains the idea of a new man entering into it. Susan has let go of the past and is now speculating about the future.

Her fourth dream had three distinct scenes. In the first scene, she is younger than at present and is at the beach with her mother and brother. Although she is not dressed for swimming she is carrying her bathing suit. She meets a friend and decides to stay and swim with her rather than go with her mother and brother. Her mother says, "Time to go," and Susan says, "I'm staying." Her mother is upset. This is clearly an earlier instance of her independence when told what to do, such as her decision to remain in graduate school when her husband left. In the next scene she again associates to the cat: *I'm at a neighborhood play I wanted to see. I was carrying my cat wrapped in a blanket. I walked in and wanted to sit but I couldn't because of this stupid cat which would probably jump up and run away and cause a commotion. I went to take the cat home. The house was a mess. I was sweeping the floor. A man, like a janitor, came and told me not to sweep so hard because the floor was coming up. Underneath there were beautiful amber crystals. I was surprised to see the crystals.* This time she seems to consider, "What if I gave up my own priorities to take care of my cat/husband; I'd find my home a real mess and trying to clean it up might destroy it. Only then there might be something beautiful underneath." The goodness in her marriage was long buried.

In the last scene from this REM period she reports: *I was trying to get to where I live, an apartment on the second story with El tracks going by. I had to climb on the train tracks and lie down on a trampoline and jump from it into a window. It was only three feet but it was shaky, risky and awkward to stand up. There were two other women wanting to do the same thing. One did it. It looked easy so I got up to do it. I felt scared. It felt like flying into the future, being jet-propelled.* The night ends for Susan with her dream of learning from another woman to take the risk of launching into the future alone although it is a scary and precarious way to manage.

In the first of these two dream sequences we see that Marj does not make much headway on the problems stated in the first dream of trusting men and continues to relate to them warily, still expecting the worst in the last dream. Further, she is not certain that she can take care of herself. Susan, on the other hand, begins her dream sequence with her decision to let her husband go, to destroy her home, and by the end, begins to trust herself to make the leap into her future.

These dream content sequences show clear differences between two women who have much in common in terms of similar life crises but who differ in levels of depression and in their dependency upon their mate to give them their sense of self-esteem. Marj's sequence shows that by the end of the night she has not dispelled her anger at being pushed aside by men, including the policemen who should protect her. She loses out and does not get anywhere. Susan, on the other hand, appears to be working things through, feeling that the future is exciting, and she is willing

to take the risks of change despite the anxiety expressed in the last dream.

In general, the study supports the proposition that dreams are more adaptive during a period of life change than during a period of relative stability, providing the change is not accompanied by a major mood disturbance. When there is significant depression, dreams appear to be slowed down in the process of working through or accommodating to changes in reality. The self is seen as helpless, damaged, needing to be cared for, not motivated to affiliate but to engage in abasement in order to be nurtured. Dreams for the depressed are not employed as rehearsal for future wish fulfillment in which the self acts decisively in some desired new roles.

It seems that it is not only the REM sleep that is disturbed in depression, but the dream mechanism itself. This, too, deserves therapeutic attention. Commonly, depression is treated with medications which suppress REM sleep. When that has been accomplished over a period of weeks, drive levels appear to be increased in wakefulness. Whatever else, the actions of these medications, by suppressing REM sleep, also relieve the patient of the type of repetitive self-destructive cognitive behavior we have seen in the dreams of the depressed, at least temporarily. Depressions are, by nature, cyclic disorders. The tendency for a shortened REM latency does not remit completely between episodes. The dream content also reveals some unremitting trait-like characteristics that can be seen as inefficient patterns for dealing with the emotional impact of life events. It appears from this study of women volunteers that those with mood disturbance will be vulnerable to future episodes unless their affective cognitive information processing systems can be reshaped. Some studies using cognitive behavior therapy for depressed patients have shown good results. Dream systems too may need work, or these separate, slower systems may predispose the individual to continue to process information in maladaptive ways.

The differences between the dreams of those who make a good emotional adaptation to their changed lives and those who do not supply leads to psychological dimensions needing attention. There are both structure and content differences in the dreams and their sequences which proved to be systematic between these two groups. When the self system has memory schemas appropriate for handling the life event, such as Susan's early assertion of independence from her mother, dream information processing appears to engage these memories and organize the present problem of adapting to independence in these terms, to energize the dreamer in a preparatory manner for this change. When the present self structure is threatened by the life event and there are no acceptable alternate memory schemas available for organizing the event, as in Marj's case, the emotion evoked slows the working through and the affect may remain overwhelming.

The study described here is not definitive but raises important questions

concerning the relation of dreams to the efficiency with which the next day's waking reality can be tackled. In her last dream Susan is ready, with some anxiety, to launch into a solo future. Marj is still masochistic, being cheated by men, which leaves her angry and frustrated. The information processing of dreams appears to be progressive in one case and stalled in the other. Using such 24-hour interactive models of human cognition, dreams can take their place in psychology for their contribution to understanding of mind and behavior.

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