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# Neuropsychodynamic Psychiatry

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Editors

# Neuropsychodynamic Psychiatry

 Springer

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Tamara Fischmann and Marianne Leuzinger-Bohleber

## Abstract

Dreams have been one core element in psychoanalysis and have been emphasized already by Freud as central therapeutic elements. Here we review recent findings on the neurobiology of sleep in general and dreams in particular. We here consider dreams as indicators of inner transformation processes in the structure of the ego—the vivid experiences of dreams are thus supposed to index change in our self and its structure. This is based on various findings from psychoanalytical dream research and, more specifically, the contents of dreams. That is complemented by recent psychological-cognitive and neurobiological findings of dreams—considered in a cognitive perspective, dreams can be regarded as ‘embodied memories’.

Different theories of dreams are compared and discussed. Taken in this sense, dreams have a central function for the ego in allowing for transforming previous memories into the present and current state of the self—they thus serve for the self to adapt itself to its changing environmental contexts without losing itself.

## 8.1 Introduction: Neuropsychanalytical Dream Research<sup>1</sup>

Sigmund Freud has chosen the beginning of the twentieth century, 1900, as the publishing date for *The Interpretation of Dreams* because he was convinced that this book would create a new scientific discipline: psychoanalysis. Indeed, dreams are still seen as the ‘via regia to the unconscious’ by many contemporary psychoanalysts.

<sup>1</sup> The introduction is based on an unpublished text by Mark Solms (2017).

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In the meantime, dreams have been studied in many fields, experimental dream-sleep research, neurology, psychiatry and neuropsychanalysis (see, e.g. Solms 1997; Leuzinger-Bohleber 2015). Just a few introductory remarks on some of the findings (see footnote 1):

Humans spend almost a third of each day asleep and about one-fifth of their sleep time dreaming. This means that we spend approximately 90 min of every day in the state of dreaming. However, sleep science and neuroscience have been unable to convincingly elucidate the biological function of dreaming.

There is every reason to believe that dreaming is not a uniquely human function. Dreaming is highly correlated with REM sleep, and REM sleep is a ubiquitous mammalian state. However, dreaming is not synonymous with REM sleep; in fact, the two processes are doubly dissociable (Solms 2000). Moreover, it is impossible to access dream reports in any species other than humans. To address the biological function of *dreaming* (as opposed to REM sleep), therefore, it is necessary to study humans and humans only. Therefore, several ongoing neuropsychanalytical studies are focusing this research question (see, e.g. Solms 2017).

On Freud's view, sleep was characterized by disinhibited endogenous drives which activate (or are activated by) volitions which would normally provoke motor activity. For this reason, dreams were considered as a mode of 'diverting' potentially sleep-disturbing impulses, through hallucinatory fulfilment of the impulses in question. Recent research strongly suggests that sleep is indeed punctuated by potentially disturbing endogenous arousal and motivational events (see Perogamvros and Schwartz 2012 for review). Not only is sleep characterized by the cyclical arousal state of REM itself (Aserinsky and Kleitman 2003), but it is also disturbed by surges of midbrain dopaminergic activation in the mesocortical-mesolimbic circuit responsible for 'the most vigorous exploratory search activity an animal is capable of' (Panksepp 1998, p. 145; see Dahan et al. 2007; Léna et al. 2005). How then does the animal remain asleep? On the Freudian view, it does so by dreaming.

The clear experimental prediction from this hypothesis, which has never been tested (and, indeed, was famously described as untestable; Popper 1963), is that *non-dreaming patients with posterior cortical lesions should display poor-quality sleep*. Preliminary work suggests that this is indeed the case. Bischof and Bassetti (2004) reported a single case of acute thrombotic infarction of the occipital lobe in the region of the posterior cerebral arteries with cessation of dreaming but preservation of REM sleep. The authors noted, apparently incidentally and without realizing the theoretical significance, that their patient suffered sleep-maintenance insomnia. Solms and his research group have since confirmed this observation in five further cases (see Solms 2017), but still further research must be done.

One other theory in the biological function of dreaming concerns the role that dreaming plays in memory processes during sleep. In recent years, there has been increasing interest in the hypothesis that sleep contributes to and influences memory processing in a significant manner. This hypothesis is widely accepted, and focus has now shifted to the relative contributions of various memory processes during sleep. This includes, for example, memory consolidation (stabilization, enhancement and reconsolidation) in both REM and NREM sleep (Rasch and Born 2013).

In this theoretical context, dreaming is hypothesized to play a specific role in memory processing during sleep. Dreaming is said to play an especially important role in emotional declarative memory<sup>2</sup> during REM sleep. The neurobiological association between REM sleep and emotional declarative memory has been made due to the neurochemical changes that take place in the brain during this sleep stage (e.g. increased acetylcholine release), as well as the activation of certain brain regions (e.g. increased activity in the amygdala and cingulate cortex) that make the brain amenable to affect-related memory consolidation (Stickgold et al. 2001; Hu et al. 2006; Nishida et al. 2009).

This neurobiological association between emotional declarative memory and REM sleep is widely supported in the literature. For example, a study by Wagner et al. (2001) found that memory for emotional material was significantly enhanced after a period of late sleep in which REM sleep was predominant. The same was not true for memory related to emotionally neutral stimuli and for early sleep (predominated by NREM sleep). Similar results have been obtained by Nishida et al. (2009) who found a correlation between offline emotional memory enhancement and amount of REM sleep, while no correlation was found regarding emotionally neutral material.

Due to the strong correlation between REM sleep and dreaming, several theorists speculate that dreaming—being a conscious state—plays a special role in emotional declarative memory consolidation (Stickgold et al. 2001; Nielsen and Stenstrom 2005). However, any role for dreaming in memory consolidation remains to be empirically demonstrated, due to the difficulty in experimentally distinguishing dreaming *per se* from REM sleep.

There are several hypotheses regarding the role of dreaming in memory consolidation. For example, Stickgold et al. (2001) note that during REM sleep, limbic forebrain structures along with the amygdala are activated, while there is also an inhibition of hippocampal outflow that presumably prevents the reactivation of episodic memories. Consequently, dreams would be constructed mainly from weak neocortical associations that are available during REM sleep. Dreams are thus typically unpredictable, bizarre, and emotion-laden. The authors hypothesize that these features reflect the brain's attempt to recognize and assess novel cortical associations in the context of emotions mediated by limbic structures. They propose that one functional consequence of REM dreaming is the strengthening or weakening of specific activated associations, with regression to pictographic imagination providing compensation for the relative loss of motor function during sleep.

There are several other theories regarding the function of dreaming in relation to memory processes. For example, firstly, it has been proposed that the appearance of memories in dreams promotes learning by reactivating those elements in their original (perception-like) state; secondly, that the binding of various memory elements (especially around emotionally relevant themes) strengthens and consolidates those elements; and thirdly, that dreaming about newly learned material enhances subsequent recall of that material (for reviews, see Payne and Nadel 2004; Nielsen and Stenstrom 2005).

However, it is important to reiterate that although the majority of dreams occur during REM sleep, multiple lines of evidence demonstrate that REM sleep and

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<sup>2</sup>Memory for events associated with intense and salient emotions.

dreaming are in fact dissociable states, governed by different mechanisms in the brain (Solms 2000). This evidence suggests that REM sleep is controlled mainly by cholinergic brainstem mechanisms (McCarley et al. 1995), while dreaming is controlled mainly by dopaminergic limbic and other forebrain mechanisms (Perogamvros and Schwartz 2012). Thus, dreaming can occur outside of REM sleep, and REM sleep can occur in the absence of dreaming.

As this short summary might have illustrated: Dream research is a fascinating field in contemporary neuropsychanalysis. We already have finished a pilot study on the biological function of dreaming and hope to be able to start the main study soon (see Fischmann and Leuzinger-Bohleber 2017).

In this chapter, we will focalize another psychoanalytical research project focusing on dreams *Changes of dreams as indicators of sustaining inner transformation processes in psychoanalysis*. It is a sub-study of the large ongoing LAC depression study comparing the outcome of psychoanalytical and cognitive-behavioural long-term psychotherapies. In this study, we are taking dreams as an indicator for transformations of the inner object world of the patient, in other words indicators of so-called structural changes in psychoanalysis. These transformation processes are connected to symptomatic change but go much beyond. Structural change refers to uncovering unconscious psychic structures and mechanisms which determine current inadequate mental functioning, problem-solving, human relationships, affects and satisfaction in life. Structural changes enable patients to resolve psychic and psychosocial conflicts by stressors in current life situations in a more adequate manner and thus not only influence its psychopathological symptoms but also his capability ‘to work, to love and to enjoy life’—the well-known aims of psychoanalyses.

Structural changes are difficult to operationalized. In another publication, we have reported on findings concerning structural changes based on the so-called Operationalized Psychodynamic Diagnostics (OPD) and the Heidelberger Umstrukturierungsskala (HUS) (see Leuzinger-Bohleber et al. forthcoming). In this chapter, we are investigating systematic changes of the manifest (and latent) dreams in a psychoanalysis. We are referring to a single case study with a chronic depressed patient which is summarized in Chap. 30. The theoretical background of the content analysis of the manifest dreams is a model by Moser and von Zeppelin (1996) integrating a broad knowledge base of psychoanalytical, neuroscientific and empirical knowledge on the generation of dreams (see Sect. 8.2).

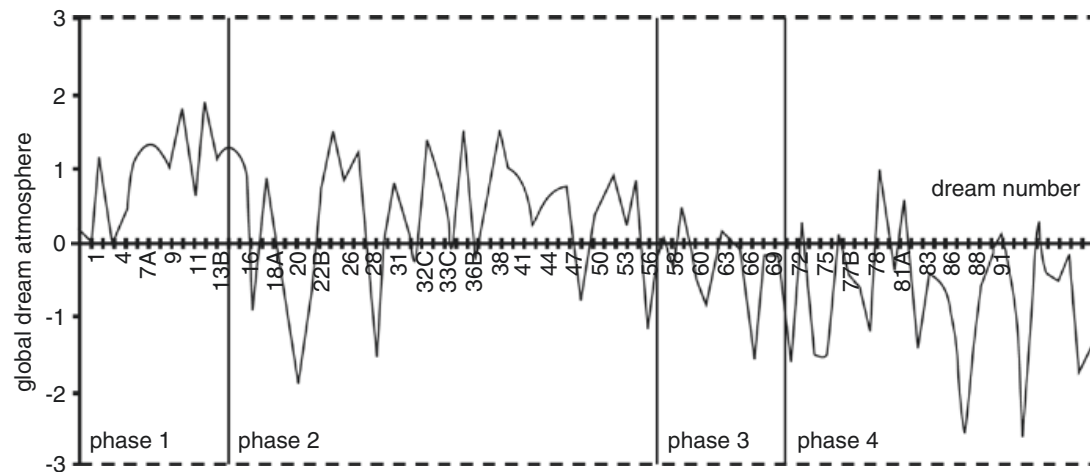
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## **8.2 Changes of Dreams as Indicators of Sustaining Inner Transformation Processes in Psychoanalysis**

### **8.2.1 Some Findings from Psychoanalytical Psychotherapy Research**

Marianne Leuzinger-Bohleber (Leuzinger-Bohleber 1987, 1989) compared manifest and latent dream content of the first and last 100 sessions in a total of 5 psychoanalyses and could show systematic changes in these aggregated single case studies. In the ‘successful psychoanalyses’ (defined by the analysands, their analysts and





**Fig. 8.1** Changes in the dream atmosphere during psychoanalyses

independent observers), the following changes were found in the dreams of the last 100 psychoanalytic sessions:

- Atmosphere of the manifest dream is more frequently positive.
- More successful problem-solving.
- Broader spectrum of affects (in contrast to the domination of one single affect (most frequently panic) in the dreams of the first 100 sessions).
- Dreamer was in an active position (not in the position of the observer).
- More intensive and satisfying human relationships.
- More human subjects, less animals.

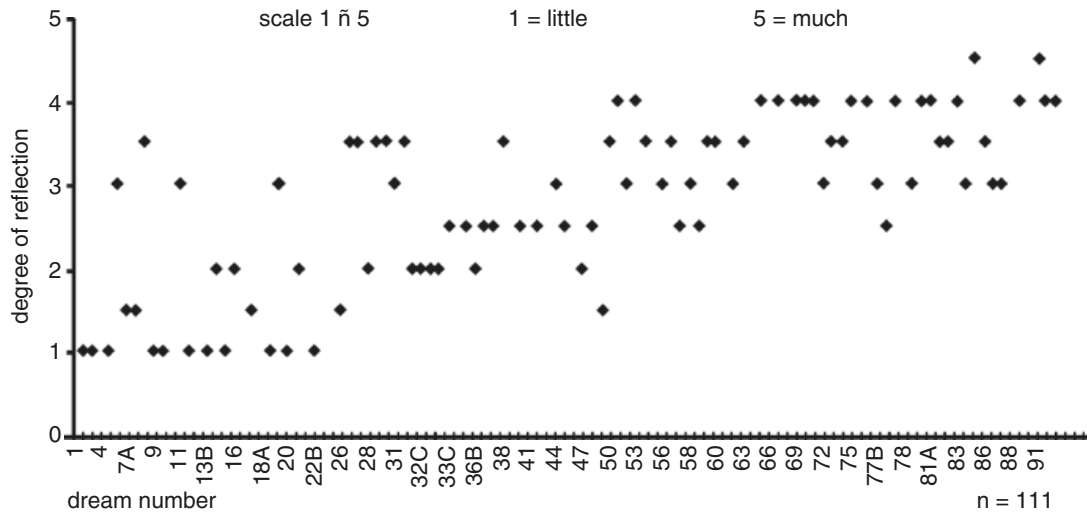
These findings have been replicated by Kächele et al. (2015). In the frame of the LAC study, another replication study is ongoing (Figs. 8.1 and 8.2).

### 8.2.2 The 'Dream Generation Model' by Moser and von Zeppelin: An Attempt to Integrate Psychoanalytical and Interdisciplinary Knowledge on Dreams

In modern dream theories, dreaming is described as a thought-process engaging our inner system to process information (Dewan 1970). Inner (cognitive) models are constantly being modified in coordination with what is perceived. In contrast to a dreaming state, the reactions to our environment are immediate while we are awake, thus enabling information consolidation into memory with one constraint, namely, that consolidation processes are not always possible due to capacity restrictions of the system. Consolidation processes do continue though during sleep in an 'offline' modus, thus enabling integration to long-term memory.

According to Moser and von Zeppelin (1996)<sup>3</sup>—psychoanalysts and dream researchers at the same time—so-called dream complexes—activated by current

<sup>3</sup>Ulrich Moser and Ilka von Zeppelin are full-trained psychoanalysts engaged in interdisciplinary research for decades. Ulrich Moser was professor for clinical psychology at the University of



**Fig. 8.2** Changes in problem-solving during psychoanalyses

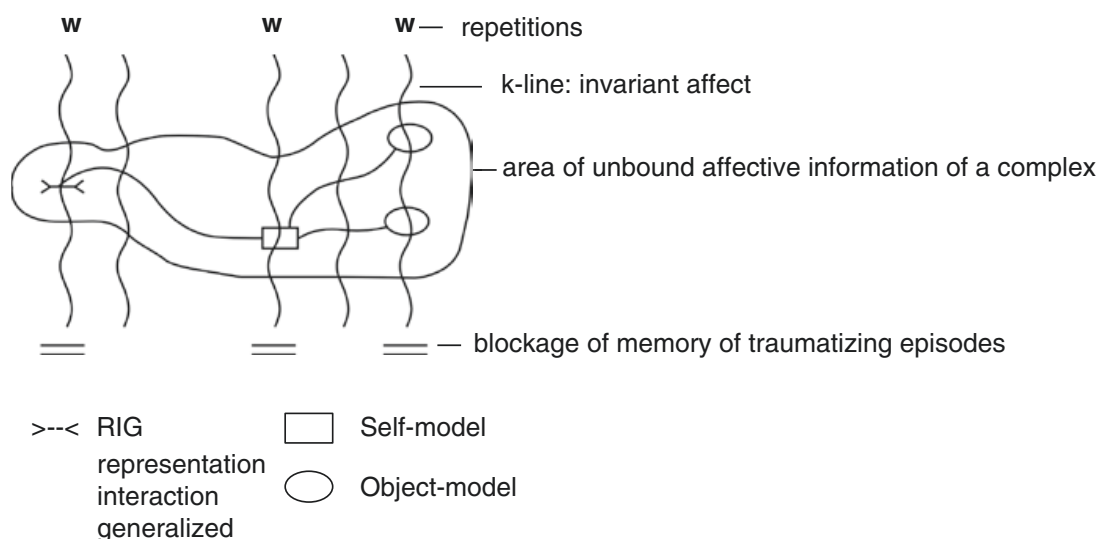
events process the entirety of information from unsolved conflicts and traumatic situations while dreaming. The dream searches solutions or rather best possible adaptations for these dream complexes. A dream, which is usually pictorial, consists of at least one situation produced by a ‘dream organizer’. Dream organization may be considered, according to Moser, as a bundle of affective-cognitive procedures, generating a microworld—the dream—and controlling its course of action. Within this system, the ‘dream complex’ is considered to be a template facilitating dream organization.

Thus, it may be assumed that a ‘dream complex’ originates from one or more complexes stored in long-term-memory, rooted in conflictuous and/or traumatizing experiences, which found their condensates in *introjects*. These conflictuous or traumatic dream complexes are easily triggered by stimuli from the outside world, which are structurally similar to stored situations of these complexes. The search for solution of the complex is governed by the need for security and wish for involvement, i.e. the *security principle* and the *involvement principle* which govern dream organization.

Wishes within these complexes are links between self- and object-models and RIGs (i.e. representation interaction generalized), which are accompanied by convictions and a hope for wish fulfilment. Conflictuous complexes are areas of bundled wishes, RIGs and self- and object-models with a repetitive character, thus creating areas of unbound affective information. Affects within such an area are interconnected by k-lines, which are blocked and thus not localized. To solve these conflictuous or traumatic complexes, it is necessary to retrieve this affective

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Zurich. Already in the 1960s and 1970s, he was involved in modelling parts of psychoanalytic theories. By the means of computer simulation, he tested the logical and terminological consistency of psychoanalytic theories of defence and the generation of dreams. Based on this basic research on dreams, he developed an own model of the generation of dreaming as well as a coding system for investigating the manifest dreams. In this chapter as well as in the paper by Varvin et al. (2012), the dream model and the coding system by Moser and v. Zeppelin are applied.



**Fig. 8.3** Memory model of conflictuous complexes according to Moser and von Zeppelin (1996)

information and reintegrate it into a relational reality to make them come alive (cf. Fig. 8.3). This is being attempted in dreams whose function is to search for a solution of the complex. This search for a solution within a dream is governed by the above-mentioned need for security and wish for involvement, i.e. the *security principle* and the *involvement principle*. The following illustration may serve as an elucidation of this model.

Based on this sophisticated model, the research group in Zurich has developed a coding system for analysing the manifest dream contents in a very valid and reliable way—the Zurich Dream Process Coding System (ZDPCS). We have applied this system in the LAC study in order to investigate systematic changes in the manifest dream content of analysands during their psychoanalyses. Some of these analysands—due to their severe sleep disturbances—also agreed to undergo a medical examination of their sleep including three nights in the sleeping laboratory. This gave us the possibility to compare their dreams after the REM phases in the laboratory with the dreams reported in the psychoanalytical sessions with very interesting findings (see Fischmann et al. 2013). Even though the content of the manifest dreams showed some differences, the structure of the laboratory and the dreams reported during psychoanalytic sessions were identical—a finding which was important for the systematic investigation of the changes of the manifest dreams during the long-term treatments.

### 8.2.3 Dreaming and ‘Embodied Memories’

Another interesting new perspective on dreams was developed in the dialogue between psychoanalysis and the so-called embodied cognitive science (see, e.g. Leuzinger-Bohleber 2015) and Chap. 6 in this volume. In the psychoanalytic model

of representation and in the computer metaphor derived from ‘classic cognitive science’, memory and recollection were for a long time understood as processes whereby (statically) retained knowledge was transformed from long-term memory to short-time memory and called up into a current problem-solving situation. We still find comparable thinking in some textbooks in clinical psychology. Aristotle’s famous example comparing memory to a wax tablet into which experiences etch themselves onto appears to live on.

But according to various views in embodied cognitive science today, memory can no longer be understood as comparable to a computer, as storage disk with statically stored content from which information can be ‘retrieved’ in a present situation. What analysts experience in their important and for them existential relationship to their analysands are not unconscious ‘statically entrenched’ representations of their past relationships, e.g. to their primary objects which are unconsciously reactivated, as had been understood, for example, in reference to the model of representation in classical psychoanalysis (cf., e.g. Karl Menninger’s Triangle of Insight, Menninger 1958). Memory—in contrast to this ‘classical conceptualization’—is a function of the entire organism, the product of complex, dynamic, recategorizing and interactive processes, which are invariably ‘embodied’<sup>4</sup>.

According to this new understanding of memory, ‘embodied memories’ have often been triggered in dreams, e.g. by a current interactional experience in the psychoanalytical situation, as is discussed in the chapter by Leuzinger-Bohleber and Fischmann in this volume. Therefore, dreams often are keys for discovering central ‘embodied memories’ of the (traumatized) patients. Nightmares, e.g. contain some of the embodied experiences of a self which was totally helpless, impotent and lonely confronted with unbearable pain, scared to death without a holding or containing primary object, a helpful other. The passive, frozen bodily state of the dreaming subject thus often uncovers unconscious ‘embodied memories’ of former traumatization. Often movements of the dream subject and first solutions in a terrifying situation indicate turning points in psychoanalyses as will be illustrated with the extended case example in this paper (see dream of the ‘odd bird’ in the third year of treatment; publications concerning this issue: see Leuzinger-Bohleber 2015; Leuzinger-Bohleber and Pfeifer 2017).

#### **8.2.4 Conceptual Considerations Based on the Interdisciplinary Dialogue with Experimental Dream Researchers**

Weinstein and Ellman (2012) have published an innovative neuropsychanalytical dream model integrating Freud’s dream theory with object-relational theories. They

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<sup>4</sup> ‘Embodied’ not only means ‘non-verbal’: memory arises by way of a ‘coupling’ of reciprocally influential sensoric and motoric processes. This ‘coupling’ is biologically implemented through neuronal maps embedded in the organism’s sensomotoric system. Thus, Clancey (1993) defined memory as the ability to coordinate neurological process.

are defining the drive theory of Freud in a new way making the connection to endogenous stimulations of the brain:

‘Following Freud, we assumed that there is at least one (...) neurophysiological system(s) that provide mammals endogenous stimulation. Freud saw the dream as a type of safety valve; in terms of modern psychobiology this led us to think about the REM sleep state as a type of regulator for what he called drive or cognitively, unconscious phantasy.’ (p. 111) Part of Freud’s conception was that, at least periodically, endogenous stimulation builds up, and motivates the person to engage in action to reduce that stimulation. Reduction of stimulation was also how he defined pleasure.

Before we describe the regulatory function of REM sleep we should spell out another assumption about REM mechanisms. REM, in our view, is a manifestation of the basic rest activity cycle (BRAC) (Kleitman 1963). In Kleitman’s view the 24-h or circadian cycle is a series of alternating states of resting and activity. In our theory REM mechanisms fire periodically to create activity in mammals. This activity is a manifestation of drive or endogenous mechanisms<sup>5</sup> where thresholds for centers that are critical to the animal’s survival are regulated. Thus, during this activity phase the animal is primed to perform behaviors crucial to its survival or its group’s survival such as food seeking, courting or nest building. REM sleep is part of BRAC and is an activity period during sleep. This activation permits an unbroken period of sleep while also allowing for periodic activation of survival mechanisms in case the animal encounters an emergency, for example, a predator. REM sleep also alters waking thresholds; if, for example, waking thresholds are high for drive behaviors (as in depression), there will tend to be less REM sleep or less discharge during sleep in an attempt to lower waking thresholds. In this way, one can view REM sleep as performing a regulatory function. Alternatively, one can say that REM sleep is part of the basic rest activity cycle and is affected by waking thresholds and experiences. Implied in both statements is the idea that the same mechanisms that fire during REM sleep are also activated periodically during wakefulness. (Ellman and Weinstein 1991; Weinstein and Ellman 2012, p. 4).

The research group investigated these hypotheses in different animal experiments. To summarize in a simplified way: The animals are seeking different tasks to get positive stimulations:

To look at the physiological correlates of pleasure we studied positive reward systems in a variety of animals. These are sites that Olds first discovered (Olds 1956, 1962) when he found that if he delivered electrical stimulation to the hypothalamus, rats would learn a variety of tasks to obtain this stimulation. When the animal works to obtain this stimulation, this behavior has been labeled intracranial self-stimulation (ICSS). ICSS sites are usually in midbrain areas implicated in the control of behaviors such as eating, drinking, sex, and aggression, all sites involved in essential survival for an animal... (ibid., p. 6)

The researchers could show the close connection between REM sleep and the ICSS: If REM sleep was prevented, the self-stimulating behaviour increased. If

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<sup>5</sup>For psychoanalytic readers, you can use the term drive instead of endogenous stimulation.

ICSS was prevented, the REM sleep increased! To summarize it again in a simplified manner: The activation of the ICSS system relates to the activation of neuronal circuits which activate eating, sexuality and aggression (in analogy to Freud's unconscious wishes, the latent dream content, which are activating the dream):

Putting together to results of our human and animal studies, we reasoned that during REM sleep the firing of the ICSS system increases the probability of activating the neurophysiological substratum of a drive system(s) – that is the activation of neural networks involved in eating, sex and aggression. In humans, the activation of ICSS pathways frequently triggers memory systems that involve conflict. Typically, the mentation present in REM sleep contains material about the issues that are most relevant and/or threatening to the individual at any given point in time. This is not necessarily always true; one might dream about a not conflictual pleasurable situation but in our view for most adults (and most children) the important situations in their lives involves some conflict. Under optimal circumstances the dream provides a way of resolving the conflict, as the literature on the emotion regulation function of REM sleep suggests (see Nielsen and Lara-Carrasco 2007 for a review). If this is the case, the dream is forgotten. On the other end of the continuum are traumatic dreams, those in which the dreamer cannot envision a pain free resolution, but can only imagine an outcome that would result in injury or death. Traumatic dreams are ones that are frequently repeated: unfortunately, they express a threat of survival that the dreamer feels they can neither avoid nor resolve. (ibid., p. 13)

These theories have, in our view, a high relevance for the clinical understanding of dreams of chronic traumatized, depressed patients. One first point: the intracranial self-stimulation (ICSS) is only experienced as a positive reward if the subject can evoke it actively by himself. The rewarding seems to relate to an elementary experience of autonomy and self-agency. As we know from psychoanalytical trauma theories: One of the main characteristics of a traumatic event is that the individual is suddenly and unexpectedly confronted with an extreme situation of total helplessness and impotence in relation with extreme pain and the threat of death *without* getting any help from another person, thus losing a basic feeling of self-agency. Therefore in a traumatic situation, the basic trust in a helping 'other' and an active self is destroyed with sustaining consequences.

### 8.2.5 Taking Conceptual Considerations to the Experimental Lab

Based on these theoretical thoughts, we analysed the changes of dreams of a severely traumatized, chronic depressed patient (Mr. X, cf. Chap. 30 for more details) during his therapy. For one we looked at dreams he reported in the clinical situation and compared them to dreams of the same time elicited at the sleeping laboratory using the above-mentioned method of Moser and von Zeppelin, to see whether we could discern changes of dream atmosphere, relational capacities and problem-solving capabilities (i.e. self-agency). We were also interested to see if those changes occurred in both types of dreams—the laboratory dreams and the ones reported in the clinical situation.



Mr. X's dreams reported in the first 6 months of psychoanalysis were characterized by unbearable, traumatic situations and may be considered to be nightmares. In these dreams his dream self is captured in extremely dangerous, life-threatening situations usually flooded with panic and anxiety and lacking any capability to liberate himself from these situations.

The following dream, taken from the first 6 months of therapy, may serve as an exemplary specimen of such a nightmare:

I am in a narrow tunnel, kind of a tube. Behind me my brother is crawling. We cannot go backwards – behind us is the stormy sea. The tunnel becomes narrower and narrower. I wake up in panic.

In comparison, his laboratory dreams of the same time during therapy are blander although palpably full of anxiety and the feeling of being left alone helplessly:

I am walking through a building – a residential building. I don't know to which destination. Down the stairs – there are elevators. I walk through a door, behind it there are my parents, my brother. I try to talk to them. Then there is a fellow [female] student – her face is alienated. I am surprised and bewildered, happy to see her again. I ride elevators up or down. During the ride the floor of the elevator suddenly drops underneath me and is gone. I look outside – there are gigantic hangars with tools. They are deserted. I gaze for several minutes. There is an underground passageway. I am scared. Where does it go to? I am uncertain. A ride into the unknown?

The Zurich Dream Process Coding System (ZDPCS) of the two dreams reveals interesting facts. The dream from the clinical situation is shorter and ends in panic. The laboratory dream, though longer, has more interrupts—a sign for unbearable accumulation of affects, which must be interrupted—but has more distancing and failing interactions. The latter may be interpreted as a sign of the dreamers' lack of problem-solving capacities; he feels helplessly extradited to the situation he is in (Table 8.1).

As is discussed in detail in Chap. 30, the manifest dreams of this severely traumatized patient changed obviously during psychoanalysis. In the frame of this chapter, we can only refer to one other example in the third year of psychoanalysis:

I played with the famous jazz guitarist Ralf Towner. It went quite well and it was fun. I didn't fail and the neck of the guitar was not soft<sup>6</sup> (laughs). The guitarist played along with my improvisations and held back. Of course, I knew that he is better than me, but this did not matter – it was just great fun...

The corresponding laboratory dream goes as follows:

I was on the way with someone, whom I cannot name. He was familiar, but I cannot put a name to him. And we had a strange substance with us. In the beginning, it was a lump of earth or clay and he showed me how to make new forms out of it. In fact, not by processing

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<sup>6</sup>The patient refers to another 'funny' dream. Before the dream he had a conflict with his wife which wasn't treated openly. Instead the conflict led to an erectile dysfunction. Then he dreamed that he played on a guitar which had a very soft neck....

**Table 8.1** ZPCS dream coding comparing clinical dreams with laboratory dream of the first 6 months of psychoanalysis

Dream from clinical situation				Laboratory dream					
Dream narrative	Sit	PF	LTM	IAF	Dream narrative	Sit	PF	LTM	IAF
I am in a narrow tunnel, kind of a tube	S1	SP (dreamer) Place (tunnel) ATTR (narrow) ATTR (tube)			<i>I am walking through a building—a residential building</i>	S1	SP (dreamer) Place (building) ATTR (residential)	LTM	
Behind me my brother is crawling	S2	SP (dreamer) OP <sub>1</sub> BEK (brother) POS REL	LTM		<i>I don't know to which destination</i>	C.P.			
We cannot go backwards—behind us is the stormy sea	S3	SP (dreamer) OP <sub>1</sub> BEK (brother) Place (sea) ATTR (stormy) POS REL		IR.C RES LTM Fail (cannot go backwards)	<i>Down the stairs—there are elevators</i>	S1	SP (dreamer) CEU (stairs) CEU MULT (elevators) POS REL		
The tunnel becomes narrower and narrower	S4	SP (dreamer) Place (tunnel) ATTR (narrow)		IR.D (IR.S)	<i>I walk through a door; behind it there are my parents, my brother</i>	S2	SP (dreamer) CEU (door) CEU (door) POS REL OP BEK (parents) OP BEK (brother)	LTM	
I wake up in panic	EX AFF R				<i>I try to talk to them</i>	S3	SP (dreamer) OP BEK MULT (them)		IR.C int



					<i>Then there is a fellow [female] student—her face is alienated. I am surprised and bewildered, happy to see her again</i>	S4	SP (dreamer) EX AFF R (surprised...) OP BEK (student) ATTR OP PART OF (face) ATTR (alienated)		
					<i>I ride elevators up or down</i>	S5	SP (dreamer) CEU (elevators)	LTM	
					<i>During the ride the floor of the elevator suddenly drops underneath me and is gone</i>	S6	SP (dreamer) CEU (elevator) CEU PART OF (floor) POS REL		IR.D (IR.S)
					<i>I look outside—there are gigantic hangars with tools. They are deserted. I gaze for several minutes</i>	S7	SP (dreamer) CEU MULT (hangars) ATTR (gigantic, deserted)	LTM perc	
					<i>There is an underground passageway</i>	S8	SP (dreamer) CEU (passageway) ATTR (underground)		
					<i>I am scared. Where does it go to? I am uncertain</i>	EX AFF R			

*Sit situation, PF positioning field, LTM locomotion, IAF interaction field*

it but by crumbling it. And this was interesting; so, he crumbled this thing and it became fine flakes, fell and when it reached the ground new forms emerged. I tried to do it too but did not manage in the beginning – I thought it did not really work for me. But he said: “no, this is quite good already. It’s not perfect yet, but I should keep on trying and it will get better and it will work. And I still thought it didn’t really work for me and that the product was baddish...”

The dreams from the third year of psychoanalysis reveal a very different picture in the ZDPCS. In his dream from the clinical situation, he again wakes from his dream highly affectively aroused, but this time he feels elated, and during most of the dream, he is in responsive interaction with a ‘helping’ object. The laboratory dream is in line with this insofar as that the dreamer is in a positively responsive interaction with a ‘helping’ other. He is still full of doubt if this ‘good’ ‘relationship’ will carry and help him to become ‘better’.

These dreams may have illustrated to a degree the way Mr. X’s early traumatization become observable in his manifest dreams and how this changed during the treatment. The underlying traumatic complex that governed the dream organization at the beginning of treatment was successively better integrated in the psychic functioning of the patient. The dream coding showed how the dreamer established an increasing feeling of self-agency, control and basic trust in a helping other (Table 8.2).

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### 8.3 Summary and Discussion

Different contemporary interdisciplinary dream models, integrating knowledge from diverse scientific disciplines, agree that nightmares of patients may be connected to (early) traumatization of the analysand. In analogy to the traumatic situation, the dream subject repeats being in a traumatic situation of extreme helplessness, impotence and unbearable negative affects like panic, despair, rage and death anxiety again and again—also while dreaming (i.e. underlying traumatic complex). The dream self has lost any control of the situation and is confronted with annihilation anxiety and the threat of death. As Weinstein and Ellman (2012) discuss: nightmares are not only triggered by extreme overflowing anxiety but at the same time by the missing of a holding, containing object. As is well known: trauma is defined as a situation in which the basic trust in a helping ‘other’ and the self-agency is destroyed—an experience with sustaining consequences (see, e.g. Bohleber 2010). Moser and von Zeppelin (1996) postulate in their model of the generation of dreams that traumatic complexes can be characterized by the fact that extreme affects are not ‘bonded’ (integrated) in a structure of human relationships. Finally, we have referred to the concept of ‘embodied memories’ (Leuzinger-Bohleber and Pfeifer 2012; Leuzinger-Bohleber 2015, 2016). As is illustrated in the case example in Chap. 30 in detail, we can find indicators of ‘embodied memories’, which means bodily experiences in early relationships, in the manifest dreams which can often be used as indicators for a successive understanding of the (unconscious) ‘history of the trauma’ of the analysand in the psychoanalytic situation.

**Table 8.2** ZPCS dream coding comparing clinical dreams with laboratory dreams with laboratory dream of the third year of psychoanalysis

Dream from clinical situation			Laboratory dream						
Dream narrative	Sit	PF	LTM	IAF	Dream narrative	Sit	PF	LTM	IAF
I play with the famous jazz guitarist Ralf Towner. It goes quite well	S1	SP (dreamer) OP BEK (towner) ATTR (famous) ATTR (jazz g.)		IR. C RES	<i>I was on the way with someone, whom I cannot name. He was familiar</i>	S1	SP (dreamer) OP (someone) ATTR BEK		IR.C RES LTM
It is fun	EX AFF R				<i>But I cannot put a name to him</i>	C.C.			
I don't fail, and the neck of the guitar is not soft	S2	SP (dreamer) CEU (guitar) PART OF (neck) ATTR (not soft)			<i>We have a strange substance with us. In the beginning a lump of earth or clay</i>	S1	ATTR (have) CEU (substance) ATTR (strange, lump, like clay)		(s. above)
The guitarist plays along with my improvisations and holds back	S3	SP (dreamer) OP BEK (guitarist) ATTR (held back)		IR.C RES	<i>He shows me how to make new forms out of it. In fact, not by processing it but by crumbling it</i>	S2	SP (dreamer) OP (he) CEU (substance) CEU mult (forms)		IR.C RESP (shows)
Of course, I know that he is better than me, but this does not matter—	C.P.				<i>This is interesting</i>	C.C.			
(continued)									

(continued)

**Table 8.2** (continued)

Dream from clinical situation			Laboratory dream						
Dream narrative	Sit	PF	LTM	IAF	Dream narrative	Sit	PF	LTM	IAF
it is just great fun...	EX AFF R				<i>He crumbles this thing, and it becomes fine flakes</i>	S3	SP (dreamer) OP (he) CEU (thing) PART OF (flake) ATTR (fine)		IR.D (IR.C KIN (crumble) IR.D PHYS (become flakes)
					<i>F<sup>1</sup>alls down</i>	S4	SP (dreamer) CEU (substance)	LTM	
					<i>And when it reaches the ground, new forms emerge</i>	S5	SP (dreamer) CEU (substance) CEU (forms) MULT ATTR (new)		IR.C PHYS (new emerge)
					<i>I then also try to do it too but do not manage in the beginning</i>	S6	SP (dreamer)		IR. C KIN (try) FAIL
					<i>I think it does not really work for me</i>	C.C.			
					<i>He then says: no, this is quite good already. It's not perfect yet, but keep on trying and it will get better and it will work</i>	S7	SP (dreamer) OP (he)		V.R. (says)

*Sit* situation, *PF* positioning field, *LTM* locotime motion, *IAF* interaction field

All these different conceptualizations of dreams agree that the frequent nightmares, which are often told in the initial phases of psychoanalysis (also by patients in the LAC study), may hint at cumulative (early) traumatizations of the analysts which have finally lead into chronic depression. As is tried to illustrate in the clinical case: Changes in the manifest dream contents as well as in the association of the dream (indicators for the latent dream content) thus can be used as signs for often hidden transformations during psychoanalyses. If the dream subject gains a more active stance and control over dangerous situation and no longer exclusively is passive, lonely victim but in company with helping others often means that there are 'turning points' in the psychoanalytical process. Another indicator is the systematic change of affects in the manifest dreams: the spectrum is enlarged. Not one single affect (like panic) is dominating the dream plot anymore as in the initial phase of the treatment. In the frame of this paper, we only could illustrate, but not systematically show or theoretically discuss in detail, that in 'successful' psychoanalysis, the analyst achieves to bring the (split-off) trauma with its unbearable affects and unconscious beliefs back into the psychoanalytical relationship. This may lead to a modification of unconscious convictions that 'no-one- but no-one - is interested in me when I am in a unbearable, life threatening situation with complete helplessness and impotence, without any self-agency'. Of course, the traumatic experiences cannot be deleted by such experiences in the transference/countertransference of the psychoanalytical relationship but may lose its quality of the unbearable horror as well as the psychic quality of nightmares.

Therefore, changes of the manifest dreams as well as the working with dreams in the psychoanalytical situation still seems a 'via regia to the unconscious' for us. They are key to the understanding of unconscious conflicts and fantasies and possible transformations of psychic functioning. Of course we don't want to simplify these processes: they are never unilineal but very complex. Often transformations take place in a very hidden way and are characterized by ups and downs (as in real life!). But, as we tried to show in several extensive case summaries: a systematic clinical and extra-clinical investigation of the changes of dreams could be a more psychoanalytic way to study changes in psychoanalyses or psychoanalytic long-term treatments than an exclusive investigation of symptoms (see also Leuzinger-Bohleber 2015, 2016). At least we do hope that we can add some of such more complex, and in our view, *psychoanalytical* perspectives, to the comparative outcome studies as the LAC Study. Another hope is that we could illustrate that the dialogue between psychoanalysis and the neurosciences may even be fruitful in the field of comparative psychotherapy research.

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