

## **Sleep, Dreams, and Dreaming – Extraclinical Dream Research<sup>1</sup>**

Horst Kächele (International Psychoanalytic University Berlin)

In the wake of the 20th century, in November 1899 Sigmund Freud, the founder of psychoanalysis convinced his publisher to date his book "The Interpretation of Dreams" as appeared in 1900. It is fair to state that this book became a centennial publication as it tackled the old issue how to understand dreams by providing the clinical notion that by interpreting a dream was at the same time explaining the nature of dreaming.

The interpretation of dreams has been the most popular area of psychoanalytic theory and technique. The analyst's interpretations of dreams are as dependent on his conception of the function of dreaming as they are on his theory of the genesis of the dream and on the modification of the dream up to the moment of the manifest dream report. Which dreams a patient remembers, the way in which he relates them, and the point at which he relates them in the particular session and in the framework of the analysis as a whole are all factors contributing to the interpretation.

I shall outline the recent important findings of experimental dream research as they show that interpreting dreams appears more problematic than before.

The discovery of the phenomenon of Rapid Eye Movements (REM) in babies sleep by Aserinsky and Kleitman in 1953 questioned the up to then prevailing dominant psychoanalytic way of looking at dreaming and dreams and open the field of experimental dream research. What Freud could not know was that everybody goes through different sleep phases and moves into the REM phases four to five times per night. During these REM phases sleep researcher identified the occurrence of dreaming activity with very vivid imagery. But only one third of people report dreams memories in their daily life. These vivid dreams with a action story line make

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<sup>1</sup> Lecture at the American Armenian University, sept. 2015

up two to three hours per night; this means that a 75 year old person has spent six to seven years of life in a dreaming mentation.

Today it is more sensible to speak of dreaming as a process instead of using the term 'dream'. Dreaming describes a dynamic process that appears in various shapes. Mental psychic activity takes place throughout the process of sleeping; it is still true memories of dreamlike sequences have been found indeed more often after waking in the REM phases whereas waking in non-REM phases generate more rational memories. But the general notion prevailing in the seventies of the last century that dreaming is only the outgrowth of the brain to make sense out of senseless sensations has become obsolete. Hobson & McCarley (1977) published a famous paper on the activation-synthesis hypothesis that dominated for a long time the academic discussion. Freud's view seemed to be outdated. Today leading dream researchers like Mark Solms prefer to speak of two processes, REM-sleep and dream activity, that do have a correlative relation but do not have a causal relationship. So the more recent research speaks of two processes that are controlled by different brain mechanisms; dreaming is organized by frontal brain structures that represent complex instinctual motivational connections. Panksepp (1998) postulates a biological given seeking-system.

Another hypothesis has been put forward by Weinstein & Ellman (2012). They connect REM-sleep and dreaming with attachment experience and drive reduction. Following Freud's ideas they speak of an endogenous stimulation activated by the REM sleep that would explain the vivid nature of the dreams in the REM phases. They point out that deprivation of REM-sleep leads to a REM-rebound effect as if there is a need for a certain amount of REM sleep necessary for survival. Dreaming in their view has an adaptive function.

A fairly new topic in dream research has to do with the role of the neuro-hormone oxytocin. The same brain regions that are involved in attachment-relevant situations, i.e. amygdala and anterior temporal and orbito-temporal cortex, have been shown to be activated during REM-sleep. Oxytocin secretion reaches a climax early in the morning around four o'clock at a time when the amount of REM-sleep surpasses the NREM-sleep. One assumes that this supports the internalization of relationship experiences. Dreaming thus contributes to adaptation of the „inner working models“

as John Bowlby called these internal representations of our relationship experiences.

It is now interesting to note that in the early development REM sleep phases are organized in the third month of life which is the time when attachment relationships are beginning to grow. Daniel Stern (1985) described this process as „representations of interactions that have been generalised“ - short hand called RIGs. These RIGs are supported by the mirroring functions of the caregivers that contain and modulate the interaction with the baby (Fonagy et al. 2002). This developmental step signifies the begin of social relations. In this vein dreaming during the REM-sleep may be looked at continuous internal stimulation for the work of internalization of experience.

The development of the capacity to dream has been the object of only a few longitudinal studies. Foulkes (1999) reported that children reach the level of adult dreaming only around the age of 13 years. Three-to five year old children only have short memories of static dreams with little actions involved. These dreams often are populated with animals (40%) and only rarely with people (20%). In most of these dreams there is no dream-Ego. Only in the age of 7-9 he found a dream-ego with more actions. Between the age of 11-13 the influence of social experiences becomes more present: girls dream more of their female friends, boys more of their male companions and not surprisingly more of aggressive actions.

Freud's view that dream is the guardian of sleep must now be regarded as disproved; on the contrary, sleep is the guardian of dream. This is one of the fundamental conclusions which must be drawn from the many psychobiological investigations of dream and sleep. Dreaming, the mental activity of the psyche during the sleep is much more encompassing as Freud and the following generations of psychoanalysts have assumed. In order to devise an adequate psychoanalytic theory of dreaming one has to respect the findings of the recent dream-sleep research.

One of the first fact is to accept that there is no such thing as the dream; dreams have many shapes and configurations, they have different features. Today it is useful to distinguish between different types of dreams f.e. dreams from REM-phases, NREM dreams, sleeping in dreams, white dreams, night terrors dreams, lucid dreams, wet dreams, day dreams.

In most of the dreams visual components dominate (60%) but also acoustic

phenomena or body sensations appear. Never or rarely never (1%) smell or taste sensation appear. Also thought processes appear that are more frequent than emotions. If they are reported most of the times they exhibit the same qualities as in waking life. The most frequent affect in dreams with normal people is joy followed by anger and anxiety.

Day residues are regarded as the main features of the manifest dream. More than 70% of the subjects, objects and sceneries that appear in dreams can be connected to events of the last week. Furthermore most dreams of healthy people are more likely to be banal dealing with daily life aspects than are not- in contrast to what many people think, loaded with sexual or aggressive content (Strauch & Meier 2004). Another salient finding is the so-called Wake Dream Continuity (Revonsuo 2000). What has been salient during the day, and has not been resolved, most likely will appear in the dreams in the following nights. Other researchers like Hobson et al (1998) stress the alternative hypothesis, the so-called complementary hypothesis. They focus on the loss of logical thinking pointing out a specific reduction of frontal brain activity in dreaming. My patient Franzisca X dreamt the fulfillment of her narcissistic wishes that were in sharp contrast to her real disappointing life situations. Both aspects may be seen as complementary action.

Dreams by no means are ready made products. After waking up the process of dreaming is not finished. Dreams are continuously worked over and changed. What is told during psychotherapeutic sessions are selective products that sometimes have little in common with what was dreamed during the nights. When a dream is told a second time it may become obvious that changes have been made. Some parts are left out, others are added to it. The person to whom a dream is told seems to play an important role in this process. This feature is important to understand this reporting of dreams in a psychoanalytic session. Often dream reports are fitting into the ongoing therapeutic relationship (Kächele & Deserno 2009). Therefore the working with dreams in sessions can be understood as part of the dream process itself.

So today a dream is regarded as a multifunctional activity. Freud's main thesis that dreams have a wish fulfilling task is only one of many functions. Consolidation of memory, problem solving, affect regulation, coping with stress and conflict solution

are all functions of the dream process.

To end let me report to you a little piece of my research.

A often repeated opinion within clinical quarters is the critical statement, that patients dream correspond to the theory of their therapists. If at all some kind of proof could be based on the famous study of Hall and Domhoff (1968) that compared Freuds and Jung's own dreams with the content-analytic system developed by Hall und van de Castle (1968). My doctoral student Christoph Fischer and me, decided to examine this issue (Fischer 1978; Fischer & Kächele 2009).

Thirty dreams from each of eight patients - four in Freudian therapy and four in Jungian therapy - were compared both in terms of kinds of content and in terms of changes over time. The patients were matched in diagnosis, age, sex, and social background. In the first third of the dream series, Freudian patients dreamt more "Freud-syndrome" dreams, and Jungian patients dreamt more "Jung-syndrome" dreams, producing a significant difference. In the last third the difference was no longer statistically significant. These findings support the hypotheses that the theoretical orientation of the therapist exercises an initial influence on the dreams of the patient, and that this influence diminishes as the treatment progresses and the patient becomes more independent from the therapist.