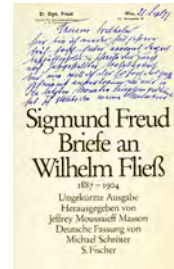


## Psychoanalysis and Neuroscience

some thoughts sharing and non-shared  
ideas

Horst Kächele  
International Psychoanalytic University  
Berlin

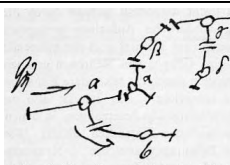


„I m pretty alone with my ideas“.....  
writes Freud to his colleague W. Fliess in  
the letter from May 21, 1894



The draft that Freud was working on is full of ideas,  
changes of ideas etc

Freud S (1895 (1950) A project for a scientific  
psychology. In: Bonaparte M FA, Kris E(Eds): The  
origins of psycho-analysis. Hogart Press, London &  
New York 1954, pp 347-445

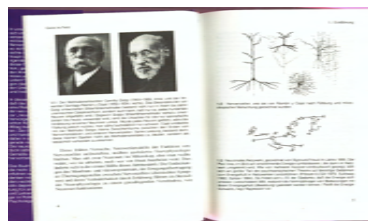


## Neuronal Net

Freud S (1895) Project for a Scientific Psychology

Quoted by

Spitzer M (1999) The Mind  
within the Net: Models of  
Learning, Thinking, and  
Acting. MIT Press,  
Cambridge, Mass.

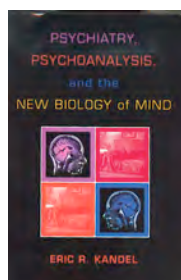


## Kandel's Message

„As a result, when I speak to someone and he or she  
listens to me, we not only make eye contact and voice  
contact but the action of the neuronal machinery in my  
brain is having a direct and, I hope, long-lasting effect on  
the neuronal machinery in his or her brain, and vice versa.  
Indeed I would argue that it is only insofar as our words  
produce change in each other's brains that  
psychotherapeutic intervention produces change in  
patient's mind“.

Kandel ER (1979)  
Psychotherapy and the single synapse. The impact of psychiatric thought on  
neurobiologic research.  
New England Journal of Medicine 19:1028-1037

Kandel ER (1998) A new intellectual framework for psychiatry. Am J Psychiat 155: 457-469



Kandel E (1999) Biology and the future of psychoanalysis: A new intellectual framework for psychiatry revisited. Am J Psychiatry 156: 505-524



- 1) All mental processes are neural
- 2) Genes and their protein products determine neural connections
- 3) Experience alters gene expression
- 4) Learning changes neuronal connections
- 5) Psychotherapy changes gene expression

Kandel ER (1998) A new intellectual framework for psychiatry. Am J Psychiat 155: 457-469



### Freud and the Neurosciences

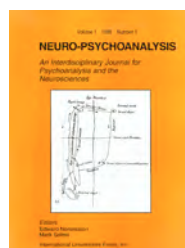
Sub-Title:

From Brain Research to the Unconscious

Contributions by

Sacks, Leopold-Loewenthal, Pines, Eagle, Linke

Symposium of the Sigmund Freud Gesellschaft Wien 1997



### Neuro-Psychoanalysis

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### Strolling around:

Consciousness and Unconsciousness  
 Repression  
 Primary and Secondary Process  
 Ego  
 Pleasure Principle  
 Libido Theory  
 Dream Theory  
 Drive Theory  
 Etiology of the Neuroses  
 Effectiveness of Psychoanalysis  
 Infantile Sexuality  
 Oedipus Complex  
 Differences between sexes

### Consciousness and Unconsciousness

Freud:

*The largest part of our psychic life is unconscious f.e..  
Posthypnotic suggestion,*

Neuroscientific findings:

*Gaps in the chain of causal event (Elisabeth von R.)*

Split-brain phenomena

*Consciousness is like the surface of the sea*

Implicit memory: Le Doux  
emotional memories

Consciousness is but the  
top of an icemountain

### Repression Defense

The neuroscientific unconscious is identical with the *descriptive unconscious of psychoanalysis*; the *dynamic unconscious is motivated*.

„If in a simple laboratory experiment significant effects can be traced with average people, then one can expect stronger effects in real life situations.

Conway M (2001) Repression re-visited. *Nature* 410: 319-310

### Primary and Secondary Process

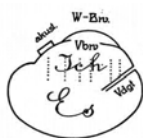
Features of the primary process are timelessness, *no contradiction*, replacement of external reality by internal reality.

If associative memory processes are detached from executive control than they function like in Korsakow-Syndrom) and how does it work with children ????

*Do we have a psychoanalytic theory postulating a continuum?*

Holt R (2002) Quantitative aspects on the primary process. *J Am Psychoanal Ass* 50: 457-482

## EGO



The prefrontal lobes execute the control functions that Freud attributed to the Ego

Freud's postulate that the secondary cognition (which means the executive control activity) is based on inhibition, has been confirmed by neuroscientific findings

What exactly is inhibited?

## Pleasure Principle

*Freud:*

*Primary process serves the pleasure principle*

*Secondary process the pleasure principle under the yoke of accommodation to reality.*

Neuro

Experimental findings demonstrate that confabulations replace unpleasurable facts!

Turnbull O, Jenkins S, Rowley M (2004) The pleasurable experimental truth of false beliefs: An emotion-based account of confabulations. *Neuro-Psychoanalysis* 6: 5-16

## Pleasure Principle

„The left hemisphere invents stories which then are checked by the right hemisphere in terms of reality fitness.“

Ramachandran V (1994) Phantom limbs, neglect syndromes, repressed memories, and Freudian psychology. *Int Rev Neurobiol* 37: 291-333

## Theory of Libido

*Libido denotes a general system of needs, a non rejectable omnipresent desire for pleasure of all kind*

*„Sexuality“ in the Freudian sense*

The SEEKING-System (Panksepp 1998) works exactly as the mental force that Freud conceptualized as 'libido'. It stimulates our brains with optimistic expectations, generates a feeling of directedness and steers each of our positive, goal-directed interactions with the world

Panksepp J Affective neuroscience: The foundations of human and animal emotions. *Oxford University Press, New York 1998*

## Theory of Libido

Between Panksepp's SEEKING-System and Freud's „Libido“ a remarkable agreement exists.

Every desire – for sex, nourishment, liquid, warmth, knowledge etc. is channeled by this system. *The messenger is Dopamin.*

As for Freud's libido – all these desires are exchangeable – it is a goalless pusher checking for world for potential sources of pleasure“.

## Theory of Libido

Who makes the decisions?

Success and failure are regulated by the functions of consciousness (*only by those?*)

Their prime functions is to monitor feelings of pleasure and displeasure that are associated with specific objects.

These experiences form the building blocks of the *representational memory*.

## Dreaming and Dreams

Freud

*Every dream represents an effort of wish fulfilment*

The SEEKING-System never sleeps; however the dopamin neurons fire in dream sleep only *from time to time*.

Dreams are imaginary interactions required by the endogenous SEEKING-activity.

Dreams take place without prefrontal inhibition präfrontale Hemmung.

Eilman S, Weinstein L (2012) When theories touch: an attempted integration and reformulation of dream theory. In: Fonagy P, Kächele H, Leuzinger-Bohleber M, Taylor D (Eds): The significance of dreams. Bridging clinical and extraclinical research in psychoanalysis. Karnac Books, London, pp 109-125

## Theory of Drives

Freud:

*Life- and Death-Drive*

In neuroscience there is nothing that could be compared to Freud's concepts.

Panksepp distinguishes independent organized drive systems f.e. RAGE-System, PLAY-System, FEAR-System, LOSS-System, CARE-System

All systems have developed independently, are good for survival and reproduction fitness.

### Etiology of Neuroses

*Freud*

*Neurotic symptoms develop because the repression of libidinous wishes fail.*

Each of these system may fail due to constitutional sensitivity or an enviromental condition or a traumatisation.

Example FEAR-System: non-changeable imprinting – Change only by impact of prefrontal regulation.

### Effectiveness of Psychoanalysis

*Freud*

*To create the most favourable conditions to solve the conflicts.*

The therapeutic task consists in strengthening the impact of the executive forces of the prefrontal lobes.

So far each fMRT study about successful talking cures confirms that the therapeutic outcome corresponds to changes on the prefrontal lobes and limbic system.

Abbass A (2014) Review of Psychodynamic Psychotherapy Neuroimaging Studies. *Psychotherapy and Psychosomatics* 83: 142-147

### Infantile Sexuality

*Freud*

*(1905d) Three essays on the theory of sexuality. Standard Edition VII: 135-243.*

The infant has to cope in all drive systems with unmodulated requests, not only in the SEEKING system

CAVE Executive control mechanisms are true late comers in development !

### Oedipal Complex

*Freud*

*Oedipuskomplex is the core complex of neuroses*

Mark Solms assumes that Freud's thesis overestimates the role of higher representational factors in the genesis of those neurotic disorders.

Research on Primates:

Suomi SJ (2004) How gene-environment interactions shape bio-behavioral development: lessons from studies with rhesus monkeys. *Research in Human Development* 1: 205-222

**Sex Differences***Freud**Penis Envy*

A large part of the considerable differences between the brains of boys and girls can be traced back to the 2. and 3. trimester of pregnancy.

Representational cognitions are more likely the consequence - not the cause - of sex differences.

However small biological differences may trigger large differences in the environment that again may trigger different drive reactions etc

**Freud's Error***Freud**Know thy self**Where ID was, EGO shall be*

His biggest error was his under-estimation of our capacity for **self-deception**

i.e. his over-estimation of **our introspective capacity** of what we can know about the functioning of our mental apparatus.

The representational cognition hides and darkens the essential forces; far more than Freud was clear about they push us ahead.