

***THE UNCONSCIOUS:
a bridge between psychoanalysis
and cognitive science
Researchers and clinicians in dialogue***

Mark Solms, Marianne Leuzinger-Bohleber

The seventh Joseph Sandler Research Conference took place at the University of Frankfurt from February 28- March 2nd. It was organized by the Research Committee of the IPA, the Sigmund-Freud-Institut (SFI) and the IDeA Center of the Excellency Initiative LOEWE in Frankfurt and the Universities Kassel and Frankfurt. Around 300 colleagues from all the IPA regions attended the conference which was supported financially by the German Research Foundation (DFG).

The Joseph Sandler conference of the IPA was brought to life in London in 1990, in response to a changing Zeitgeist in the realm of science, and therefore of psychoanalytic research, by Annemarie and Joseph Sandler, with the support, among others, of Arnold Cooper, Robert Wallerstein and Peter Fonagy. It has – together with the Research Training Program which was founded ten years later–contributed essentially to embedding psychoanalysis in the modern world of science and in the perception of the general public.

The conference this year was devoted to a central topic of the interdisciplinary dialogue between contemporary psychoanalysis and other scientific disciplines: the Unconscious. As is well-known, in Freud’s time psychoanalysis was characterized as “the science of the unconscious mind”. In the last hundred years many other disciplines, among them cognitive science, have studied non conscious mental functions. What are the differences between the conceptualisation of “the unconscious” in psychoanalysis and in cognitive science? Is the core thesis of psychoanalysis still plausible, namely that unbearable impulses and fantasies from the past and present are banished into the unconscious, from whence they continue to shape feelings, thoughts and behaviours in unknown ways? And is such an understanding of the unconscious still central for helping patients in contemporary psychotherapy?

For many authors, like the Nobel prize winner, Eric Kandel, Sigmund Freud’s dream has become a reality in recent decades: he never gave up the hope that developments in the neurosciences might someday contribute to a “scientific foundation” of psychoanalysis. He abandoned this attempt, his “Project for a Scientific Psychology“ (1895), due the obvious limitations of the neurosciences of his time (see Kaplan-Solms and Solms, 2000), subsequently defining psychoanalysis as a “pure *psychology* of the unconscious”. As Kandel and many others point out, however: the developments in the neurosciences, such as neuroimaging techniques (MEG, EKP, PET, fMRI, etc) open a new window for psychoanalysis to the non psychoanalytic scientific world. Kandel is passionate about this vision:

a) The necessity to investigate psychoanalytic treatments by neuroscientific methods

He is convinced that psychoanalytic treatments must show their effectiveness also in studies applying methods of contemporary neurosciences. He certainly is right in one respect: if psychoanalysis could show that its treatments influence the brain’s functioning, this would tremendously heighten its acceptance as a treatment method in medicine and the mental health systems. Several groups of researchers presently engage in such studies. To mention just some of them in the field of depression research: the Hanse Neuro-Psychoanalysis Study by Bucheim, Kächele et al (2008), the research group of Georg Nordhoff, Heinz Boeker et al. (2006, in press) at the Psychiatric University Clinic in Zürich, Manfred Beutel and his research team at the University Clinic in Mainz, Linda Mayes and her team at

Yale and Brad Peterson and Andrew Gerber at the Columbia University in NY. Also the research team at the SFI (Tamara Fischmann, Leuzinger-Bohleber et al.) – in cooperation with the Max Planck Institute for Brain Research -- are taking up Kandel's appeal.

b) Neuropsychanalysis

Kaplan-Solms and Solms (2000) have developed the so called clinico-anatomical research method for investigating patients with brain lesions using clinical psychoanalytical techniques. In different countries interdisciplinary research groups using this method work systematically with patients with localized brain lesions (see Leuzinger-Bohleber et al, 2003, Röckerath, Strauss, Leuzinger-Bohleber, 2010). Their findings are broadly relevant for studying the ancient mind-body problem in new and fascinating ways (see e.g. Damasio, 1999; Sacks, 2007 and many others).

The first volume of the international journal *Neuropsychanalysis* was published in 1999; leading psychoanalysts and neuroscientists published their studies on emotion and affect, memory, sleep and dreams, conflict and trauma, conscious and unconscious problem solving, etc. The International Society for Neuropsychanalysis, founded in 2000 by Mark Solms and others, organizes annual congresses of the Society on such topics around the world.

It seems undeniable that an exchange between psychoanalysis and neuroscience is most promising for both parties. The neurosciences have developed objective and exact methods to verify complex hypotheses on human behaviour, while psychoanalysis can contribute the necessary rich knowledge concerning the meanings and motivations of psychic processes, and can therefore direct interesting questions at the neurosciences.

c) Psychoanalytical conceptual research and some epistemological remarks

Another field of research, mentioned by Eric Kandel, is psychoanalytical conceptual research, a specific and genuine psychoanalytical research field. As was discussed in several papers in Frankfurt: the interdisciplinary dialogue fertilizes clinical psychoanalytical work in an indirect way. Results from neuroscientific studies will never be able to tell a clinical psychoanalyst how to cope with a certain analysis and in a certain psychoanalytical situation. The psychoanalytical treatment technique and – intuition is something fundamentally different than the further development of concepts and theories. Therefore the exchange between the knowledge base of psychoanalysis and the neurosciences always takes place at the level of concepts and theories, never at the level of concrete clinical interactions (see e.g. Leuzinger-Bohleber, 2010). Nevertheless for the further development of psychoanalysis as a scientific discipline, an openness and an attempt to achieve “external coherence” (C. Strenger) of psychoanalytical concepts with the knowledge of neighboring disciplines is inevitable. Psychoanalytical concepts and theories should not be in uncritical contradiction with the current knowledge in other scientific disciplines. Perhaps surprisingly many of the central psychoanalytical concepts of Sigmund Freud have indeed proven to be “externally coherent” with modern neuroscientific understanding of the same complex psychic processes. Some of them can even be understood more precisely and deeply. On the other hand we also have to discuss some critical points in our theorizing and modify or even re-think of some of our psychoanalytical concepts in the light of modern neuroscience (see e.g. Solms, 2013).

From an epistemological point of view we have to take into consideration that the dialogue between psychoanalysis and the neurosciences is still relatively new. Therefore some of the possibilities of this dialogue are overestimated or even idealized. Besides: according to personal experiences in a common endeavor of 20 psychoanalysts and neuroscientists studying memory, dreams, and cognitive and affective problem-solving in a joint research project 1992-1998 (supported by the Köhler Foundation, Munich,

Germany), while fascinating and innovative, is challenging and complicated for both sides (see Leuzinger-Bohleber, Mertens and Koukkou, 1998, Leuzinger-Bohleber, Roth and Buchheim, 2008).

It also has to be mentioned that the comparison of models developed by both disciplines in order to explain their specific data collected by specific (and very different) research methods is linked to complex problems of the philosophy of science, epistemology as well as critical perspectives in our culture. The well-known danger of eliminative reductionism, and the consequences of a transfer of concepts without reflecting upon them, of methods and interpretations from one scientific discipline onto another, need to be prevented.

The scientific philosopher and historian Michael Hagner investigates thoroughly and in detail how the visualization of processes which take place in the interior of our bodies and brains are influencing our thoughts, fantasies and emotions as well as our culture in general:

„There is a distinction (in studies on imaging techniques) between disordered thinking from mathematical problem-solving, ... those first memories of childhood experiences, of the last quarrel with one's life partner or the conflicts with parents, of erotic dreams about the most exciting love relationship. As is well-known, in the twentieth century it was primarily psychoanalysis which was to first single out such phenomena for research. The biographical detail, intimacies and concealed layers this discipline retrieved will doubtless never be matched by screening the brain...

This shift [from psychoanalysis to neuroimaging, L-B] could lead to circumstances in which the multiplicity and relevance of the life of the mind is measured primarily by the methods of visualization. The price for such a development consists in the fact that “the investigation into the deeper connections, the explanation, listing, narration, and evaluation, in short, historical, scientific textual linear thought is displaced by a new, image-based, “superficial way of thinking” (ebd.). The consequence of this shift with respect to the sciences of man is that the analytic depth of former forms of thought, for which psychoanalysis may be considered representative, will be replaced by the superficial insight of neuroimaging. Human understanding is thus relegated to the status of an excrescence of material forms of representation. ... „, (p. 278 f.).

3. Conceptualization of the unconscious in contemporary, pluralistic psychoanalysis

As we all know Freud effectively contributed the third largest insult to mankind by discovering “the dynamic unconscious”. He shocked us with the insight that none of us are “masters of our own mental houses”, we are driven by libidinal and aggressive drive impulses and unconscious fantasies derived from them. In every one of his works Freud warned us not to deny these unconscious powers. Only in acknowledging their effectiveness can we guarantee a wise handling of them. Turning our backs and negating the unconscious not only leads to psychic illness, it also enhances the danger of uncontrolled outbreaks of drives and threatens human cohabitation and culture.

Throughout its history of more than a century psychoanalysis has differentiated itself as a science with 12 000 members of the International Psychoanalytical Association in terms of its central concepts such as “the unconscious” to the point of a “plurality of theories” and the question arises: Does “a psychoanalysis” exist at all? Don't we have to speak of “many psychoanalyses”? While modern ego-psychology oriented psychoanalysts such as New York's Fred Pine (2011) still refer to the “dynamic unconscious” as the product of fended off impulses and drives, which are to be examined by psychoanalysis, others (e.g. Giuseppe Civitarese from Pavia) define a continuum of the conscious and unconscious, with reference to Bion. The unconscious does not protrude via, for instance, slips of the tongue into the symptoms of the conscious; rather every conscious process is accompanied by an unconscious process. Based on neuroscientific findings and experimental psychological research on unconscious forms of information processing Werner Bohleber (2011) also goes by the notion of a *non-*

repressed unconscious and differentiates it from the “*dynamic unconscious*” and a “*creative unconscious*”. Jorge Luis Maldonado from Brazil on the other hand firmly believes in the concept of the dynamic unconscious and the psychoanalytic structural theory, which distinguishes Psychoanalysis from other disciplines examining hidden, non-conscious information processing. Finally, based on Jacques Lacan, Miguel Kolteniuk Krauze (2011) from Mexico City advocates two dimensions of the unconscious as a system of “primary repression, which is characterised by its inertia and lack of symbolisation capabilities and a secondary repression which is characterised by the primary process and its fate. Hence André Greens approach concerning the preservation of the drive dimension.” (S.2)

All of these authors were keynote speakers at the IPA Conference 2011 in Mexico City, themed “Exploring Core Concepts: Sexuality, Dreams, and the Unconscious”. This short summary of the diverging views is able to illustrate how the plurality of theories is a characteristic of the prosperity of modern, international psychoanalysis as a discipline which has always been concerned with highly complex clinical phenomena and has strived to decode conscious, preconscious, and unconscious inner workings in joint efforts with patients. When referring to Psychoanalysis as a scientific discipline, which just like any other science puts its findings up for a critical discussion in the non-psychoanalytic community, we must always continuously refurbish the lenses of this kaleidoscope in order to recognize commonalities as well as differences to individual conceptualisations of the unconscious and to enable fruitful discussions. This is a prerogative for any innovative advancement in psychoanalysis as an internationally acclaimed science.

3. Overview on the talks at the conference

The Project Committee for Conceptual Integration under Werner Bohleber as Chair has been pursuing exactly this goal for several years. In their presentation on Saturday afternoon they showed some of the results of their work as well as the perspectives the discourses concerning the central concept of the unconscious phantasy have taken within psychoanalysis. Riccardo Steiner, a leading expert on the history of psychoanalytic theory development commented on their work.

In all the other time slots of the conference – taking up the basic idea of the Sandler Conference by Annemarie and Joe Sandler - the clinical-psychoanalytical presentations on the unconscious were contrasted with neuroscientific talks. Afterwards the contrasting papers were commented upon by a discussant. David Taylor, one of the leading international clinicians at the Tavistock Clinic in London presented the first clinical contribution on the Friday, which was then contrasted by the theoretical paper of the renowned neuropsychologist and psychiatrist Carlo Semenza from Padua. Rudi Vermote, an internationally renowned clinical and extra-clinical researcher, then discussed both presentations.

In his public lecture on Friday night Mark Solms showed how the dialogue with neuroscience can revolutionize our conceptualisation of the conscious, the preconscious, and the unconscious, as postulated in Freud’s structural model. Renowned British computational neuroscientist and psychiatrist Karl Friston discussed his presentation. He himself presented his own groundbreaking studies of human perception and cognition, and their mathematical background, in his own presentation on Saturday morning. Again-an extensive clinical case report by Heinz Weiss was contrasted with Friston’s presentation. Both talks were then discussed by Mark Solms.

On Saturday afternoon the three subcommittees of the IPA met and discussed their future research on the Unconscious, from a clinical, extraclinical (empirical, experimental) and conceptual perspective. Three other panels, one in English and three in German, offered possibilities for the conference participants to discuss different topics in small groups (in one panel Ted Gaensbauer, from Denver, presented his most important clinical findings on memories of severely traumatized children, even reaching back to their first year of life).

Sunday morning the convergences and divergences of the neuroscientific and the clinical-psychoanalytic understanding of the unconscious were illustrated by way of the example of traumatised patients. The Israeli neuroscientist and psychoanalyst Yoram Yovell (Haifa) talked about his prospective research with traumatised patients. The research group of the SFI (Marianne Leuzinger-Bohleber, Tamara Fischmann and Michael Russ) then reported on a study in which a clinical and an extra-clinical (screening of lab-dreams via fMRI) approximation to unconscious dream processes during a psychoanalysis are being connected. Candidate psychoanalyst and neuroscientist Brad Peterson (from New York) and developmental researcher and psychoanalyst Robert N. Emde (from Denver) discussed both presentations. Robert Galatzer-Levy and Mark Solms then finally summarized the results of the conference.

4. Meeting of the three subcommittees of the IRB

All the subcommittees of the IRN had extensive meetings consulting their work in the coming years. One of the results was a decision concerning the applications to the CERT:

CALL FOR RESEARCH PROPOSALS ON UNCONSCIOUS MENTAL PROCESSES:

The Research Committee of the IPA invites proposals for small grants to support psychoanalytical research. Grants are typically awarded in amounts of \$10,000 or even less. We therefore aim to fund mainly pilot studies and to only provide seed or partial funding for larger studies. We support psychoanalytical research of all kinds -- e.g. clinical, experimental, conceptual -- without prejudice. We also fund research on a wide range of topics. In the present funding cycle we are, however, particularly interested in supporting research concerning *unconscious mental processes*. Proposals for research on this general topic will therefore be favoured (albeit not exclusively). Proposals addressing any of the following three specific questions are, moreover, especially welcomed:

1. Does unconscious affect exist? Can Freud's claim (namely that affect is always conscious) be falsified?
2. The 'unconscious' is construed differently in psychoanalysis and cognitive science. Can the existence of dynamically (as opposed to descriptively) unconscious mental processes be demonstrated empirically?
3. Psychoanalytic hypotheses are traditionally tested in the clinical situation. What role do the unconscious mental processes of *the analyst* play in psychoanalytical hypothesis testing?

(see website of the IPA)

Literature

- Bohleber, W. (2011). Response by Werner Bohleber (Major panel: The unconscious, 47th IPA Congress, Mexico City, 2011). *International Journal of Psychoanalysis*, 92, 285–288.
- Böker, H., Seifritz, E. (Hg.) (2012a). *Psychotherapie und Neurowissenschaften. Integration – Kritik – Zukunftsaussichten*. Bern: Huber.
- Böker, H., Seifritz, E. (2012b). *Psychotherapie und Neurowissenschaften: Ein Blick in die Zukunft*. In: Böker, H., Seifritz, E. (Hg.). *Psychotherapie und Neurowissenschaften. Integration – Kritik – Zukunftsaussichten*. Bern: Huber, 625–637.
- Böker, H. (2014). *Psychoanalyse und Neurowissenschaften: Ein historischer Abriss*. Erscheint in: Leuzinger-Bohleber, M., Böker, H., Fischmann, T., Northoff, G., Solms, M. *Psychoanalyse und Neurowissenschaften im Dialog*. Stuttgart: Kohlhammer.
- Brothers, L. (2002). The trouble with neurobiological explanations of mind. *Psychoanalytic Inquiry*, 22, 857–870.
- Civitarese, G. (2011). Exploring core concepts: Sexuality, dreams and the unconscious. *International Journal of*

- Psychoanalysis, 92, 277–280.
- Damasio, A.R. (1999). *Ich fühle, also bin ich. Die Entschlüsselung des Bewusstseins*. München: Ullstein, 2002.
- Doidge, N. (2007). *Neustart im Kopf*. Frankfurt: Campus, 2008.
- Fischmann, T., Russ, M., Leuzinger-Bohleber, M. (2014). Trauma, Traum und therapeutische Veränderungen. Ein interdisziplinärer Beitrag zur psychoanalytischen Outcomeforschung. Erscheint in: Leuzinger-Bohleber, M., Böker, H., Fischmann, T., Northoff, G., Solms, M. *Psychoanalyse und Neurowissenschaften im Dialog*. Stuttgart: Kohlhammer.
- Hagner, M. (2004). *Geniale Gehirne. Zur Geschichte der Elitegehirnforschung*. Göttingen: Wallstein.
- Hagner, M. (2008). Der Geist bei der Arbeit. Die visuelle Repräsentation zerebraler Prozesse. In: Leuzinger-Bohleber, M., Roth, G., Buchheim, A. (Hg.). *Psychoanalyse, Neurobiologie, Trauma*. Stuttgart: Schattauer, 172–191.
- Hampe, M. (2003). Pluralism of sciences and the unity of reason. In: Leuzinger-Bohleber, M., Dreher, A.U., Canestri, J. (eds.). *Pluralism or unity? Methods of research in psychoanalysis*. London: International Psychoanalytical Association, 45–63.
- Kaplan-Solms, K., Solms, M. (2000). *Neuro-Psychoanalyse. Eine Einführung mit Fallstudien*. Stuttgart: Klett-Cotta, 2003.
- Koukkou, M., Leuzinger-Bohleber, M., Mertens, W. (Hg.) (1998). *Erinnerung von Wirklichkeiten. Psychoanalyse und Neurowissenschaften im Dialog, Band 1: Bestandsaufnahme*. Stuttgart: Verlag Internationale Psychoanalyse.
- Krauze, M.K. (2011). Exploring core concepts: Sexuality, dreams and the unconscious. *International Journal of Psychoanalysis*, 92, 283–285.
- Leuzinger-Bohleber, M. (2010). Psychoanalyse als „Wissenschaft des Unbewussten“ im ersten Jahrhundert der IPA. *Internationale Psychoanalyse. Das Nachrichtenmagazin der IPV*, Bd. 18, Sonderausgabe: 24–26.
- Leuzinger-Bohleber, M., Pfeifer, R. (1998). *Erinnern in der Übertragung - Vergangenheit in der Gegenwart? Psychoanalyse und Embodied Cognitive Science. Ein interdisziplinärer Dialog zum Gedächtnis*. *Psyche - Z Psychoanal*, 52, 884–919
- Leuzinger-Bohleber, M., Pfeifer, R. (2002). Remembering a depressive primary object? Memory in the dialogue between psychoanalysis and cognitive science. *International Journal of Psychoanalysis*, 83, 3–33.
- Leuzinger-Bohleber, M., Mertens, W., Koukkou, M. (Hg.) (1998). *Erinnerung von Wirklichkeiten. Psychoanalyse und Neurowissenschaften im Dialog. Bd. 2: Folgerungen für die psychoanalytische Praxis*. Stuttgart: Verlag Internationale Psychoanalyse.
- Maldonado, J.L. (2011). Exploring core concepts: Sexuality, dreams and the unconscious. *International Journal of Psychoanalysis*, 92, 280–283.
- Peterson, B. (2013). “Finding the mind in the body” investigating “children-at-risk”. Paper given at the Joseph Sandler Psychoanalytic Research Conference, Frankfurt a.M., 1–3 March, 2013.
- Pfeifer, R., Leuzinger-Bohleber, M. (1986). Application of cognitive science methods to psychoanalysis: A case study and some theory. *International Review of Psycho-Analysis*, 13, 221–240.
- Pfeifer, R., Leuzinger-Bohleber, M. (1992). A dynamic view of emotion with an application to the classification of emotional disorders. In: Leuzinger-Bohleber, M., Schneider, H., Pfeifer, R. (eds.). “Two butterflies on my head...” *Psychoanalysis in the interdisciplinary scientific dialogue*. New York: Springer, 215–245.
- Pine, F. (2011). Beyond pluralism: Psychoanalysis and the workings of mind. *Psychoanalytic Quarterly*, 80, 823–856.
- Sacks, O. (1985). *Der Mann, der seine Frau mit einem Hut verwechselte*. Reinbek bei Hamburg: Rowohlt Taschenbuch Verlag, 1990.
- Solms, M. (2013). Das bewusste Es. *Psyche – Z Psychoanal*, 67, 991–1022.