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COMMENTARY

Continued dialogue on the Oxford-style debate from the 15th annual congress of the international neuropsychanalysis society, New York City, 2014

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“This house believes that neuroscientific terms must never replace psychoanalytic ones.”

Introduction

The first issue of last year’s volume of *Neuropsychanalysis* (17–1) published the arguments of the four speakers who participated in the Oxford-style debate held during the 15th neuropsychanalysis congress in New York City: Ariane Bazan and Richard Kessler for the motion, and Lisa Ouss and Nikolai Axmacher against the motion. The four speakers had two rounds in the actual debate, but they also had the chance to share their ideas in writing and carefully read one another’s a year and a half later. Time seems to have strengthened their original thoughts. Ariane Bazan goes back to the clinical

work in psychoanalysis, to emphasize how neuroscientific terms can never replace psychoanalytic ones without the risk of it not being psychoanalysis anymore. Richard Kessler found more examples of a dialogue that does not lead to neuroscientific terms replacing psychoanalytic ones. And Nikolai Axmacher goes back to the roots of psychoanalytic terms in the neurobiology of the nineteenth century, suggesting that psychoanalytic concepts naturally go together with neuroscientific ones. The speakers reply to one another with the understanding that this debate is still open, and will probably remain so for many years to come, due to the complexity of the matter.

About incompatible and compatible scientific objects

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The first round of the Oxford-style debate “This house believes that neuroscientific terms must never replace psychoanalytic ones” has featured four quite heterogeneous contributions, differing both in their conclusions and in their perspective (Flores Mosri et al., 2015). While Lisa Ouss and I argued that psychoanalytic theory has since its beginning been influenced by neurobiological concepts, and will likely continue to be in the future, Ariane Bazan and Richard Kessler emphasized the distinctiveness of a neurobiological and a psychoanalytic perspective, which renders all possible attempts to replace psychoanalytic

terms by neuroscientific terms futile. This disagreement is not surprising – Freud’s texts already contained both instances where he expressed his belief that one day purely psychological (i.e. psychoanalytic) concepts will be replaced by neurobiological terms (e.g. see the citation at the beginning of Lisa Ouss’ contribution), and others where he emphasized their independence, at least for the time being. In the century of psychoanalysis that has passed since, arguments both for and against a neuroscientific-psychoanalytic intermingling can be found. So, what could I add in the necessarily short and certainly indecisive second round of our

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debate? I would like to take this opportunity to address one important epistemological issue that has been brought about by Ariane Bazan, because I think it is at the basis of the different opinions in this debate: The question to which degree neuroscientific and psychoanalytic approaches are compatible.

In her contribution, Bazan adopts a neo-Kantian perspective (colored by Lacanian influences). Her main argument is that while dual aspect monism assumes that brain and mind are only one object that is perceived via two different perspectives, in fact they should be considered as two different objects, because objects are “shaped” by the way they are accessed: “an object cannot exist as an inert object, constituted independently from its perception: an object is also shaped by the observation method applied to it, this is, by the kind of questioning through which it appears” (p. 63). Leaving aside the question what “shaped” exactly means, I will address whether the “kinds of questioning” in psychoanalysis and neuroscience are compatible or not – and if, as a result, their objects and concepts could in principle be interchangeable.

I would like to start by comparing the brain/mind dichotomy to another hotly debated dichotomy, namely the distinction between biological sex and cultural gender. According to the novel discipline of gender studies, sex cannot be meaningfully investigated culturally – it is a fact of biology – while gender cannot be meaningfully investigated biologically. In this case, it clearly makes sense to stick to the respective discourses. This is because even though both sex and gender are governed by the same overarching polarity (male vs. female – which for both sex and gender is currently viewed more as a dimensional than a categorical variable), sex and gender can, according to gender theory, vary independently: A male sex may be associated with either a male or a female gender (or both), and vice versa. In this case, the independence of the two discourses is actually at the foundation of the entire discipline of gender studies, which is based on the assumption that social/cultural gender is independent of biological sex. Assuming this independence allows one to investigate the social and cultural mechanisms through which gender is constituted, either via external effects (e.g. related to specific political practices), or via self-determined “ethics” (in Foucault’s sense). In this case, sex and gender belong exclusively to distinct disciplines, and intermingling them would undermine rather than inspire further scientific insight¹.

Bazan continues by stating that while brain and mind are different kinds of objects that are each “constituted” through irreducibly different types of accesses, there is only one underlying “reality.”

Again, this view dates back to Kant, who considers that underneath the constitution of an empirically accessible world, there is an objective reality (the “Ding an sich”), which, however, can never be directly perceived or investigated. Here, I want to refrain from metaphysical reasoning about whether reality in itself (the “Ding an sich”) is an appropriate object of investigation or not. Instead, I would rather like to discuss if neurobiology and psychoanalysis are as essentially independent as gender studies and biology are.

I agree with Bazan that biology and psychoanalysis have been traditionally considered distinct, are using different types of methods, and belong sociologically to different areas of science. However, in contrast to the field of gender studies, psychoanalysis was NOT developed as being independent from neuroscience (on the contrary: see Freud, 1895). In fact, central Freudian ideas could not have been conceived without (neuro)scientific ideas such as Bernard’s “milieu intérieur” (a predecessor of homeostasis and the constancy principle), the drive, or free energy (a term which Kessler suggested to belong to the “world of metapsychology”, but which has actually been derived from thermodynamics; see Carhart-Harris and Friston, 2010).

It seems that the etymological descent of psychoanalytic terms from (neuro-) biology is an undeniable fact even for proponents of the view that psychoanalysis and neuroscience should remain distinct. However, some theorists claim that even though Freudian vocabulary is strongly influenced by the biology of his time, this is (1) either a mistake that should be abandoned in proper psychoanalytic reasoning (see Habermas, 2005) or (2) only true at the superficial level of these terms, while actually biology and psychoanalysis mean different things when they use terms like “drive” (e.g. Wegener, 2004). So, leaving etymology aside, are the objects of psychoanalysis and neuroscience (the mind and the brain) irreducibly distinct? One may be tempted to argue that they are, stating that brains can only be investigated biologically, whereas minds can only be accessed introspectively. However, this is certainly not true. The business of psychoanalysts (and cognitive neuroscientists) consists in trying to understand other people’s minds, and it is common psychoanalytic knowledge that introspection only sees parts of the mind – and in an often distorted and clearly falsifiable manner (e.g. Axmacher, 2013) – whereas the mind’s most essential parts are unconscious. Again, here is a meeting point with neuroscientific research, which emphasizes that our feelings, cognitive acts, and behavior are typically governed by uncontrollable forces “behind our back.”² ***Indeed, neuroscience is much more closely linked to depth psychology than it is to phenomenology.

105 Bazan further states that “there is no one-to-one linear correspondence between the mental and the biological, beyond the common intersection points” (p. 64). This is certainly true. In fact, it is common knowledge in the cognitive neurosciences that one and the same mental (in this case: cognitive, but the same argument is true in the affective domain) state can be associated – at least at the relatively coarse level at which the brain and the mind can be accessed – with various different activity states in the brain and vice versa. This problem poses severe constraints on typical interpretations of neuroimaging studies via “reverse inference” (which follow this logic: cognitive processes A, B, and C have in previous studies been associated with activation in brain areas X, Y, and Z; during our task, we see activation in brain areas X, Y, and Z; and therefore cognitive processes A, B, and C must have occurred). This issue has been discussed in detail elsewhere (Axmacher, Elger, Fell, 2009; Henson, 2005; Poldrack, 2006). However, the specificity of the brain/mind link can be empirically studied, for example, using brain decoding approaches that quantify the likelihood of a cognitive state to occur given a certain brain state. The problem of reverse inference is thus by no means a principled argument against the compatibility of a cognitive and a neurobiological approach.

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Next, Bazan presents an interesting case study to support her point that psychoanalysis and neuroscience are irreducibly independent approaches, and concludes: “We cannot do anything with this life story in a neuroscience framework” (p. 64). Again, I dare to say that I respectfully disagree. Of course, this personal history is very remote from classical neurobiological studies, for example, on cell functions or from broader-level knowledge about brain organization. However, considering the roots of crucial psychoanalytic concepts in neurobiology, any (Freudian) psychoanalytic interpretation is infected with neurobiology. Moreover, current metapsychological proposals such as that of the “conscious id” (Solms, 2013b), which are not only influenced by, but are actually based on findings from the affective neurosciences, are (in my opinion) likely to have an important impact on psychoanalytic theory and practice. The same is true for the intra-personal and inter-generational transfer of affects and specific traumatic relationships as described in this vignette, an important issue of current and future research in the affective neurosciences and epigenetics. The conclusion “We cannot think these questions in biological terms” is thus in my view at least premature.

Finally, Bazan emphasizes that neuroscientific research can benefit from, and is even in need of, input from psychoanalytic concepts: Psychoanalysis

“is able to offer concepts which neuroscientists might be in need of to make sense of the brain circuitries and their productions” (p. 64). I could not agree more. To me (as a cognitive/affective/psychoanalytic neuroscientist), psychoanalysis is important because it is the theory of the human mind with the broadest scope – the one which takes the complexities and ambivalences of human everyday experience and psychopathology really seriously. It does not try to “explain away” currently incomprehensible or embarrassing phenomena; it certainly does not assume that human behavior is fundamentally rational or even typically adaptive, but is built on a view of the inner life as governed by conflicts, internalized affective relationships toward others, and ultimately unsatisfiable drives and wishes³. Indeed, in his contribution, Richard Kessler describes various examples where neuroscientific research and theorizing is building on psychoanalytic concepts. So, contrary to the view that psychoanalysis and neuroscience constitute their objects entirely independently, they have always influenced each other, and will – in my opinion – continue to do so.

To conclude: Psychoanalytic theory has since its beginning received important insights from various disciplines, including neurobiology; neuroscientific research is increasingly investigating psychoanalytic concepts, and incorporates psychoanalytic knowledge into its theories; and this is because the two approaches are not mutually exclusive as other disciplines are, but share various basic assumptions, in particular the view of the mind/brain as governed by unconscious processes.

Notes

1. Bazan refers to physiology and chemistry as a comparison: “There is no doubt that physiology is an autonomous discipline and that its concepts, even if there are direct intersection points with chemistry, will never be replaced by chemical ones.” However, even though an organism’s body functions can be described on the level of system’s physiology (e.g. its heartbeat, its kidney functions or the processes in its nervous system) independent from its underlying molecular and biochemical processes, this does not mean that they have to remain separated. Instead, the goal of various research programs (maybe currently most famous among them the “Human Brain Project”) is to be able to describe physiological macro-level processes at a molecular level. Building such links will likely affect the taxonomy within the field of physiology as well.
2. I am aware of the necessity to distinguish between a cognitive and a psychodynamic unconscious. Investigating the latter requires not only accessing non-conscious processes, but also showing how they become non-conscious because they are related to psychodynamic conflict (for current neuroimaging studies

on conflict-related repression, see Kehyayan, Best, Schmeing, Axmacher, & Kessler, 2013; Schmeing et al., 2013).

3. As a side note, though, I would like to add that I find the metaphorical link of neuroscientific research to Aesop's fable somewhat misleading because no serious

neuroscientist would claim that cognitive concepts could be fully understood by a pure bottom-up approach, without considering cognitive theory. Similarly, psychoanalytic explanations can never be exclusively derived from the clinical situation, but are influenced by various theories and concepts.

If psychoanalysis is unfaithful to clinical work, it loses its soul

Ariane Bazan*

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Both Nikolai Axmacher and Lisa Ouss point out to the existence of different types of vocabularies in psychoanalysis, with a range of words which are of metapsychological nature and seem naturally closer to non-psychoanalytic and physiological concepts such as cathexis, anxiety, drive. In reply to Lisa Ouss's lyric allegory "Qu'importe le facon, pourvu qu'on ait l'ivresse." ("To love is the main point, never mind the mistress, Never mind the bottle, what matters is the drunkenness," Alfred de Musset), I'd say there is one mistress that psychoanalysis should remain faithful to, if she doesn't want to lose her virtue, and that is the clinical mistress, psychoanalytic clinical engagement. If we think we have more or less a same concept, unifying what is derived from clinical work and what is derived from neuroscientific work – such as the concept of drive – and if, on the basis of this "common ground", we let the neuroscientific concept enter our clinical work, instead of holding on to it unabidingly, we are lost, we are lost, we are lost. Psychoanalysis is psychoanalysis because of its unique truthfulness to the clinical intimacy, and *anything less* is not psychoanalysis.

"Not psychoanalysis" is extremely interesting and extremely useful: it is cognitive psychology, it is developmental psychology, it is attachment theory, it is learning, it is neuroscience, it is the most fantastic things – but it is not psychoanalysis. The concepts derived from clinical work are pregnant with an unfathomable density of meaning – a *polysemy* – and it is vanity – and even clinical violence – to think there is a point of arrival possible where "we are ready with it," we have understood the bottom of it. It is clinical violence to introduce the neuroscientific concepts of drive or of prefrontal cortex in the listening to our patients, for example, because any injection of the clinician's generalizing knowledge is obstruction

of the mental space, which the patient is entitled to. Who do we think we are, identifying neuroscientific concepts in the speech, in the words of our patients? The clinician's role in psychoanalytic clinic is to withhold from understanding, and to remain radically beneath the speaking of the patient. His role is to support the patient's act of speaking and to function as a third point, trying to pick up the regularities, *that is*, what insists, what comes back, especially the formal regularities. This he restitutes to the patient, and the patient then works with it as he suits. From this clinical work, the clinician tries to derive a theoretical model, with theoretical concepts, covering both clinical observations (e.g. Oedipus complex) and logical theoretical deductions (e.g. primary and secondary process mentation).

Never should these concepts be replaced a priori by neuroscientific terms because these terms, speaking at best at the function and not at the subject level, can logically only imply an impoverishment of their polysemy. Take, *for example*, this "obvious" concept of drive, which has led to the development of questionnaires and a neuroscientific categorization in different types of drives, derived from neuroscientific work: I consider it outright clinical violence to conceive that the neuroscientifically established categories should enter our thinking in any manner, while listening to our patients. Thinking in terms of "play" or "love" or "fear" categories, for example, is a priori deciding for your patient that "play" has a lesser probability to mean "love" or "fear." Obviously, this is clinically unethical, to begin with, because the words used by the patient do not relate to contents in a transparent way – when does a patient speak about play? When does he speak about love, about fear? – or better even: when does he *not* speak about play, or love or fear? Who are we to say? I see no gain whatsoever

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for these tools in the clinical room, and I see an obvious potential threat to the clinics, the violence of reduction by feeling entitled to understand. Ironically, this threat is there all the more since these concepts have been proposed in all good faith by people who are not clinicians and who do not feel what the potential impact of their tools may be in the consulting room.

The importation of these tools into our clinics, has, in my opinion, again driven us away from what is our exclusive methodology, the psychoanalytic clinic. This is not new. Voltaire once famously said: “Mon Dieu, gardez-moi de mes amis. Quant à mes ennemis, je m’en charge!” (“My God, deliver me from my friends: I will defend myself from my enemies”). Since its very beginning psychoanalysis has suffered most from those who meant best for this field: a lot of “post-Freudians” have not found it necessary to work with the complexity of Freud’s metapsychological and clinical thinking: for example, Freud’s whole emphasis on, for example, the literal word forms (see the amazing radicality of it in the *Interpretation of dreams* [1900]) has quite drastically disappeared in the post-Freudian thinking. Psychoanalysis is such a high radical ethical stance that, unavoidably, it has always been prey to normalization attempts, to start with coming from those who meant best for it. Introducing neuroscientific terms is a mere new attempt of such a normalization – indeed if we apply neuroscientific terms to think, for example, categories of the drive, we allow ourselves to identify parts of the speech of our patients to those universal categories – and therefore it denatures the specificity of psychoanalysis itself.

But what am I doing in this field of neuropsychanalysis with such an orthodox, radical position? Well, the great paradox is that I not only think that this high radical stance is the only way to remain faithful to the clinical mistress, but also that it is probably the heuristically most productive way to engage into an interdisciplinary dialogue, especially with neuroscience. Indeed, this radical position does not preclude the most fruitful and most promising dialogue with neuroscience; to the contrary, this might be the very condition of it. Psychoanalysis should serve neuroscience as its horizon, as its perspective, as its “ligne de fuite” in French drawing terms – which is, interestingly,¹ translated in English, as its “vanishing line”: this vanishing line is a horizon which, structurally being further ahead, uniquely enables to tear open the thinking in the adjacent field and to unfold their inconsistencies and shadow points. Say we would equate the “drive” concept derived from clinical work, which includes also all the paradoxes as described by Freud (1915) – for example, the versatility of the object, the case of passive drives, the

grammatical logic from active over reflexive to passive – by the drive concept mainly derived from animal work in the field of affective neuroscience, we would *at once* lose all we have to offer from the specificity of our field. We would immediately lose any heuristic power that we are privileged to have by virtue of the clinical intimacy. Indeed, what we do not (yet) understand (e.g. what language grammar has to do with drives) is therefore not there! Remember Charcot’s reply, which made such an impression on Freud: “La théorie, c’est bien, mais ça n’empêche pas d’exister” («Theory is good but that does not prevent things from existing»).

Freud was radically faithful to clinical work and never searched to replace its enigmatic aspects by consensual science, often at the price of embarrassment and discomfort, especially when one knows how much he held high the scientific standard. Time and again he has re-elaborated those clinically derived concepts which had not yet sufficiently lost their enigmatic content by virtue of being resolved into logical principles: thereby, he fully relied on the polysemic density of those concepts and made no concessions to accepted science. Take, for example, that little letter he wrote to his friend Fliess in 1897: “Mr. E., whom you know, had an anxiety attack at the age of ten when he tried to catch a black beetle, which would not put up with it.” The meaning of this attack had thus far remained obscure. Now, dwelling on the theme of “being unable to make up one’s mind,” he repeated a conversation between his grandmother and his aunt about the marriage of his mother, who at that time was already dead, from which it emerged that she had not been able to make up her mind for quite some time; then he suddenly came up with the black beetle, which he had not mentioned for months, and from that to ladybug [*Marienkäfer*] (his mother’s name was Marie); then he laughed out loud and inadequately explained his laughter by saying that zoologists call this beetle *septem punctata*, or the equivalent, according to the number of dots, although it is always the same animal. Then we broke off and next time he told me that before the session the meaning of the beetle [*Käfer*] had occurred to him; namely: *que faire?* = being unable to make up one’s mind ... *meschugge!*: take that wonderful last word, that Bonaparte wanted to have erased: *Meschugge! Meshugge*, says Freud and what he actually says is: “That the symptom of Mr. E. would be derived from a word form that is completely crazy!” (And how much is this still the reaction of about any non-psychoanalytic or even most psychoanalytic scholars!) But, luckily, the guy listening here is no less than Freud, and this man remains faithful to the mistress of clinical empiricism: to understand the clinical event, he

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has to make new assumptions and this is where his word-presentation/thing-presentation scheme of *On Aphasia* (1891) takes its roots, from there on starts the most fabulous amazement on how much the unconscious is linguistically structured with books such as *The interpretation of dreams* (1900) and *Psychopathology of everyday life* (1901), and it is the nodal point of his metapsychological thinking in 1915 on the structure of the unconscious.

This is an example of what psychoanalysis has to offer, and already this is ground-breaking. Not empathy, not attachment, not play, etc. make the difference, **that is**, not the concepts you do not need the vulnerable intimacy of the clinical situation for, but for which any kind of clinical work, or everyday life experience for that matter, will do. To come up with the suggestion that symptoms are formed on the basis of word forms, in relative autonomy from their semantic meaning, you need the intimacy of the psychoanalytic clinic. In 1915 Freud shows that

grammar is what enables the transition of the drive economy from “use/look at” to evolve over “use oneself/look at **oneself**” towards “being used/being looked at” whereby the transition can happen in autonomy from external influence on the basis of the grammatical template (and as the specific variants “do-do oneself-being **done**,” declined over two of the three major motor systems in humans, namely the hand and the ocular motor systems). To come up with this crazy idea that there is a grammatical logic operating the drive economy in humans, again, you need to radically respect the complexity of what exists, presented by the clinical experience, even if you do not yet understand it. If neuroscience is in search of a theoretical frame by which its logic can be challenged, never should we relinquish relying strictly upon the clinical origin of our concepts, even of the more metapsychological ones, which seem to more readily lend themselves to replacement by neuroscientific terms.

Note

1. Indeed, interestingly, if one of the fields has to vanish, in the proposed logic, it would be neuroscience, not psychoanalysis ----

Dangerous crossings: The lure of the senses

Richard J. Kessler*

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So¹ here I am a year and a half after the debate still mystified that our side (Ariane and I) lost. Was there really a majority in the audience who could envision psychoanalytic concepts being *replaced* by neuroscientific ones? Was it simply the word *never* that spooked them? After all, there has been a great deal of interdisciplinary work **during** the last few decades and it would be hard to find too many people advocating a position that explanations of a psychological nature could actually be reduced to those of a natural science. Ariane (Bazan, 2015) reminds us that anything physiological is also chemical, but no one argues that physiology can be reduced to chemistry. So I'm thinking it should've been unanimous in the other direction!

Moreover, I thought that Ariane, as Freud (1891) had, in *On Aphasia*, made an air-tight case that there

is “no one-to-one linear correspondence between the mental and biological” (Bazan, 2015, p. 64) and therefore “a vocabulary proper to each domain” (Bazan, 2015, p. 64) is necessary to describe its mechanisms and dynamics. Even Nikolai (Axmacher, 2015) tells us that he initially sought to defend the other position because “to my knowledge there is currently no discussion of any specific psychoanalytic term being replaced by a neuroscientific term, and this does not seem likely in the near future” (Axmacher, 2015, p. 65). Yet many apparently envisioned this future. Nikolai did proceed to offer examples of current work and possible future neuroscientific discoveries, but curiously, looking through his *futurescope* he did not see them replacing psychoanalytic concepts, but only elaborating or changing them. In other words, he saw psychoanalytic

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concepts being influenced by research in other disciplines including neuroscience and being changed or replaced with *other psychoanalytic concepts*.

Maybe my other opponent, Lisa (Ouss, 2015) has suggested an explanation. She offered the observation that the Freudian vocabulary has at least three sources, words from everyday language **such as** anxiety and guilt; those reappropriated or reinvented by Freud from other sciences **such as** affect and association; and new terms **such as** the Oedipus Complex and *metapsychology*. Aha! *Metapsychology*! Could it be that the psychoanalytic metapsychology that I presented in my own initial debate round (Kessler, 2015) as the bridge between psychoanalysis and neuroscience is really a Trojan horse? Does it appear to some that the disciplines are so close together now that rather than coordination and integration, invasion will ensue? Maybe the subtext of the debate is whether neuroscience will replace metapsychology?

Perhaps. After all, psychoanalytic metapsychology emerges from Chapter 7 of the *Interpretation of Dreams* (Freud, 1900) and inhabits what Freud called the mental *apparatus* and is therefore mechanistic in the manner of neuroscience. Indeed, in my Chapter 7 course, at the Downstate Institute, the mental apparatus was specifically likened to a Turing *machine*.² Surely, if one were to think of metapsychology as simply obsolete nineteenth-century neurophysiology, then the concepts of the new biological (as opposed to computational) neuroscience mechanists (Talvitie, 2012) would have great appeal. But many have argued that the concepts of the Project (Freud, 1895) and Chapter 7 are neurophysiologically clad propositions (Kanzer, 1973), and in reality substantially metaphorical (Mancia, 1983). If so, they are surely a powerful and generative set of metaphors articulating what tasks this apparatus must perform in order to carry out the imperatives of biological evolution (self and species preservation).

Freud intuited the basic insight that psyche evolved out of the human conditions of physical existence in the world. He imagined it in terms of primary process mentation in the context of the abiding libidinal investment of human bodies within their relational matrix, from birth on as basis for the development of symbolic activity that is the currency of our existence in the social world. (Kessler, 2015, personal communication)

Such an insight and its myriad implications should stand as a true discovery, something found in nature. It is also profoundly psychoanalytic and irreplaceable!

If there be something to my argument about the danger in metapsychological bridge crossings, the solution I propose is to revisit with vigor the bridge itself,

for doing so can only lead paradoxically to a renewed appreciation of the gap between psychoanalytic and neuroscientific explanation.³ For example, a full appreciation of the psychoanalytic concept of the *wish* and in particular *hallucinatory wish fulfillment* and how it forms the basis for an understanding of a host of other mental processes such as memory, perception and reality testing can serve as an antidote to any concern that it could be diminished or replaced by a neuroscientific concept.⁴ Continued exploration of the role of the mesocortical, mesolimbic dopamine systems in dreaming and in waking life and therefore the confirmation of the role of motivation and emotion in mental processes should (if anything) enliven our interest in the wish.

But the record so far of our bridge crossings is pretty clear. No replacements of psychoanalytic concepts are in the offing. The primary processes have survived a drastic reduction to an operational definition by experimental psychology (Brakel & Shevrin, 2008) and a visit with a neuropsychopharmacologist and physicist (Carhart-Harris & Friston, 2010) and emerged not only unscathed, but reinvigorated. Solms (2013a) and a cadre of new neuropsychanalytic researchers have slain the dragon of radical scientific reductionism embodied in the dream research of Hobson (2013). Panksepp's (1998) work has led to a much needed return to the study of drive theory with the promise of a détente between libidinal and attachment templates. And of course, although Solms' *Conscious Id* (2013b), building on Panksepp's work in affective neuroscience, has challenged some fundamental details of the Freudian mental apparatus, the ensuing discussions have been rigorous, enlightening and fortifying. Psychoanalytic metapsychology has **proved** to be invaluable in responding and adapting to this and other challenges of new biological considerations. In fact, Nikolai (Axmacher, 2015) actually mentions this work of Solms and anticipates "important *changes* (my italics) to psychoanalytic metapsychology" (p. 66).

I would like to close with a vignette to illustrate another point about the uniqueness of the psychoanalytic instrument (and therefore its concepts). And it is indeed an instrument, in that it allows its practitioners to see things that would otherwise remain invisible, like microorganisms before the microscope.

I was invited to the premier of a movie, *Sleepless in New York*. The movie starred Dr Helen Fisher, an internationally prominent biological anthropologist, and three individuals who had recently been rejected by their boyfriends/girlfriends. It chronicled their lives in real time as they dealt with their losses. They also were subject to a variety of fMRI studies to demonstrate the neurophysiology of romantic love

and loss. Various scientific explanations were offered from neuroscience, evolutionary biology and socio-biology to help understand their reactions. One woman, Alley, who had the most difficult time of all, described a years' long, idyllic, Hollywood-like romance. As she recalled the relationship, she tearfully recounted the most magical feelings of all as when her boyfriend *carried her to bed at night*. At the end of the movie she is describing how she is finally moving on. In an imaginary conversation with the ex-boyfriend, she speaks of her gratitude for things she learned and experienced and in particular that "you were with me when my father died."

After the conclusion of the movie, there was a question and answer period with Dr Fisher, the movie director and the three individuals. I asked Dr Fisher, in light of what Alley had said about the death of her father, if she would comment on other work she has done on mate selection and attachment. She seemed puzzled by my question. She even asked another scientist from the audience to ask me what I meant. Finally, Alley volunteered the following, "my relationship had nothing to do with my father's death. After all he died when I had only known my boyfriend for two weeks!" At this point, Dr Fisher pointed out to the audience as an explanation, that I was a psychoanalyst.

Exactly!

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Notes

- Given that "ego is first and foremost a body ego" (Freud, 1923, p.27), "explanations of mental phenomena which can be verified by the senses or for which one can imagine real world representations ... will be forever appealing and seem more real than psychological inferences about process" (Kessler, 1996). In other words the brain will always feel more *real* than the mind.
- This course was brilliantly fashioned at the dawn of the age of computers by Martin Blum.
- A quote from Neils Bohr seems apropos: "How wonderful that we have met with a paradox. Now we have some hope of making progress" (Moore, 1966, p. 196).
- "What is now widely accepted is the once radical notion that perceptual consciousness is endogenously generated; exteroceptive stimuli merely constrain and sculpt what is fundamentally a hallucinatory process (see Blom & Sommer, 2012 for reviews)" (Solms, 2013b, p. 6).

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