



Clinical Intuition under Scrutiny: From Potholes to Possibilities

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ABSTRACT

The two commentaries on “Varieties of Clinical Intuition: Explicit, Implicit, and Nonlocal Neurodynamics” approach the subject from radically different perspectives. While de Peyer focuses on clinical aspects of utilizing local and nonlocal informational channels within analytic work, Butler brings up wider socio-political implications involved in the collaboration between psychoanalysis and the natural sciences. We affirm Butler’s social justice agenda while taking issue with his unwitting form of reductionism inherent in his post-modernist argument for hermeneutics in rejection of science’s role in psychoanalysis and confusion about different levels of self-organization in informational dynamics. We are entirely in agreement with de Peyer’s suggestion that affect is the connecting thread between all forms of intuition, including its uncanny dimensions. Our fractal epistemology supports her suggestion of fuzzy boundaries between local-interactive and nonlocal-participatory forms of intuitive knowing. We end with de Peyer’s questions surrounding the clinical value of intuitive information sharing, methods for its enhancement, and the importance of clinical judgment in working with “extraordinary knowing.”

The importance of contextualism

The primary focus of these authors is to facilitate the use of “extraordinary knowing” in clinical work by offering a viable scientific model for “uncanny” phenomena that helps to dispel ungrounded skepticism based on narrow materialistic interpretations driven by the reductive scientific paradigm. In the sections below, we start by clarifying our epistemological framework in hopes of countering many of the problems illuminated by Butler. Then, we turn to de Peyer’s questions about the utility, clinical value, and experience of intuitive awareness and nonlocal information sharing.

Toward the beginning of his commentary, Butler states his aim—“not to criticize Shapiro and Marks-Tarlow’s precise and potentially trailblazing work but to critique, in a Kantian manner, some of the social, political, and technological conditions that make their work possible” (this issue, p. 283). We share Butler’s social justice concerns; an underbelly of suppression, exploitation, and misinformation has haunted mainstream Western culture for centuries, including the misuse of science and technology for xenophobic purposes of social control. Butler’s narrative emerges from a postmodern tradition, which when applied to psychoanalysis, includes a stance of radical contextualism (Frie & Coburn, 2011). All

knowledge is conceived to be intersectional, contingent upon its personal, cultural, and historical context. However, it is important to realize that Butler's critique aims at dynamics that appear at the *macroscopic* level of evolutionary organization, namely its psychosocial aspect. At this scale of observation, power can be abused, knowledge misused, and privilege leveraged.

The contemporary notion of *self-organization* places the concept of emergence at the heart of each evolutionary stage (Kauffman, 2007). Qualitatively different laws and patterns of organization emerge unpredictably and spontaneously at each level, such as the evolutionary transition from inorganic to living processes, when biophysiological and ecological principles come into effect. Postmodern analysis only applies to complex interactions at the psychosocial level of discourse, and neither biological, nor psychosocial processes evident in the macroscopic domain apply in the microscopic realm. Yet, throughout his narrative, Butler regularly conflates dynamics between different levels, as is evident in the following statement: "Their information channels that traverse psyche and physics are not, in [other words], socially, politically, and culturally neutral" (this issue, p. 288). Quantum informational channels, whether local or nonlocal, have no social or cultural value any more than calcium channels in a cellular membrane do, because such principles are meaningless at microscopic levels of the organization. It is how we, as individuals or society, use the information obtained that is in question here.

Unity does not imply homogeneity

We propose informational unity between quantum and classical levels of the organization as a *prime substrate* for intuitive processes, including "uncanny knowing." Tied to Bohm's vision of how *active information* continually unfolds and re-enfolds between microscopic (implicate) and macroscopic (explicate) realms, the "meta-reductive" perspective literally "goes beyond reductionism." An important reason why so many psychoanalysts have rejected the natural sciences in favor of hermeneutics is because they rightly see reductionist science as inadequate in explaining the richness and complexity of subjective and intersubjective experience. Yet, in doing so, they adopt their own reductionist assumptions that fly in the face of systemic complexity. An example of reductionism is the idea that complex wholes can be cleanly separated into their component parts, analyzed and put together again, an idea incompatible with the essence of complex systems including life and conscious experience. Psychological and post-modern reductionism represents the other side of the biological reductionism coin, where instead of consciousness being reduced to the brain, the multi-level self-organized complexity of the mind/brain system is reduced to its disembodied conscious or cultural aspects.

Science has now evolved beyond reductionism, which is primarily limited to linear assumptions and processes. Complexity science, including nonlinear dynamics, and quantum biology allow for the preservation of complexity and multi-level causality (Marks-Tarlow, 2013; Shapiro, 2015). Stuart Kauffman (2007), a leading complexity scientist, summarizes the new paradigm as follows:

Emergence, both epistemological and ontological, embraces the emergence of life and of agency. With agency comes meaning, value, and doing, beyond mere happenings . . . None of this violates any laws of physics, but it cannot be reduced to physics . . . We live, therefore, in

an emergent universe. This emergence often is entirely unpredictable beforehand, from the evolution of novel functionalities in organisms to the evolution of the economy and human history . . . In our universe emergence is real, and there is ceaseless, stunning creativity that has given rise to our biosphere, our humanity, and our history. We are partial co-creators of this emergent creativity. (p. 903)

A sea change surrounded Einstein's equations opening whole new vistas. The incredibly ambitious mind-set inflated by visions of complete certainty and predictability in the universe was humbled, as science began encountering its own limits (Marks-Tarlow, 2021). Yoked qualities, such as position and momentum, began appearing microscopically, where only one quality could even be measured at a single point in time. Statistical approximations began appearing macroscopically, in recognition that precise prediction was impossible for nonlinear processes. Ambiguity, uncertainty, self-referential paradox, and other contradictory processes—all of which are at the forefront of psychoanalysis—are front and center within these new non-reductive sciences.

And yet, the social sciences have been slow to embrace the level of complex modeling now possible. Old paradigms are slow to change in all fields. Indeed, faulty assumptions about the meaning of “meta-reduction” are embedded in Butler's description of a “parallel meta-reduction that flattens experience into data.” But his confusion brings up important questions, such as distinguishing between knowledge, data, and information. *Knowledge* relates to subjective awareness of some informational content that can be communicated intersubjectively. It is the domain of *epistemology* that formulates how we know what we know. *Data*, on the other hand, are a pulled collection of information at psychosocial levels of description, often achieved by means of computation. *Information* itself is a much broader category that forms a deep structure of reality at all descriptive levels, from epistemological to ontological, spanning quantum to atomic, molecular and organic (cellular and multicellular) scales of evolutionary organization, and psychological, social, and cultural levels of discourse. Ontologically, information can be seen as a building block of material reality itself, interchangeable with matter and energy (Wheeler, 2018). While there is no formally agreed-upon definition of information, our paper's focus on intuition allows us to anchor informational processes to the operation of conscious and unconscious, bodily based processes of discernment. We find Bateson's (2000) concept of information – “a difference that makes a difference” – quite useful. Please note that while Bateson's concept tethers information to conscious meaning-making, there is nonetheless a place for meaninglessness and “feverish nonknowledge” as counterpoints, much like the discovery of zero during antiquity, which paradoxically establishes “nothing” as “something.”

While Butler asserts that limits to knowledge are incompatible with the underlying unity between quantum and classical levels, this is not necessarily the case. He implicitly adopts a computational model when discussing experience in terms of collapsed data. While computation exemplified by the computer operations has been the prevailing paradigm underlying psychology for decades, the tide is now changing in light of the holistic sciences of complexity and nonlinear dynamics. When applied to consciousness studies, the non-computational emergent perspective strongly argues that the Cartesian brain/mind duality is itself an illusion. If the structure of both brain and matter rests on an implicate informational foundation, the very nature of consciousness and subjectivity can be re-framed as a “geometry of integrated information” (Balduzzi & Tononi, 2009), a model that specifies a fundamental psychobiological unity of diverse brain/mind processes. According to this

view, the brain/mind is seen as a unified quantum-classical informational system capable of exerting causally efficacious intentionality and exchanging information with the world around it—both through conventional local-interactive and “uncanny” nonlocal-participatory channels, which may underlie psychophysical and *psi* phenomena.

A fractal epistemology

In other writings, we have introduced a fractal epistemology approach (Marks-Tarlow et al., 2020) that furthers contextualism by modeling how the observer is implicit in the observed. Butler’s quote from Bataille is apt: “Thus, the object of my research cannot be distinguished from the subject at its boiling point” (this issue, p. 282). This quote also bridges another feature of a fractal epistemology central to de Peyer’s commentary (this issue)—nature’s predilection for fuzzy, porous boundaries. We believe that an understanding of natural fractal edges is one of the most significant aspects of the epistemology. Whether in nature or rendered by a computer, fractal boundary zones contain many paradoxical features, such as being open and closed simultaneously, bounded yet unbounded, finite yet infinite, and often deeply interpenetrating—mirroring the experience of psychoanalytic processes from within a fully intersubjective matrix (Marks-Tarlow & Shapiro, 2021).

From the perspective of natural boundaries between complex processes so often being fractal, the groups of polarities that exist within many Western languages—such as right/wrong or physical/mental—appear to be social constructions. These linguistic concepts may help with our survival and cultural transactions but they do not conform to natural proclivities for continuity, interconnection, and interpenetration. In contrast to Butler’s rail against wholeness as flattening complexity, the fractal perspective on wholeness is large enough to accommodate that which is “unknown, unexpressed, and unknowable.”

When observer/observed systems are interrelated, such as in performing quantum-level measurements, operating with complex nonlinear systems, or engaging in a complex therapeutic interplay in clinical settings, systemic behavior constitutes an emergent function of the joint observer/observed systems and cannot be understood by a reductive analysis of its constituent components alone (Marks-Tarlow, 2018). An extended meta-reductive paradigm has to incorporate *reciprocal causality*, where the emergent dynamics of the supervenient (additional, extraneous, or unexpected) observer/observed system exert causally efficacious top-down effects on the system’s sub-components. A holistic analysis of both bottom-up and top-down causal loops is required (Shapiro & Scott, 2018). In the process of psychotherapeutic interaction, a patient-therapist system is not limited to objective data of the patient’s history and presentation but also includes novel emotional, cognitive and relational configurations arising within the intersubjective matrix between participants. Studying emergent interactions requires a shift from an independent to *participant observer* paradigm where both reductive and emergent, bottom-up and top-down processes between the observer, observed, and emergent observer/observed systems can be mapped at each level of organization.

Psychoanalysis and the natural sciences

It is for reasons outlined above that we take issue with Butler’s nihilistic interpretation of the collaboration between natural sciences and psychoanalysis. We believe they have great

potential to enrich each other. If scientific discoveries are misused, this is not a reason to reject such a collaboration. As Butler himself suggests, “If...[science and technology] now produce data and information that perpetuates absolute nonknowledge, this is because of the libidinal and economic surplus that ...[a hyperindustrial society] yield, not because there is something inherently [wrong with] science or technology” (this issue, p. 290). Not only technological discoveries “in the capitalist age” but many seminal ideas over the course of human civilization – not the least Christian and socialist ideals – have been subverted to xenophobic and dystopian uses (Harari, 2014). While this does not necessarily negate their value, one role we have as clinicians and scientists is to help understand and resist xenophobic trends as exemplified in the recent events on Capitol Hill. It is also incumbent upon us to help elucidate psychological processes that enable these destructive social trends. In this light, scientific objectivity helps to ground and fine-tune subjective and intersubjective explorations in psychoanalytic work, and psychoanalytic focus on subjectivity and relationality reinforces a much-needed systemic perspective to expand the current reductionist paradigm and bring the entirety of conscious processes – including their unconscious determinants and “uncanny”/psi aspects – into the mainstream of clinical and natural science.

The clinical domain

In her commentary, de Peyer brings up three seminal questions about the use of intuitive knowing in clinical work: How do we define the clinical value of veridical (intersubjective or interobjective) intuitive knowing in the patient–therapist interaction, particularly its non-local aspects? How can we facilitate such nonlocal sharing – and indeed, should we aim to do so? And how can we best use spontaneous “uncanny awareness” in tandem with traditional local-interactive interventions to benefit the psychotherapeutic process?

In our view, the very existence of nonlocal information channels vastly expands the prevalent focus on verbal communication and associative information exchange in clinical work. Our mutual capacity to resonate with each other’s most intimate subjective experiences, whether consciously recalled or defensively repressed – memories, dreams, traumatic templates, co-occurring events – highlights a new dimension to the intersubjective process, one hereto quietly dismissed as Freud’s “uncanny,” marveled at as Jung’s “synchronicity,” or defensively shunned as psi-based telepathic and precognitive phenomena. All these processes can now be brought out of the closet and systematically explored under the umbrella of *nonlocal neurodynamics* (Shapiro, 2020).

Whatever the source of the clinically relevant information, we must preserve an open “psychoanalytic scientist” attitude: focusing on the meaning of the experience and its relevance to the here-and-now relational milieu while aiming for empirical validation to authenticate the veracity of the information obtained. Nonlocal “extraordinary knowing” has immense potential to transcend defensive intrapsychic and intersubjective configurations, but in doing so it may carry a threat of vulnerability and exposure for both co-participants. As de Peyer rightly points out, “psychic porousness in the therapist can be both an asset and a liability” (this issue, p. 297). Ideally, such knowing would help us to model healthier templates of attachment security, allowing for the authentic parts of the patient’s “vulnerable self” to be brought into therapeutic relationship, while “heeding the potential ‘shadow-side’ of one’s own intuition . . . lest one slip into over-sharing, or under-estimating

the implications of analytic asymmetry” (this issue, p. 298). The ability to utilize “extraordinary knowing” in clinical work – with or without acknowledging it – may also model a therapeutic stance of curiosity, helping both co-participants to explore why we react the way we do, facilitating a special bond of “being seen” that may have been absent in the patient’s developmental past.

Psychophysiology of alternate modes of consciousness

The question of facilitating nonlocal information sharing is a complex one. One of the authors’ conducted a recent study of the psychophysiology of shamanic trance (Flor-Henry et al., 2017). Our shamanic practitioner subject and coauthor was able to induce an alternate, shamanic state of consciousness without the use of drumming or psychedelic techniques by spending several minutes in a state of introspective meditation, which she described as trying to shift away from a habitual sensory/analytical focus of our inner experience toward a state of oneness with her surroundings. This subjective shift was accompanied by intense visual imagery and synesthetic experiences coupled with observable changes in the spectral electroencephalographic (EEG) power parameters, from the normative left-prefrontal “rational-analytic” mode to the shamanic state’s right-posterior “experiential mode” of awareness. In this mode, she reported direct synesthetic awareness of others’ subjective states, such as ‘a smell of discord.’ These findings bear clear relevance to analytic work and our potential to ‘tune in’ to our patients’ experience “beyond the words” being exchanged. Here, the metaphor of verbal/relational exchange is augmented with a nonverbal/sharing paradigm of “being there” as a form of relational interpenetration.

In a similar vein, these authors (Shapiro et al., 2017) previously explored parallel processes in music and psychotherapy, where we described a state of listening to our patients in a way we may listen to a musical performance, attending to their “relational melody,” its transference distortions, and our emotional response to it “beneath the words.” This attitude is echoed in de Peyer’s description of intuitive listening as “the act of letting go, allowing oneself to ‘float’ while listening mindfully with non-judgmental curiosity, to empathic identifications, counter-identifications, spontaneous hallucinatory sounds, smells, images, somatic sensations, and illogical reverie” (this issue, p. 299) requiring “a surrender to chaos—a dissolving of definitions between self and other—an opening to co-participation in a collective, nonlocal state of oneness” (this issue, p. 299).

One important point in facilitating nonlocal information sharing is the phenomena of contralateral and top-down inhibition, where left-hemispheric and prefrontal analytical networks assert inhibitory influence on right-hemispheric and subcortical experiential/affective areas (Schore, 2019). There are considerable data to show that altered states of consciousness are associated with a shift to right hemispheric processing and functional hypofrontality (Dietrich, 2003). Michael Persinger (1993) at Laurentian University documented a wide range of right hemispheric intrusion phenomena, which are often experienced as ego-alien, coming from “outside” of the normative left-analytical mode of self-awareness as “maximally affective and minimally linguistic.” These and other findings suggest the presence of two functional axes in self-referential information processing that underlie the spectrum of conscious states:

- (1) *The posterior-anterior axis* (subcortical/primary association areas to anterior cortical midline structures) represents an evolutionary progression from rudimentary sentience to basic consciousness. It culminates in the prefrontal anterior midline structures, which contribute to the “Self—not Self” distinction and basic feeling awareness. A release from prefrontal inhibition may result in altered states of consciousness characterized by intense affectivity, feelings of self-dissolution, and “porous” boundaries, facilitating nonlocal-participatory information sharing.
- (2) *The lateral axis* (right to left hemispheric processing) represents the most recent evolutionary progression from basic consciousness to reflective self-awareness. It culminates in dorsolateral prefrontal cortices, the dominant one on the left contributing to the experience of explicit emotional awareness and an autobiographical Self extended in time. This more recent evolutionary advance allows for the normative *rational-analytic mode* of experience characteristic of ordinary states of consciousness. The end result of dominant left-hemispheric networks engaging in contralateral inhibition of their right-hemispheric counterparts is that conscious experience is gated before it comes to explicit awareness. Release from contralateral inhibition may result in altered (or alternate) states of consciousness, such as non-verbal, time-less perceptions of reality grounded in the *experiential-intuitive mode*, with the subjective intrusion of the right hemispheric content, including its nonlocal variety, into conscious awareness.

The above psychophysiological findings can serve as one example of mutual collaboration between psychoanalysis and non-reductive neuroscience. Verbal analysis or active conscious planning of any intuitive experience, including its nonlocal aspects, is likely to inhibit it from happening altogether – the neurophysiological underpinnings of de Peyer’s paradox that “wanting it too much generally shuts it down.” A more suitable analytic attitude would be to let go of any conscious anticipation while staying open to “what my unconscious will deliver,” paying attention to one’s somatic, affective, and associative experience of being with the patient above and beyond the verbal exchange.

Emotion and the spectrum of intuitive knowing

De Peyer suggests that we need “to place intuition on a ‘fluid continuum of mutual receptivity along which sensory and non-sensory-based forms of human empathic responsiveness might be positioned” and that “lines between local-interactive and nonlocal-participatory can often appear blurred” (this issue, p. 295). Indeed, this is an apt description of fractal boundaries, such as intersubjective *self-versus-other* and interobjective *self-versus-world*, which display paradoxical qualities of both separating and uniting seemingly dichotomous domains. We would suggest that the local-interactive versus nonlocal-participatory distinction may represent another fractal boundary condition within a fundamentally unified informational domain. Here, local-interactive and nonlocal-participatory channels are simultaneously distinct yet inseparable in the context of a functioning brain/mind system that *transforms local/nonlocal information into local/nonlocal knowing*.

A question then arises: what kind of information is instrumental to nonlocal knowing? We would fully endorse de Peyer’s suggestion that “it is often *affect*...that provides the portal, or ‘bridge’ to the nonlocal mind, thus giving access to both associative *and* somatic

intuitive information” (this issue, p. 296, emphasis in the original). But we also wish to emphasize that it is not affect alone, but *high arousal affect* that offers the strongest connection between realms. This is likely another example of bottom-up and contralateral inhibition, where intense affect leads to a spontaneous overactivation of right subcortical areas, thus inhibiting the normally dominant left prefrontal networks. This type of “inhibition of inhibition” mechanism has also been described in psychedelic research, where psilocybin has been shown to inhibit the critical hubs of the *default mode network* thus releasing the full scope of subjective alternate consciousness experiences (Carhart-Harris et al., 2012).

By definition, nonlocal-participatory (NPC) channels are not limited to our immediate surroundings. Among a virtually infinite selection of informational content, it is emotional valence that helps us to select what is salient and meaningful in terms of our own wellbeing (such as in premonition of a disaster), attachment security, or relational dynamics. It is hardly accidental that “extraordinary knowing” often involves those with whom we are most intimate, while psychotherapy can provide one of the most intimate relationships possible.

New vistas

Intentionality (both conscious or unconscious) lies at the core of psychology as a science and psychoanalysis as a healing discipline. All schools of psychotherapy achieve their therapeutic effects by enabling more adaptive choices in the patient’s life, whether by focusing on emotional regulation, cognitive change, behavior modification, relational re-enactments, or unconscious developmental templates. As helping professionals, we foster exploration of why our patients do what they do, and how we can help them modify their dysfunctional life trajectories in the context of a healing therapeutic relationship. In doing so, we implicitly accept our human capacity to change how we deal with our feelings, how we conceptualize ourselves and the world around us, and how we relate to others.

At the same time, we continue to struggle with a schizophrenic position (*schizo-phrenia* – split-mind) of attempting to treat psychology as a science while recognizing that reductive science dismisses consciousness and intentionality as epiphenomenal illusions: “I think – therefore I am *not*.” While the pathways of perception-action cycle in intentional action are reasonably well understood, the rejection of “free will” and subjective agency by reductive neuroscience has been fueled as much by the Cartesian split as by a more recent controversy suggesting that an EEG-measured “readiness potential” precedes conscious choice by some 300 msec, rendering any truly “free” choice untenable (Libet et al., 1983). This question has now been resolved by Stanislas Dehaene’s team (Schurger et al., 2012) who showed that readiness potential is an artifact of stochastic dynamics and “the neural decision to move coincides in time with average subjective estimates of the time of awareness of intention to move” (p. E2910).

A wider meta-reductive framework transforms Gilbert Ryle’s “ghost in the machine” into a unified psychophysical system, where both “the machine” and “the ghost” are seen as naturalistic processes that arise out of a common informational foundation (Shapiro & Scott, 2019). Rejection of empirical science in favor of hermeneutics or “non-physical” explanations further alienates psychoanalytic thought from multiple fields of study that can cross-fertilize both psychoanalytic and scientific endeavor. These include developments in

cognitive, affective, social, and cultural neurosciences; complexity sciences and nonlinear dynamics; fractal modeling of biological processes; and quantum neurobiology, to name just a few. The nonlocal neurodynamics model provides a potential ground for fully efficacious “free will” in a material world, offering a psychophysical bridge that brings both ordinary and alternate conscious processes squarely into the scientific domain. It allows clinicians and researchers alike to discard the vestiges of Cartesian dualism and to treat mind/brain as a unified quantum/classical system with empirically verifiable physical (body/brain), psychological (mind), and psychophysical (“uncanny”) aspects to it.

A number of important questions remain. What are the exact substrates and mechanisms for nonlocal information sharing? If *psi* functions represent an evolved adaptive capacity, why do they appear to operate only sporadically? Does this represent a fundamental limitation of NPC channels or are there ways to enhance our nonlocal sharing capacity? It is the author’s sincere hope that the model outlined in our paper may facilitate further research and discussion in these areas and help to integrate nonlinear dynamics and quantum neurobiology into the science of consciousness and clinical work.

Acknowledgements

We authors are gratified for the extended discussion surrounding local and nonlocal varieties of intuition. We thank the editors of *Psychoanalytic Dialogues* for allowing this topic to come out of the shadows, where it has all too often been relegated because of the absence of a strong conceptual framework.

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