

Freud and the Matter of the Brain: On the Rearrangements of Neuropsychanalysis

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1. Neuropsychanalysis and the Problem of History

During the course of the past several decades and within the context of certain psychiatric and neuroscientific circles, psychoanalysis has become a topic of renewed interest, whose future has appeared to be in need of defending. Publications appearing as early as the mid-1980s have sought either tacitly or quite openly to resuscitate and defend the *potential* legitimacy of psychoanalytic theory and practice.¹ Neuropsychiatrist Eric Kandel, a longtime participant in this discussion (and recipient of the 2000

Earlier versions of this paper were presented at the American Psychoanalytic Association, the Max Planck Institute for the History of Science, and the Program in Literature at Duke University. I am grateful to organizers and participants at these events as well as to the editorial board of *Critical Inquiry* for their comments. I am especially grateful to a small group of scholars and faculty at Wesleyan University who read and offered some of the first and most encouraging feedback on the earliest draft of this paper. The completion of this article was assisted by a New Faculty Fellows award from the American Council of Learned Societies, funded by the Andrew W. Mellon Foundation.

1. Some examples include Arnold M. Cooper, "Will Neurobiology Influence Psychoanalysis?" *American Journal of Psychiatry* 142 (Dec. 1985): 1395–1402; Morton F. Reiser, "Converging Sectors of Psychoanalysis and Neurobiology: Mutual Challenge and Opportunity," *Journal of the American Psychoanalytic Association* 33 (Feb. 1985): 11–34 and *Mind, Brain, Body: Towards a Convergence of Psychoanalysis and Neurobiology* (New York, 1984); Antonio R. Damasio, "Toward a Neurobiology of Emotion and Feeling: Operational Concepts and Hypotheses," *The Neuroscientist* 1 (Jan. 1995): 19–25; Allan N. Schore, "A Century after Freud's Project: Is a Rapprochement between Psychoanalysis and Neurobiology at Hand?" *Journal of the American Psychoanalytic Association* 45 (Sept. 1997): 807–40; Eric R. Kandel, "A New Intellectual Framework for Psychiatry," *American Journal of Psychiatry* 155 (Apr. 1998): 457–69; and Oliver W. Sacks, "Sigmund Freud: The Other Road," in *Freud and the Neurosciences: From Brain Research to the Unconscious*, ed. Giseller Guttman and Inge Scholtz-Strasser (Vienna, 1998), pp. 11–22.

Critical Inquiry 40 (Autumn 2013)

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Nobel Prize in medicine) provided at the end of the 1990s the most candid account of how double-edged the new defense of psychoanalysis actually was:²

If psychoanalysis is to regain its intellectual power and influence, it will need more than the stimulus that comes from responding to its hostile critics. . . . One way that psychoanalysis might re-energize itself . . . is by developing a closer relationship with biology in general and with cognitive neuroscience in particular. . . . From a conceptual point of view, cognitive neuroscience could provide a new foundation for the future growth of psychoanalysis, a foundation that is perhaps more satisfactory than metapsychology.³

What psychoanalysis ultimately needed to be defended against or so it was suggested was itself—its own inevitable obsolescence, a consequence of its inability or refusal to evolve as a natural, experimental science. Only through the context of cognitive neuroscience and neurobiology, these researchers proposed, could psychoanalysis remain not only relevant but also impactful in the behavioral sciences.

The very same year that Kandel advocated for a neuroscientific reenergizing of psychoanalysis, the term *neuropsychology* was formalized in the publication of an eponymously titled journal. The first issue of *Neuropsychology* was coedited by neuropsychologist Mark Solms, one of the cofounders of the International Neuropsychology Society located in London. Solms has not only been one of the most vocal advocates of a convergence of neuroscientific and psychoanalytic approaches, but he has also become the editor spearheading the revision and partial retranslation of James Strachey's *Standard Edition of the Complete Psychological Works of Sigmund Freud*.⁴

2. Earlier contributions include Kandel, "Psychotherapy and the Single Synapse: The Impact of Psychiatric Thought on Neurobiological Research," *New England Journal of Medicine*, 8 Nov. 1979, pp. 1028–37 and "From Metapsychology to Molecular Biology: Explorations into the Nature of Anxiety," *American Journal of Psychiatry* 140 (Oct. 1983): 1277–93.

3. Kandel, "Biology and the Future of Psychoanalysis: A New Intellectual Framework for Psychiatry Revisited," *American Journal of Psychiatry* 156 (Apr. 1999): 506–7.

4. See Sigmund Freud, *The Revised Standard Edition of the Complete Psychological Works of*

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In the editorial introduction of the first issue, Solms, along with Edward Nersessian, explain that the interdisciplinary field of neuropsychanalysis assumes “the aim of reconciling psychoanalytic and neuroscientific perspectives on the mind. . . . It should be possible somehow to reconcile their viewpoints with one another.”⁵ Solms and coauthor Oliver Turnbull explain in their book *The Brain and the Inner World* that neuropsychanalysis represents a research program that aims to produce “a *method* by means of which one and the same thing can be studied simultaneously from both the psychoanalytic and the neuroscientific perspectives.”⁶ As this emerging field gained greater coherence and popularity, it became clear that *neuropsychanalysis* comprised something of an umbrella term for any research that could justifiably be situated along the boundary of psychoanalysis, broadly construed, and the neurosciences in their general, already multidisciplinary sense.⁷

But what have marked neuropsychanalytic writing and research throughout the past decades—especially the contributions by Solms—are controversial justifications for the legitimacy as well as the efficacy of the neuropsychanalytic endeavor. In their disciplinary merger, it has been argued, psychoanalysis and the neurosciences could directly benefit one another; the neurosciences could be infused with a more robust theory of subjective experience while psychoanalysis could make the transition to becoming a testable, experimental science.⁸

One seemingly essential justification for the merger, however, has been historical in nature. The fact that Freud began his career in both clinical and experimental neurology and neuropathology has accompanied and in some cases subtended all other rationalizations for the viability, necessity, and future of neuropsychanalysis.⁹ Much of Solms’s own writings have

Sigmund Freud, ed. Solms, 24 vols. (forthcoming). For a discussion of the forthcoming *Revised Standard Edition*, see Solms, “Notes on the *Revised Standard Edition*,” *Psychoanalytic Review* 100, no. 1 (2013): 201–10. A mere sample of Solms’s individual and coauthored neuropsychanalytic publications include Solms and Oliver Turnbull, “What Is Neuropsychanalysis?” *Neuropsychanalysis* 13, no. 2 (2011): 133–45; Solms, “Freud, Luria, and the Clinical Method,” *Journal of Psychoanalysis and History* 2 (Feb. 2000): 76–109; and Karen Kaplan-Solms and Solms, *Clinical Studies in Neuro-Psychoanalysis: Introduction to a Depth Psychology* (London, 2000).

5. Solms and Edward Nersessian, “Editors Introduction,” *Neuro-Psychoanalysis* 1, no. 1 (1999): 3.

6. Solms and Turnbull, *The Brain and the Inner World: An Introduction to the Neuroscience of Subjective Experience* (New York, 2002), p. 307.

7. See Solms and Turnbull, “What Is Neuropsychanalysis?” p. 141.

8. See *ibid.*

9. For more on Freud’s early work in neurology, see Harald Leupold-Löwenthal, “Freud as

included attempts to reread the history of Freud's so-called prepsychoanalytic work. It is possible, Solms in particular has argued, to read the later metapsychology as continuous with (or, at least, not resistant to) Freud's earlier neurological career.¹⁰ This argument has often been bolstered with cherry-picked passages from Freud's writings in which he appears to extol the virtues of biology or seems to suggest that a biological methodology would have been his preferred approach to clinical medicine. Freud only abandoned his biological efforts, so the argument goes, because a properly *dynamic* neurology (to match the dynamism of psychical processes) was not yet available, and, therefore, the metapsychology merely anticipated a rigorously *biological* psychoanalysis, which Freud was not himself able to consummate.¹¹

In contrast, as Solms in particular contends, the conditions for a dynamic neurology have today become a reality, thanks in part to two recent developments in brain and behavioral research. The first was the rise, especially during the 1960s and 1970s, of a functionalist neuropsychology, particularly in the writings of Alexander R. Luria.¹² The second was the development during the 1990s of affect-oriented approaches to neurobiology, exemplified in the work of Jaak Panksepp and the popular Antonio Damasio.¹³ According to Solms and Turnbull, these developments constitute large-scale transformations in brain research, according to which neuroscientific methodologies have subsequently become relevant to and also commensurate with psychoanalysis. They conclude, quite notably, "Freud would, in our opinion, have considered this a welcome and wholly legitimate development of the work that he pioneered."¹⁴

Regardless of Freud's deeply hypothetical attitudes to these scientific

a Neurologist," in *Freud and the Neurosciences*, pp. 37–46; Peter Amacher, *Freud's Neurological Education and Its Influence on Psychoanalytic Theory* (New York, 1965); Frank J. Sulloway, *Freud: Biologist of the Mind: Beyond the Psychoanalytic Legend* (Cambridge, Mass., 1992); and Solms and Michael Saling, "On Psychoanalysis and Neuroscience: Freud's Attitude to the Localizationist Tradition," *International Journal of Psycho-analysis* 67 (1986): 397–416.

10. See, for example, Solms, "Freud, Luria, and the Clinical Method," and Solms and Saling, "On Psychoanalysis and Neuroscience."

11. See, in particular, Solms, "Freud, Luria, and the Clinical Method."

12. For a concise account of Luria's research and his conception of neuropsychology more broadly, see Alexander R. Luria, "Neuropsychology: Its Sources, Principles, and Prospects," in *The Neurosciences: Paths of Discovery*, ed. Frederic G. Worden, Judith P. Swazey, and George Adelman (Cambridge, Mass., 1975), pp. 335–61. See also the essays in *Contemporary Neuropsychology and the Legacy of Luria*, ed. Elkhonon Goldberg (Hillsdale, N.J., 1990).

13. See for example Jaak Panksepp, *Affective Neuroscience: The Foundations of Human and Animal Emotions* (Oxford, 1998), and Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain* (New York, 1994).

14. Solms and Turnbull, "What Is Neuropsychology?" p. 135.

developments, neuropsychanalysis is linked to an entrenched inquiry that has persisted for years in psychoanalysis about the role of biology. No doubt beginning with Freud and sustained in various ways by his earliest collaborators and pupils, the inquiry has taken many forms; the nearly total privileging of the brain and nerves is a development that began to appear in the 1940s and 1950s.¹⁵ Yet at the same time, and given its explicit appearance at the end of the 1990s (the decade proclaimed by then-president George H. W. Bush as the “Decade of the Brain”),¹⁶ neuropsychanalysis is also linked to the recent proliferation of the neurosciences more generally, one that has resulted in an increasingly neurocentric view of personhood. This neurocentric attitude is strong enough to have incited scholars such as Fernando Vidal to argue that, more and more, “the human being is specified by the property of ‘brainhood’, i.e., the property or quality of *being*, rather than simply *having*, a brain.”¹⁷ It seems difficult to deny that popularly and also within segments of academic scholarship many of the dimensions of personhood (indeed, even humanness) are being descriptively accounted for by claims drawn out of the neurosciences; this occurs at the same time that the neurosciences are increasingly becoming the subject of scholarly interest, reconsideration, and critique across numerous disciplines.¹⁸ Still, the proliferation of the *neuro* has made

15. For some of the earlier considerations of psychoanalysis of the brain, those not yet falling within the rubric of “neuropsychanalysis,” see Mortimer Ostow, “A Psychoanalytic Contribution to the Study of Brain Function: I. The Frontal Lobes,” *Psychoanalytic Quarterly* 23 (1954): 317–38; Lawrence S. Kubie, “Some Implications for Psychoanalysis of Modern Concepts of the Organization of the Brain,” *Psychoanalytic Quarterly* 22 (1953): 21–52; Karl H. Pribram and Merton M. Gill, *Freud’s ‘Project’ Re-Assessed: Preface to Contemporary Cognitive Theory and Neuropsychology* (New York, 1976); and Howard Shevrin et al., *Conscious and Unconscious Processes: Psychodynamic, Cognitive, and Neurophysiological Convergences* (New York, 1996).

16. George H. W. Bush, Presidential Proclamation 6158, 17 July 1990, www.loc.gov/loc/brain/proclaim.html.

17. Fernando Vidal, “Brainhood, Anthropological Figure of Modernity,” *History of the Human Sciences* 22, no. 1 (2009): 6; hereafter abbreviated “B.” Other scholars, however, have offered a more moderate assessment of how contemporary brain research will affect our understandings of self and personhood. See for example, Nikolas Rose and Joelle M. Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind* (Princeton, N.J., 2013), chap. 7, especially pp. 219–24.

Yearly Library of Congress conferences and symposia followed Bush’s 1990 proclamation, with speakers who were themselves key advocates and supporters of the neuropsychanalytic convergence, including Kandel, Damasio, Joseph LeDoux, and Daniel Schacter. It is striking to notice the subtle shift in the titles of the yearly conferences themselves. The 1991 and 1992 conferences were titled “Frontiers of Neuroscience” and “Neurobiology of Learning and Memory,” respectively. But by the end of the decade, the titles seemed to mirror the sort of conflation of self and the brain that Vidal describes; the 1998 conference was titled “Discovering Our Selves: The Science of Emotion” and the final LOC conference in 1999 was called “Understanding Our Selves: The Science of Cognition”; see www.loc.gov/loc/brain/activity.html.

18. For examples of recent critical reappraisals, see *Critical Neuroscience: A Handbook of the*

its mark (quite literally) on neuropsychanalysis by encouraging the belief that, while psychoanalysis might *inform* neuroscience conceptually, it is neuroscience that can ultimately *ground* psychoanalysis scientifically.¹⁹

And so it is not surprising that neuropsychanalysis has itself been the subject of recent critical scrutiny. Scholars have pointed to the various misreadings and misappropriations by neuropsychanalytic scholars of Freud's early "prepsychoanalytic" work as an apparent justification for the belief that psychoanalysis will and must become a hard, biological science; that not enough attention is paid to the ambiguities and complexities involved in Freud's use of biology; and that far too much attention is paid (and presumption ascribed) to the conciliatory possibilities of neuroscience and psychoanalysis without any consideration of how the neurosciences and psychoanalysis might comprise an incommensurable unsettling of one another.²⁰ These critiques provide incisive readings of the latent interpretative missteps underlying the neuropsychanalytic endeavor to the extent that it defines itself as the teleological culmination of a Freudian agenda.

It is, on the one hand, important to be cautious that critique not transform itself into the implicitly regulatory practice of policing interpretations or patrolling readings and "misreadings" alike. And yet, on the other hand, what remains striking about contemporary neuropsychanalytic writings is the need to historicize in the first place and in such a way as to situate neuropsychanalysis as, not just another turn in the history of psychoanalytic thought, but as the final turn, the restorative "neuroturn." Contemporary neuropsychanalytic researchers—Solms in particular—are engaged in the production of a history of science, in this case a surprisingly constrained history—a legacy of the present rather than a history of it. As Georges Canguilhem has warned, "the scientist's historical interest is part of the heuristics of research."²¹ Pierre Macherey, rendering Canguil-

Social and Cultural Contexts of Neuroscience, ed. Suparna Choudhury and Jan Slaby (Oxford, 2012); *Sociological Reflections on the Neurosciences*, ed. Martyn Pickersgill and Ira Van Keulen (Bingley, UK, 2012); and *The Neuroscientific Turn: Transdisciplinarity in the Age of the Brain*, ed. Melissa M. Littlefield and Jenell M. Johnson (Ann Arbor, Mich., 2012).

19. See, for example, Solms and Turnbull, "What Is Neuropsychanalysis?" p. 141.

20. See Elizabeth A. Wilson, "Another Neurological Scene," *History of the Present* 1 (Fall 2011): 149–69; Stefanos Geroulanos, "The Brain in Abeyance: Freud and the Claim of Neuropsychanalysis," *History of the Present* 1 (Fall 2011): 219–43; and Constantina Papoulias and Felicity Callard, "The Rehabilitation of the Drive in Neuropsychanalysis: From Sexuality to Self-Preservation," in *Freuds Referenzen*, ed. Christine Kirchoff and Gerhard Scharbert (Berlin, 2012), pp. 189–215.

21. Georges Canguilhem, "Introduction: The Role of Epistemology in Contemporary

hem's subtlety more polemical, insists: "The scientist has too great a stake in this operation [of writing a history]. . . . Instead of writing a history, he fashions legends, *his legend*."²²

While neither affirming nor repudiating the neuropsychanalytic project as such, it may be worth thinking along with Canguilhem and wondering whether "the past of a present-day science is not the same thing as that science in the past."²³ I propose that despite claiming otherwise, neuropsychanalysis does not historically lead back to Freud, at least not as directly as Solms and others insist. The neuropsychanalytic history is much more closely linked to the history of what scholars have been lately describing as a neurological or "cerebral subject," a historical construction indebted as much to the recent proliferation of a pervasive neuroscientific rationality as it is to a more complex, polysemic, and multidimensional history of the longstanding relationship between personhood and the brain ("B," p. 6).²⁴ Instead of looking to Freud's writings as foreshadowing the inevitability of neuropsychanalysis, it may be more fruitful to view his writings as demarcating its contingency. In other words, it may be productive to ask whether Freud's writings might have embedded within them alternative possibilities for the role of the brain in psychoanalytic thought and for a different conception of a neurological subject than what circulates today. Such possibilities would not negate neuropsychanalysis as it currently stands but might productively solicit its basic assumptions. Such a consideration would affirm, from the outset, that although Freud believed psychoanalysis to be a science—that is to say, a rigorous theory and practice

History of Science," *Ideology and Rationality in the History of the Life Sciences*, trans. Arthur Goldhammer (Cambridge, Mass., 1988), p. 8.

22. Pierre Macherey, "Georges Canguilhem's Philosophy of Science: Epistemology and History of Science," *In a Materialist Way: Selected Essays*, trans. Ted Stolze, ed. Warren Montag (New York, 1998), p. 168. For an example of a more robust method of historicizing psychoanalysis, see Arnold I. Davidson, "How to Do the History of Psychoanalysis: A Reading of Freud's 'Three Essays on the Theory of Sexuality,'" *The Emergence of Sexuality: Historical Epistemology and the Foundation of Concepts* (Cambridge, Mass., 2001), pp. 66–92.

23. Canguilhem, "The Role of Epistemology," *Ideology and Rationality in the History of the Life Sciences*, p. 5.

24. See for example, Rose, "Neurochemical Selves," *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton, N.J., 2007), chap. 7; Joseph Dumit, *Picturing Personhood: Brain Scans and Biomedical Identity* (Princeton, N.J., 2003); Francisco Ortega, "The Cerebral Subject and the Challenge of Neurodiversity," *BioSocieties* 4, no. 4 (2009): 425–45; Alain Ehrenberg, "Le Sujet cérébral," *Esprit* (Nov. 2004): 130–55; Michael Hagner, *Homo Cerebralis: Der Wandel vom Seelenorgan zum Gehirn* (Berlin, 1997); and Pickersgill, Sarah Cunningham-Burley, and Paul Martin, "Constituting Neurologic Subjects: Neuroscience, Subjectivity and the Mundane Significance of the Brain," *Subjectivity* 4, no. 3 (2011): 346–65.

with conceptual purchase and viable therapeutic effects—its status as a science did not depend on the fact of biology.

The young Freud, though every bit a neurologist, was not strictly speaking a central participant in the debates and negotiations surrounding the nature, limits, and practice of neurological knowledge production at the end of the nineteenth century.²⁵ Scholars have even pointed to how surprisingly unneurological some of Freud's early neurological writings actually were.²⁶ For example, Cornelius Borck argues that Freud's earliest visualizations and visual schematizations of neurological and neuropathological structures and processes typically transcended, abstracted, and even belied neuroanatomical data.²⁷ Relatedly, it is hard to deny the stark interpretative disparities that have persisted around Freud's views on biology. He has been accused of enacting a puerile biologism as well as lauded for being a "crypto-biologist."²⁸ His metapsychology has been described as a disjointed break from his neurological work, but also as a compatible and lucid evolution of it.²⁹ These interpretative inconsistencies mirror ambivalences evident in Freud's own pronouncements about biology's role in validating the scientific and methodological legitimacy of psychoanalysis.³⁰

This essay, then, will consider alternative possibilities for the relationship between the psychoanalytic subject and the brain in Freud's writings, different, at least, from what neuropsychanalytic researchers have proposed. For Solms, Freud was essentially a dual-aspect monist and so, in theory, the psyche and the brain functioned in complete correspondence. This correspondence therefore justifies the neuropsychanalytic approach of steadily mapping neurobiological and psychoanalytic operations, pro-

25. For an account of those debates and negotiations, see Susan Leigh Star, *Regions of the Mind: Brain Research and the Quest for Scientific Certainty* (Stanford, Calif., 1989).

26. See, for example, Geroulanos, "The Brain in Abeyance."

27. See Cornelius Borck, "Visualizing Nerve Cells and Psychical Mechanisms: The Rhetoric of Freud's Illustrations," in *Freud and the Neurosciences*, pp. 57–86.

28. Sulloway, *Freud*, p. 3.

29. For examples of these varied interpretations, see Jean Laplanche, *New Foundations for Psychoanalysis*, trans. David Macey (Oxford, 1989); Patricia Kitcher, "Freud's Interdisciplinary Fiasco," in *The Prehistory of Cognitive Science*, ed. Andrew Brook (New York, 2007), pp. 230–49; and Solms and Saling, "On Psychoanalysis and Neuroscience."

30. For example, in a passage from the end of *Beyond the Pleasure Principle*, Freud concedes that the speculative "uncertainty" in theorizing the life and death drives arose as a consequence of borrowing from biology; and that biology is so much a realm of unexpected and "unlimited possibilities" that it could one day yield answers that might even devastate the very edifice of hypotheses in psychoanalysis (Freud, *Beyond the Pleasure Principle*, in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, trans. and ed. James Strachey, 24 vols. [London, 1953–74], 18:60; hereafter abbreviated *BPP*).

cesses, and concepts onto one another.³¹ I will instead argue that a different “neuropsychanalytic” possibility may reside in Freud’s work, and the crux of my argument will be organized around a reading of Freud’s early monograph *On Aphasia* (1891), mainly for the historical role it plays as a kind of arche-text for neuropsychanalytic research. As Solms and Michael Saling have proposed, “‘On aphasia’, and not the *Project [for a Scientific Psychology]*, is the ‘missing link’ between Freud’s neurological and his psychoanalytic years.”³² It will be possible, by the end of the essay, to view *On Aphasia* as initiating a very different possibility for the convergence of neurophysiology and psychoanalysis.

2. The Reflex Model and the Nervous Circuit

Before shifting to *On Aphasia* and to the writings that generally comprise Freud’s so-called prepsychoanalytic period, it is important, first, to sketch the view that Freud tends to adopt when discussing the nervous system, especially in his early *psychoanalytic* writings, that is, after 1893–95.³³ In these writings (and certainly later), the nervous system functioned explicitly as a “model” to define the psychological apparatus—but only schematically, since a further and more detailed elaboration of the nervous system would have required greater histological, anatomical, and functional specification of the brain and nerves, which would not have aided in elucidating the nature of the psyche per se.

Of particular importance for Freud was the reflex action of the nervous system. As Freud explains in *The Interpretation of Dreams*, “Reflex processes remain the model of every psychological function.”³⁴ Freud defined reflex action as a tendency towards a state of inertia, which in the *Project for a Scientific Psychology* (1895) was formulated as the principle of *neuronal* inertia or the tendency of the nervous system—and thus the psyche—to discharge excessive buildups of excitation and, conversely, to avoid the accumulation of excessive excitation. For Freud, the nervous system automatically tended towards a state of equilibrium, and any internally accumulated excitation was reflexively met with an external discharge of some sort. Psychically, the discharge of excitation corresponded to a feeling of pleasure; the accumulation corresponded to a feeling of displeasure. This

31. See Solms and Turnbull, “What Is Neuropsychanalysis?” pp. 136–39.

32. Solms and Saling, “On Psychoanalysis and Neuroscience,” p. 407.

33. The date of the commencement of the specifically psychoanalytic writings, however, can be set as early as 1892, if by *psychoanalytic* we mean an approach committed to examining and theorizing the economic, dynamic, and topographic dimensions of the psyche; see, for example, Sulloway, *Freud*, pp. 62–65.

34. Freud, *The Interpretation of Dreams*, in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, 5:538.

modeling of the psyche remained more or less intact for the duration of Freud's writings, even though the explicit discussion of the nerves receded after 1900 into a rarely discussed assumption.

Freud's inertia-driven account of nervous reflex, however, was not free from criticism, and it is hard to deny the extent to which Freud's energetic theory of reflex diverged from dominant nineteenth-century conceptions, including Marshall Hall's early conception of the mechanical reflex arc, the somewhat more complex theories of automatic association in German neuroanatomy, or the British conceptions of reflex as complex sensory-motor coordinations in the work of John Hughlings Jackson, William Carpenter (with his account of a reflexive "unconscious cerebration"), and, earlier, Thomas Laycock.³⁵

Nevertheless, Freud's use of reflex instead demonstrated a commitment, not to strict neurophysiological principles, but to broader psychophysical ones, particularly those found in the work of German physicist Gustav Fechner, whose writings Freud described as pivotal throughout much of his life.³⁶ In his principal text, *Elements of Psychophysics* (1860), Fechner argued for the general transposability of a "kinetic energy" (*lebendige Kraft*) or a living force between the psychical and physical dimensions of a human.³⁷ He writes,

Kinetic energy employed to chop wood and kinetic energy used in thinking—that is, in the underlying psychophysical processes—are according to what has just been said not only quantitatively comparable, but each can be transformed into the other, and therefore both kinds of work are measurable on their physical side by a common yardstick.³⁸

Fechner described the nervous system as a "conductor" or, better, a sort of neural *circuit* (*Nervenleitung*) that mediated the circulation and transposition of *lebendige Kraft* from mental activity into bodily activity and vice versa. For Fechner, the fact that the same energy could circulate with economic constancy was feasible according to his identity theory of mind and body.³⁹

35. See Edwin Clarke and J. S. Jacyna, *Nineteenth-Century Origins of Neuroscientific Concepts* (Berkeley, 1987), pp. 115–54.

36. See Sulloway, *Freud*, pp. 66–67.

37. Laplanche and Pontalis attribute the source of "living forces" [*lebendige Kräfte*] to Helmholtz and, earlier, to Leibniz (Laplanche and Pontalis, *Vocabulaire de la Psychoanalyse* [Paris, 1984], p. 133).

38. Gustav Fechner, *Elements of Psychophysics*, trans. Helmut E. Adler, ed. Davis H. Howes and Edwin G. Boring, 2 vols. (New York, 1966), 1:36.

39. See Fechner, *Elements of Psychophysics*, 1:8. See also Harald Höffding, *A History of*

The relationship to psychoanalysis is apparent when we consider Freud's early description of conversion, which he defined as "a psychophysical aptitude for transposing very large sums of excitation into the somatic innervation."⁴⁰ The link to reflex appears in the same early period of Freud's writings; in *The Interpretation of Dreams*, reflex is described as a prompt discharging of sensory excitation along a motor path, and, from that standpoint, a process like conversion is broadly analogous to reflex, insofar as both describe a transposition of energies, typically in the form of an immediate motor expulsion.⁴¹ This conception is closely linked to Josef Breuer's repeated use of the metaphor of an electrical system to describe the activity of the nerves in part 3 of *Studies on Hysteria*.⁴² In instances of pathology, a normal neural circuitry is abnormally excited and—to use Breuer's own figurative turn—is consequently "short-circuited."⁴³ A nervous "short-circuit" refers to a peculiar abnormalization of an otherwise normally excited nervous circuit; if the normal circuitry corresponds to normal reflex action, then a "short circuit" corresponds to an "abnormal reflex," which Breuer explains is precisely what Freud means by "conversion" (*SH*, 3:206, 207).

From this viewpoint, what is therefore especially significant about Freud's earliest psychoanalytic account of the nerves is that the nervous system, in addition to being a model for the psyche, also functioned as a sort of circuit of psychosomatic exchangeability, either ensuring a smooth and economic circulation of psychical and physical energies or, otherwise, facilitating pathological transpositions, conversions, and short-circuits across psychical and somatic thresholds. This conception of the nerves, however, tends to be the one Freud typically adopts after 1893. As I will suggest below, it is precisely in the context of the even earlier, so-called prepsychoanalytic period—and particularly in Freud's *On Aphasia*—where we encounter a theory of the brain that offsets—possibly even short-circuits, in a very different way than even Breuer suggests—a more standard circuitry of the nerves.

Modern Philosophy, trans. B. E. Meyer, 2 vols. (New York, 1955), 2:528, and Edwin G. Boring, *A History of Experimental Psychology* (New York, 1929), p. 277.

40. Freud, "Neuro-psychoses of Defense," *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, 3:50.

41. See Freud, *The Interpretation of Dreams*, 5:565.

42. See Josef Breuer and Freud, *Studies on Hysteria*, in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, 2:193, 203, 207 n. 1; hereafter abbreviated *SH*. Catherine Malabou discusses Breuer's metaphor and Freud's partial appropriation of it in *The New Wounded: From Neurosis to Brain Damage*, trans. Steven Miller (Brooklyn, N.Y., 2012), p. 92.

43. Breuer uses this metaphor several times: *SH*, 2:199, 203, 207.

3. The Matter of the Brain

Freud's posthumously published *Project for a Scientific Psychology*, written in 1895, had long been the text scholars focused on in their attempts to link psychoanalysis to neurology, and not without some justification, given Freud's explicit attempt to describe both normal and pathological psychological processes in neurological terms; it was this work that Freud described (in a letter to Wilhelm Fliess) as "The Psychology for Neurologists," an effort, however, that was "difficult and slow going," one Freud felt he had to "break off."⁴⁴ But in some recent scholarship, the question has arisen as to how neurological the *Project* actually was or ever was intended to be, making the aspirations of using the *Project* on its own finally to link neurology and psychoanalysis a greater challenge.⁴⁵

It would also not be entirely true to suggest, as many (including Solms) have, that *On Aphasia* from 1891—Freud's account of the state of aphasia research (the text for which Freud expressed "a great deal of warm feeling")⁴⁶—marks the first complete and most explicit contribution to neurology. In 1885, for example, Freud began writing his *Critical Introduction to Neuropathology*, which he only half-completed in 1887.⁴⁷ Although *On Aphasia* will be the text of primary concern here, it is important to understand that the *Critical Introduction*, *On Aphasia*, and the *Project* (along with additional smaller articles) together represent a constellation of Freud's neurological and neuropathological thinking, the relationship of which to the later metapsychology still remains an open question, despite claims to the contrary.⁴⁸

These early neurological writings—especially *On Aphasia*—are organized around a critique of a particular trend in localizing brain functions

44. Freud, letter to Wilhelm Fliess, 27 Apr. 1895, *The Complete Letters of Sigmund Freud to Wilhelm Fliess, 1897–1904*, trans. and ed. Jeffrey Moussaieff Masson (Cambridge, Mass., 1985), p. 127. For standard treatments of the *Project* see, for example, Pribram and Gill, *Freud's 'Project' Re-Assessed*.

45. See Geurolaous, "The Brain in Abeyance."

46. Freud, letter to Fliess, 2 May 1891, *The Complete Letters of Sigmund Freud to Wilhelm Fliess, 1897–1904*, p. 28.

47. See Freud, "Critical Introduction to Neuropathology" (1887), trans. Katja Guenther, *Psychoanalysis and History* 14 (July 2012): 151–202. For an excellent analysis of the "Critical Introduction to Neuropathology" and Freud's neurophysiology, see Guenther, "Recasting Neuropsychiatry: Freud's 'Critical Introduction' and the Convergence of French and German Brain Science," *Psychoanalysis and History* 14 (July 2012): 203–26 and "The Disappearing Lesion: Sigmund Freud, Sensory-Motor Physiology, and the Beginnings of Psychoanalysis," *Modern Intellectual History* 10 (Nov. 2013) (forthcoming).

48. I refer for example to two short entries that Freud published—one titled "Aphasia" and the other titled "Brain"—for a 1888 medical dictionary, *Handwörterbuch der gesamten Medizin*; see Freud, *A Moment of Transition: Two Neuroscientific Articles by Sigmund Freud*, trans. and ed. Solms and Saling (London, 1990).

in German neuroanatomy and neuropsychiatry. The doctrine of cerebral localization, a dominant and multifaceted approach to nineteenth-century brain research, held that either simple sensory-motor or more complex mental and affective processes could be situated within discrete anatomical areas in the brain. It became a pronounced experimental and clinical approach to brain research especially after the 1860s, with Paul Broca's work on the location of the motoric dimensions of speech.⁴⁹ German neuroanatomy and neuropsychiatry, in the work of Theodor Meynert and Carl Wernicke, for example, adopted a certain conception of localization, called *Zentrenlehre*, a theory of functional centers, which hoped to be a theory (somewhat paradoxical, as Freud pointed out) of the discrete localization of associative sensory-motor processes.⁵⁰

Freud criticized these localizational tendencies, in both the *Critical Introduction* and especially *On Aphasia*, arguing that the Meynert-Wernicke model imagined a brain that conformed to psychological precepts, where neuroanatomy was merely a morphological reduplication of psychology, and the physiological functions of the brain were essentially overlooked. In contrast to the Meynert-Wernicke neuroanatomical model of strictly demarcated centers separated by "functionless gaps," Freud proposed in *On Aphasia*⁵¹ a very different view of the "architecture of the brain [*Gehirnarchitektur*],"⁵² something more akin to a network of interconnected centers and fields of functional activity. From Freud's standpoint, when considering language localization in particular, what appeared to be centers of speech were ultimately integral parts of a larger and more diffuse "speech territory" (*OA*, p. 63).⁵³

But part of what made Freud's more diffuse and interconnected view of the brain possible in the first place was how he reconsidered the manner by

49. See Clarke and Jacyna, *Nineteenth-Century Origins of Neuroscientific Concepts*, chap. 6; Anne Harrington, *Medicine, Mind, and the Double Brain: A Study in Nineteenth-Century Thought* (Princeton, N.J., 1989), chap. 2; and Robert M. Young, "The Functions of the Brain: Gall to Ferrier (1808–1886)," *Isis* 59 (Autumn 1968): 250–68.

50. See Guenther, "Recasting Neuropsychiatry," pp. 205–10 and "The Disappearing Lesion"; Harrington, "Beyond Phrenology: Localization Theory in the Modern Era," in *The Enchanted Loom: Chapters in the History of Neuroscience*, ed. Pietro Corsi (New York, 1991), pp. 210–11; and John Forrester, *Language and the Origins of Psychoanalysis* (New York, 1980), pp. 22–23.

51. Freud, *On Aphasia: A Critical Study*, trans. E. Stengel (New York, 1953), p. 58; hereafter abbreviated *OA*. See Freud, *Zur Auffassung der Aphasien: Eine Kritische Studie* (Leipzig, 1891), p. 60.

52. Freud, "Critical Introduction to Neuropathology," pp. 158, 161, 168; see also Guenther, "Recasting Neuropsychiatry" and "The Disappearing Lesion."

53. As Freud continues, "the speech area [*Sprachgebiet*] is a continuous cortical region within which the associations and transmissions underlying the speech functions are taking place; they are of a complexity beyond comprehension" (*OA*, p. 62).

which the cortex received information from the nervous periphery—or, in Freud’s words, “in what way the body is represented in the cerebral cortex” (OA, p. 50). In the Meynert-Wernicke model, the strictly localized nature of the brain was a partial consequence of the fact that the body was assumed to be topographically reduplicated through a point-by-point “projection” (OA, p. 47). From Freud’s standpoint, “the assumption of a projection of the body into the cortex in the strict sense, i.e., of an image that is complete and topographically similar, can be rejected” (OA, p. 50). Although this sort of “complete” topographical projection did take place in the spinal cord, it did not extend as such to the cortical regions. This fact, according to Freud, was primarily due to a reduction in the number of projection fibers in the gray matter of the spinal cord and brain; as Freud claims, “a unit of grey matter belonging to a higher level can no longer correspond to one peripheral unit, but must be related to several such units” (OA, p. 51). The cortex, then, could only reproduce the nervous periphery by coalescing, coordinating, and essentially functionally *representing* a multiplicity of peripheral units at once. As Freud explains:

If the way in which the periphery is reflected in the spinal cord is called a “projection,” its counterpart in the cerebral cortex might suitably be called a “representation,” which implies that the periphery of the body is contained in the cerebral cortex not point by point, but through selected fibers, in a less detailed differentiation. [OA, p. 51]

Freud’s critique in *On Aphasia* of the “projection” of the body in the brain in favor of its “representation” derived in part from the work of Jackson, whose influence on Freud has been well documented.⁵⁴ As Freud confesses, Jackson was the author “on whose views I have based almost all the arguments which I have advanced in refuting the localizatory theory of the aphasias” (OA, p. 61), and it is likely that Freud had been reading Jackson as early as the mid-to-late 1880s, at the point at which Jackson’s theory of nervous evolution was most developed.⁵⁵ Jackson argued that the nervous system was composed of a hierarchy of functional levels, defined by increasing organizational complexity and evolutionary development. Jackson employed the explicit language of representation in the nonideational sense that the nervous system reenacted or reinstated within itself low-level sensory-motor coordinations in an ever-increasing com-

54. See, for example, Harrington, *Medicine, Mind, and the Double Brain*, chaps. 7–8, and Solms and Saling, “On Psychoanalysis and Neuroscience.”

55. See Guenther, “Recasting Neuropsychiatry,” p. 222 n. 46. Freud makes reference in *On Aphasia* to an essay in which Jackson discusses the theory directly: John Hughlings Jackson, “On Affections of Speech from Disease of the Brain,” *Brain* 1 (Oct. 1878): 304–30.

plexification of itself. As Jackson explains, the highest, most complex levels of the brain “make up the ‘organ of mind’ or physical basis of consciousness; they are evolved out of the middle, as the middle are out of the lowest, and as the lowest are out of the periphery; thus the highest centres re-represent the body—that is, represent it triply indirectly.”⁵⁶

By partially incorporating this integrative view of the nervous system, Freud suggests that the brain maintains a somewhat more indirect and distanced relationship with the peripheral body—an abstraction of it rather than a complete copy.⁵⁷ As Freud explains, the fiber tracts that reach the cortex “contain the body periphery in the same way as . . . a poem contains the alphabet, i.e., in a rearrangement serving other purposes, in manifold associations of the individual elements, whereby some may be represented several times, others not at all” (*OA*, p. 63; trans. mod.). The idea that a “rearrangement” (*Umordnung*) takes place between the spinal cord and brain is vital, as this internal reorganization marks a fundamental difference in the way in which the body is neurologically self-integrated or “contained” within itself. The rearrangement transforms the body’s “topographically complete projection” into a less differentiated representation, maintaining topographical relations “only as long as they fit in with the claims of function” (*OA*, pp. 54, 53).

Solms has taken the language of *function* and *functional representation* in this particular section of *On Aphasia* as the key element that links Freud’s neurology both to his later metapsychology but also to contemporary neuroscience. For Solms, Freud adopted a “functionalist” approach to neurophysiology, according to which a dynamic unconscious was posited as a merely lower “functional level” of nervous activity.⁵⁸ This presumed functionalism had the added benefit of directly linking Freud to modern neuroscience, particularly to the work of Luria, who defined his neuropsychology of the 1960s and 1970s as a theory of “functional systems,” the variable coordination of neuroanatomical parts and neurophysiological processes for the production and maintenance of invariable and usually synthetic behavior.⁵⁹

56. Jackson, “Remarks on Evolution and Dissolution of the Nervous System” (1887), *Selected Writings of John Hughlings Jackson*, ed. James Taylor, 2 vols. (New York, 1958), 2:79.

57. For more on the idea of nervous integration, particularly in relation to Jackson, see Walther Riese, “The Principle of Integration: Its History and Its Nature,” *Journal of Nervous and Mental Disease* 96 (Sept. 1942): 296–312.

58. Solms and Saling, “On Psychoanalysis and Neuroscience,” p. 406.

59. Luria, “Neuropsychology,” p. 340: “A ‘function’ can be understood as a complex adaptive activity aimed at the performance of some vitally important task, or, in other words, as a complex functional system that pursues its constant (invariant) aim by complex and variative methods.” For Solms, the historical and methodological connection between Freud and Luria is

But whether Freud's sense of function was protofunctionalist has been put into question, and I would argue that it is not necessarily the most important aspect of *On Aphasia*.⁶⁰ More significant is Freud's subtle account of the organizational peculiarity of the nervous system, what is defined as the "rearrangement" intrinsic to the architecture of the brain and nerves. In describing the anatomical underpinnings of the transformation from projection to representation between the spinal cord and brain, Freud at one point concedes the possibility "that the cortex receives at least as many fibers from the periphery, albeit by detours, as were required for projection in the spinal cord" (OA, p. 52; trans. mod.).

These neurological "detours" (*Umwegen*) correspond to the "rearrangement" that Freud describes; both designate an integral reorganization intrinsic to the very architecture of the nervous system. This detouring rearrangement ensures that the body is functionally represented in the brain, while preventing a complete replication or a full and total integration. It is hard to deny how much this section of *On Aphasia* resembles what Freud will describe in "The Ego and the Id" as the bodily ego or the mental projection of the body's surface.⁶¹ But, for the purposes of this analysis, what is particularly notable about this early neurological architecture is its apparent contrast to the inertia-driven model of the nerves that develops by the turn of the century, a conception, however, that was not limited to the early psychoanalytic writings alone. Even as late as 1915, in "Instincts and Their Vicissitudes," Freud continues to reiterate, "the nervous system is an apparatus which has the function of getting rid of the stimuli that reach it, or of reducing them to the lowest possible level; or which, if it were feasible, would maintain itself in an altogether unstimulated condition."⁶²

By 1920, in *Beyond the Pleasure Principle*, this process of maintaining a state of nonstimulation, what was initially described as early as 1895 as a principle of neuronal inertia, is reframed as the principle of constancy: the tendency "to reduce, to keep constant or to remove internal tension due to stimuli" (BPP, 18:55–56). Freud had, in fact, first mentioned this principle as early as 1892, shortly after completing *On Aphasia*, and even Breuer

further justified by Luria's early scientific and political adherence to psychoanalysis. See Solms, "Freud, Luria, and the Clinical Method."

60. See, for example, Guenther, "Recasting Neuropsychiatry," p. 218 n. 39 and "The Disappearing Lesion."

61. See Elizabeth Grosz, *Volatile Bodies: Towards a Corporeal Feminism* (Bloomington, Ind., 1994), pp. 31–39.

62. Freud, "Instincts and Their Vicissitudes," *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, 14:120.

makes reference to Freud's conception of constancy in *Studies on Hysteria* (see *SH*, 2:197). By 1920, however, this tendency became especially recognizable in what it additionally described, namely, the tendency for all organic substance to return to an inorganic state—what is eventually articulated as the death drive. Freud points out that the tendency towards constancy “finds expression in the pleasure principle,” and pleasure had long been achieved by the reflexive discharging of the energetic nervous system. Neuronal inertia—the standard action of the nerves in the psychoanalytic writings—had long been an analogue of the death drive.

Drawing out this digression a bit further, it is worth mentioning that in *Beyond the Pleasure Principle*, Freud famously argues that every organism follows “its own path to death,” displaying an immanent tendency “to die only in its own fashion” (*BPP*, 18:39). The organism's path to death belongs to the organism itself, as something that emerges immanently from it but which is applied back to it. The circular and self-referential structure of the death path is especially pronounced. Jean Laplanche and J.-B. Pontalis suggest that there is an intrinsic morbidity involved in thinking about an organism as an autoregulating closed system or a pure homeostatic equilibrium.⁶³ This is why Freud conversely imagines life not as what prevents or even counters death but simply as what “ward[s] off any possible ways of returning to inorganic existence other than those which are immanent to the organism” (*BPP*, 18:39). Life is not merely what aims to die but what defers any other death that does not belong to the organism itself; life consists of the “complicated *détours*” ensuring a temporary survival against anything that is not an immanent expression of the organism's own death path. Freud concludes, “These detours towards death [*Umwege zum Tode*]. . . present us to-day with the picture of the phenomena of life” (*BPP*, 18:39; trans. mod.). The detouring force of life inevitably prolongs a circular and self-integrating logic of the organism's own death path—a paradoxical *survival* that forestalls any simple “short-circuit” to death in order to hold on to the promise of an involuting self-destruction (*BPP*, 18:39).

In the earlier *On Aphasia*, it's striking to notice how much the integrative architecture of the nervous system—that is, of a body reinstated or

63. Jacques Derrida highlights the extent to which the death path “must occur within [the organism], from it to it, between it and itself” (Jacques Derrida, *The Post Card: From Socrates to Freud and Beyond*, trans. Alan Bass [Chicago, 1987], p. 355). See also Laplanche and Pontalis, “Principle of Constancy,” *Vocabulaire de la psychanalyse*, p. 326. Breuer also links the principle of constancy to an organism's homeostatic self-regulation or what he calls the “regulating factors in the organism” (*SH*, 2:198).

mapped in the cortex—resembles the circular (homeostatic) self-return of what will be later described as the structure of the death path. And yet a “complete topographical projection” or self-integration is prevented, as I’ve suggested, through neurological detours and a major architectural rearrangement intrinsic to nervous organization. By being only functionally represented in the brain, the body is precisely *not* completely redoubled, and we can say that the rearrangement itself embodies a failure of the total neural translation of the body. And this is the same as saying that the nervous system fails to become a total circularity or a morbid equilibrium. There is, then, a certain—and perhaps vitally *necessary*—disjointedness or asynchrony in the neural architecture, amounting to a structural inaccessibility of the whole nervous system to itself.

Part of Freud’s discussion in *On Aphasia* involves the consideration of the effects of lesions or physical injuries on the functions of language and speech. But as Katja Guenther has proposed, *On Aphasia* is also where Freud begins to imagine a lesion in a more general and surprisingly non-organic sense as an interruption to the structure of neural connectivity in general, a disorganizing modification to nervous architecture as such—a sort of “rearrangement”—and not necessarily a physical injury; this is why Freud is able to propose the possibility of a “hysterical” (thus, nonorganic) lesion shortly after *On Aphasia* is written.⁶⁴ The “detours” and “rearrangement” that mark the organization of the nervous system may very well amount to a sort of original and formative “lesion,” *avant la lettre*. Before any actual or possible injury to the brain, there is from the outset a sort of originary “lesion” already structuring a neural architecture that remains *vitally* disjointed, in the sense of averting a complete, internal, and potentially morbid self-integration.

4. Rearrangements, 1891–1896

But the value of this whole analysis really only appears in a well-known letter, dated 6 December 1896, that Freud writes to Wilhelm Fliess, which he introduces as “a simple report on the latest bit of speculation.”⁶⁵ At the start of the letter, Freud reminds Fliess of the conceptual presumption that had been occupying his recent research, namely, that “our psychical mechanism is developed through a hierarchical stratification” (*durch Aufeinander-schichtung entstanden ist*). In other words, Freud goes on to say, memory traces are subject “from time to time to a *rearrangement* in accor-

64. See Guenther, “The Disappearing Lesion.” See also Ilit Ferber, “Aphasie, Trauma und Freuds schmerzlose Wunde,” in *Freuds Referenzen*, pp. 145–67.

65. Freud begins part four of *Beyond the Pleasure Principle*, with the line: “What follows is speculation” (*BPP*, 18:24).

dance with fresh circumstances” or what he also calls a “retranscription.”⁶⁶ The idea, Freud suggests, is that memory is never simply present once but is laid down several times over in varying “indications” or signs.

Freud continues, for our purposes quite remarkably, “I postulated a similar kind of rearrangement some time ago (*Aphasia*) for the paths leading from the periphery.”⁶⁷ He then quickly introduces Fliess to what he believes to be the psychological analogue of what had earlier been a strictly neurological “rearrangement,” and he does so initially through the use of a schematic diagram (fig. 1). The diagram is famously an earlier version of what will appear four years later in chapter seven of *The Interpretation of Dreams* (fig. 2),⁶⁸ with the difference that the registration marked “Wz” or perception-indications in the 1896 letter is later more explicitly called the memory or *Mnem.* system in 1900. The apparent continuity between the neurological and psychological is striking; by suggesting that *On Aphasia* described “a similar rearrangement [*eine ähnliche Umordnung*],” Freud somewhat obscures the extent to which the two rearrangements are merely similar or, in being analogous, are actually equivalent.

In the letter, Freud clarifies that his interest is mainly to emphasize “the fact that the successive registrations represent the psychic achievement of successive epochs of life. At the boundary between two such epochs a translation of the psychic material must take place.” When such a translation is denied, Freud argues, which it often is, this is tantamount to repression.⁶⁹ Within the confines of this letter, repression and the possibility of pathological defense take place against memory traces that have not been translated across life epochs. Freud privileges the role sexual events play in the formation of pathological defense because they are defined against the framework of sexual development—that is, they are always marked by the epochal boundary of sexual maturation (a conception of sexuality that Freud shortly abandons).⁷⁰

The content of this letter—what is very generally described as the rearranging or retranscriptive nature of memory traces in the psyche—is conceptually tied to what Freud wrote only a year earlier in part 2 of the *Project for a Scientific Psychology*, titled “Psychopathology.” This part, the second

66. Freud, letter to Fliess, 6 Dec. 1896, *The Complete Letters of Sigmund Freud to Wilhelm Fliess, 1897–1904*, p. 207; trans. mod. See Freud, letter to Fliess, 6 Dec. 1896, *Aus den Anfängen der Psychoanalyse: Briefe an Wilhelm Fliess, Abhandlungen und Notizen aus den Jahren 1887–1902* (Frankfurt am Main), p. 151.

67. *Ibid.*

68. See Freud, *The Interpretation of Dreams*, 5:541.

69. Freud, letter to Fliess, 6 Dec. 1896, p. 208.

70. The rest of the letter, as Freud explains, attempts organically to ground sexual neuroses according to a sequential and chronological calculus of menstrual and gestational cycles.

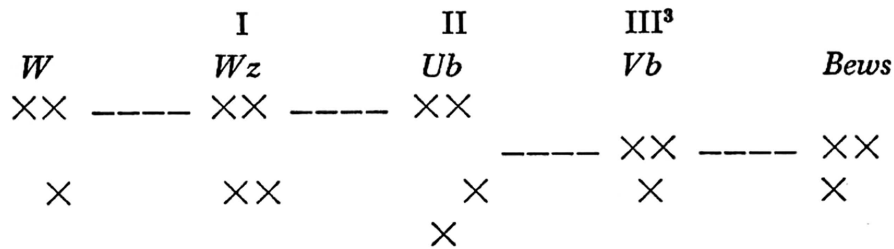


FIGURE 1.

of three, provides a single and never again repeated case study of twenty-seven-year-old Emma Eckstein, who was a formative patient for Freud.⁷¹ It was through Freud's work with Eckstein that early accounts of deferred action and childhood seduction were formulated.⁷²

Emma, as she is named in the *Project*, suffered from a phobia of entering shops alone.⁷³ The case is characterized by two unconsciously linked memories that motivated her phobia. The first was a postpubescent memory of entering a shop in which the shop assistants, one of whom Emma finds attractive, laugh at her clothing, and as a consequence, particularly of the laughing, Emma runs away in a fright. The second was an earlier prepubescent memory of being sexually groped by a shopkeeper and even returning a second time. We would imagine that the earlier memory was clearly the traumatic of the two, but it was the second memory (which formally repeated numerous details of the first) to which Emma reacted with fear.

The reason for this, Freud suggests, is that prepubescent sexual trauma could not have been experienced as sexual because Emma had not yet entered puberty. But since the second, nontraumatic repetition took place after sexual maturation, Emma experienced a feeling that was really only directed to the first scene. As Freud suggests, "the transformation of puberty had made possible a different understanding of what was remem-

71. For more on Emma Eckstein, see Lisa Appignanesi and John Forrester, *Freud's Women* (New York, 1992), pp. 133–41, and K. R. Eissler, "Preliminary Remarks on Emma Eckstein's Case History," *Journal of the American Psychoanalytic Association* 45 (Dec. 1997): 1303–5.

72. *Nachträglichkeit* is typically translated as "deferred action," but Laplanche has suggested as a more robust English translation the term *afterwardsness*. See Laplanche, "Notes sur l'après-coup," in *Entre séduction et inspiration: L'Homme* (Paris, 1999), p. 63 and "An Interview with Jean Laplanche," interview by Cathy Caruth, *Postmodern Culture* 11, no. 2 (Jan. 2001): pmc.iath.virginia.edu/text-only/issue.101/11.2caruth.txt

73. See Freud, *Project for a Scientific Psychology*, in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, 1:353–56; hereafter abbreviated PSP. This analysis draws heavily from Laplanche, *Life and Death in Psychoanalysis*, trans. Jeffrey Mehlman (Baltimore, 1976), chap. 2, esp. pp. 38–41.

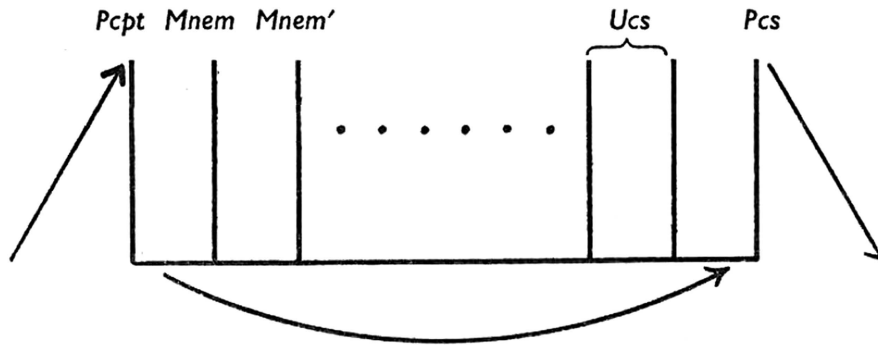


FIGURE 2.

bered” (*PSP*, 1:356; trans. mod.). It was by virtue of the postpubescent and nontraumatic event that Emma was able to rerecuperate the first event as being sexual, a traumatic childhood sexual seduction—an instance of “deferred action.”⁷⁴

The “transformation of puberty” acted as an underlying condition that made possible, on the one hand, the coalescence of the two memories and, on the other, the fact that the first could be assigned a sexual and also a pathogenic quality. As Freud explains, “We invariably find that a memory is repressed which has only become a trauma by *deferred action*. The cause of this state of things is the retardation of puberty as compared with the rest of the individual’s development” (*PSP*, 1:356). Because Emma was able to experience the later scene sexually and given how closely associated the two scenes were, she was able essentially to rerecuperate the first event and charge it with a *sexual* feeling that could not have arisen earlier. But this sexualization was also pathogenic insofar as Emma was able to rerecuperate the scene not only as sexual but also as sexually traumatic and, as a consequence, she immediately repressed the memory. It was that repression that resulted in her flight and subsequent compulsive phobia of entering shops alone.

Emma’s deferred action illustrates the rearrangement or retranscription that Freud describes in the 1896 letter—that memories are present not once but are laid down several times over. Although Freud abandons this commitment to a strict barrier of sexual maturation when he begins to take seriously infantile sexuality, what he more generally demonstrates through the case study is the extent to which there are profound transformations, not to experiences as such, but to the conditions that make experiencing

74. See, for example, Laplanche and Pontalis, “Après-Coup,” *Vocabulaire de la psychanalyse*, pp. 33–36.

possible in the first place. With Emma, this transformation is posited initially over and against the epochal barrier of sexual maturation. However, it is possible to generalize the Emma case study beyond sexual development and suggest that Freud illustrates the sort of temporal and mnemonic disjunctions that arise as a consequence of the untranslatability of experiences across major thresholds of a subject's life.

Retranscriptions of memory, in other words, are not merely *possible* phenomena of the psyche but *inevitable* conditions of it; and fundamental discontinuities and incohesions are present not merely in experiences themselves but in the conditions that make experiences possible in the first place.⁷⁵ As we see with Emma, trauma is the consequence not only of an event but of the initial untranslatability of that event as well as its eventual and retroactive translation (and retranscription). As Laplanche argues in his reinvigoration of seduction theory, there are not so much traumatic experiences as there are traumatic reexperiences.⁷⁶

The temporal delay of puberty refers much more generally to the fact that rearrangements are *essential* to psychical formation. Events are never just experienced in themselves, but they are often experienced only when they are rerecognized differently. The psyche, from this standpoint, necessarily embeds developmental asynchronies, that is, inevitable delays and temporal dissonances, into the very conditions of experiencing. The psyche is only ever disjointedly constituted in time, a condition that is itself generative of the unavoidable possibility of pathology. As Freud insists near the end of part 2 of the *Project*, "every adolescent must carry the germ of hysteria within him" (*PSP*, 1:356).

Freud provides an explanatory diagram of the Emma case study (fig. 3), and the resemblance to the diagram in the 1896 letter to Fliess as well as to the diagram in chapter 7 of *The Interpretation of Dreams* (fig. 4) seems apparent, even if the terms do not correspond identically. These diagrams effectively represent and encapsulate the "rearrangement" that Freud described in strictly neurological terms in *On Aphasia*. The rearrangement intrinsic to the *spatial* architecture of the brain and nerves is recast as a *temporal* or chronological detour not only structuring but always inevitably restructuring the psyche. The neurological rearrangement in *On Aphasia* is transformed into the chronological nontranslations and retroactive

75. It would be possible to say that *puberty* is standing in more broadly for an intrinsic rearrangement built into the chronological structure of subject-formation. Within the few pages of part 2 of the *Project*, Freud eventually refers to "the retardation of puberty" as a single compound term, *Pubertätverspätung* or "puberty delay." Freud writes, "*The puberty-delay [Die Pubertätverspätung] makes possible posthumous primary processes*" (*PSP*, 1:359; trans. mod.).

76. See Laplanche, *New Foundations for Psychoanalysis*, pp. 112, 117–18.

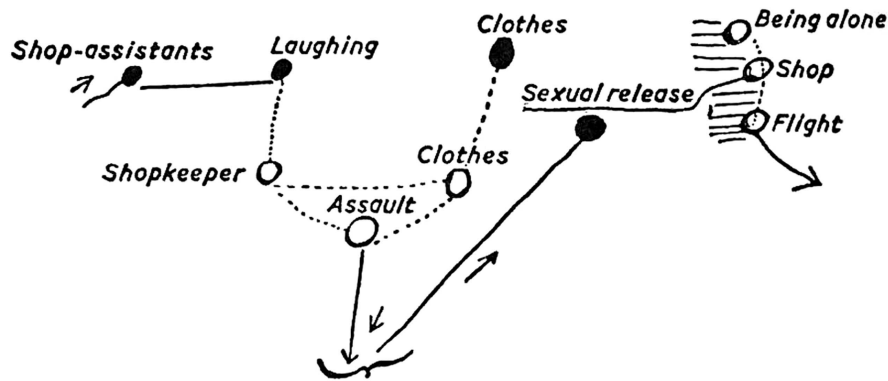


FIGURE 3.

retranslations of memories across developmental periods and conditions of possible experience.

Thus the “rearrangement” by Freud’s own admission becomes a key to thinking about the relationship between neurophysiology and early metapsychology, especially as it unfolds between 1891 and 1896. By transitioning from a spatial rearrangement in *On Aphasia* to a temporal detour in the *Project*, the physiological deferment of nervous morbidity is recast as the promise of possible pathology. A necessary disorganization (what can be called an original lesion) structuring the nervous architecture translates into the inevitability of trauma arising from the incohesions of psychical development. Although brain and psyche always remain separate categories for Freud, it may still be possible, thanks to the work of the rearrangement, to speak neuropsychanalytically about the early Freudian subject. And what can be said, in the first instance, is that before the occurrence of any actual or potential injury or damage either to the brain or to the psyche, thus prior to the onset of any neuro- or psychopathology, there must already be both lesion and trauma, embedded within the architectures of the brain and psyche, both necessarily and inevitably.

As was mentioned earlier, what is in the end also noteworthy is that in his 1896 letter to Fliess, Freud explains that the neural rearrangement in *On Aphasia* is only “similar”—as opposed to equivalent or identical—to the rearrangements and retranscriptions of memory he had described in the *Project*. Given that the rearrangement discussed in *On Aphasia* appears initially to be spatial, while the retranscriptions in the *Project* are temporal, the similarity between the two might amount to a strained analogy at best. And yet, in *On Aphasia*, Freud relinquishes a static account of neuroanatomy (characteristic of the Meynert-Wernicke model) for a more dynamic and functional neurophysiology of brain architecture, something akin to a

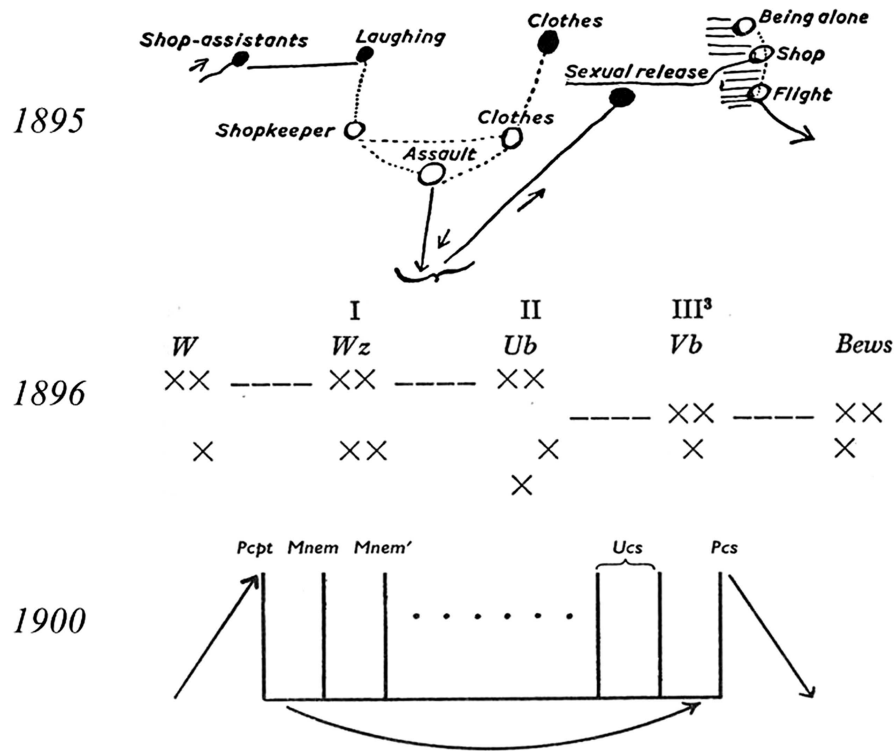


FIGURE 4.

temporalization of the nervous system’s processes. Conversely, the temporal nature of memory retranscription, as Freud points out in chapter seven of *The Interpretation of Dreams*, can easily be transposed into spatial terms.⁷⁷ The rearrangements intrinsic to both the neural and psychological architectures are marked by an apparent spatiotemporal indifference. To the extent that any neuropsychanalysis can be extracted from the Freudian corpus, the disorganizing rearrangement of the very contours of space and time (and not just brain and psyche) must not be overlooked.⁷⁸

5. Conclusion: On a Possible Freudian Neuropsychanalysis

It may be possible initially to conclude that the retranscriptive nature of the memory (*Mnem.*) system may have had a somewhat more archaic,

77. See Freud, *The Interpretation of Dreams*, 5:537.

78. Derrida discusses the aporia of space and time (or the property of *spacing*) in Freud’s early and later writings—including the *Project*, the 1896 letter to Fliess, *The Interpretation of Dreams*, *Beyond the Pleasure Principle*, and “Notes on the Mystic Writing Pad.” See Derrida, “Freud and the Scene of Writing,” *Writing and Difference*, trans. Bass (Chicago, 1978), pp. 196–231.

though no less neurological model of its own. This would suggest that there are multiple conceptions of the brain and nerves at work in Freud's writings and that they embed themselves into more generalizable motifs in different ways. An energetic circuit propelled by the principles of inertia and constancy could ultimately persist and function concurrently with more complicated detours of and rearrangements to that circuitry, forming an implicit nervous dichotomy that does not strictly correspond to a simple binary of normal versus pathological activity.

As a more significant conclusion, however, I would propose that there is nothing misguided in the postulation that Freud's writings could justify the formation of a neuropsychanalytic program. The question, however, is what the extraction and translation of a distinctly *Freudian* neuropsychanalysis might entail and to what extent it may challenge key presumptions in contemporary neuropsychanalysis. For example, contemporary neuropsychanalytic research, as Constantina Papoulias and Felicity Callard have argued, tends to privilege and to presume a fairly normative conception of biological self-preservation and psychological health when reading and attempting to interpret certain "biological" concepts in Freud's writings, particularly the concept of the drive. As they point out, this forecloses other, more robust understandings of the relation between drive and biology. For instance, Laplanche, as they explain, has argued that the Freudian drive corresponds to a sexualized dehiscence of a vital order that is otherwise instinctual in nature; this grounding of the drive on vital instincts means that organic functions are themselves fundamentally distorted and rendered inaccessible.⁷⁹

A possible Freudian neuropsychanalysis may also diverge quite drastically from the contemporary neuropsychanalytic picture. The neural architecture described in *On Aphasia* does not exhibit the structure of normal homeostatic self-preservation but instead, and somewhat conversely, prevents and even bypasses it. The asynchrony that structures psychical development does not secure mental health but instead guarantees the real possibility of pathology. Thus, instead of a normative biological paradigm of self-preservation, the Freudian brain embodies a much more precarious relationship between life and death; rather than the anomaly of pathology, what emerges instead is its primacy.

Even so, it is not implausible to imagine, as Solms and Turnbull have, that Freud *today* might very well have turned towards the neurosciences to further the psychoanalytic project. It is plausible that Freud might have

79. See Laplanche, *Life and Death in Psychoanalysis*, chaps. 1–3. See Papoulias and Callard, "The Rehabilitation of the Drive in Neuropsychanalysis," pp. 205–8.

considered contemporary neuroscience to have the *potential* explanatory prowess to sustain a dynamic metapsychology, and Freud might very well have been on the cutting edge of neuropsychological research. There would, however, be one difference that Solms and the other neuropsychanalysts have not discussed and perhaps cannot discuss, given their own historical and epistemological constraints. Emphasized in the writings of some of the more popular contemporary scientists and brain researchers, we find an adage that characterizes a powerful and underlying presumption in neuroscientific research today, namely, “you are your brain,” an adage that is, admittedly, both performative and anticipatory in nature (“B,” p. 6).⁸⁰ It is worth considering whether a Freudian brain science could modify such an adage to read: you are your brain, through which, however, you are never entirely yourself. Perhaps the value of considering Freud as a neuroscientist today has less to do with how he might have affirmed or advanced the field of brain research and more with how he might have radically transformed it. This is not to lament the absence of a distinctly Freudian neuropsychanalysis but merely to wonder whether such a possibility could ever arise in the present.

80. For prominent examples, see Michael Gazzaniga, *The Ethical Brain: The Science of Our Moral Dilemmas* (New York, 2005), p. 31; quoted in “B,” p. 6. “You are your synapses” is the expression adopted by Joseph LeDoux in *Synaptic Self: How Our Brains Become Who We Are* (New York, 2002). “You are nothing but a pack of neurons” is how Francis Crick puts it in *The Astonishing Hypothesis: The Scientific Search for the Soul* (New York, 1994), p. 3.