

Book Review of Robert Henman’s *Global Collaboration: Neuroscience as Paradigmatic* (Vancouver, Axial Publishing, 2016), 68 pages.

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As the reader will gather from the title, *Global Collaboration: Neuroscience as Paradigmatic* is addressed to “those working in neuroscience”¹ and, more inclusively, those “interested in the goings-on of neuroscience.”² But, Henman also has a larger context in mind, with “a broader view that lurked over all three (chapters), and was more difficult to avoid in the third (chapter).”³ And so a larger audience that Henman has in mind also includes scholars “in someway tuned to Lonergan’s work.”⁴

Henman’s background is in education and child studies. He also draws on the works of Bernard Lonergan (1904-1984). In the three years leading up to his book, he broadened his reach by familiarizing himself with some of contemporary neuroscience. The book, then, has three chapters, reproducing three articles previously published by Henman, 2013 – 2015, in a journal devoted to interdisciplinary dialogue in philosophy and neuroscience. In addition to the original articles, the book includes a new Introduction; and an Epilogue. There is also a Foreword, written by Philip McShane.

Henman does not claim professional expertise in neuroscience. But, among other things, his book draws attention to what he claims are issues that will need to be resolved. The book moves along in descriptive fashion, attempting “to communicate three different aspects of Lonergan’s thought as they apply to neuroscience.”⁵ Two main topics in the book are *generalized empirical method* and, in Chapter 3, *functional specialization* (both of which, as Lonergan scholars will know, are possibilities originally conceived by Lonergan). Henman’s

¹ Henman, vi.

² Henman, vi.

³ Henman, vi.

⁴ Henman, vi.

⁵ Henman, v.

book is one of several books now available that inquire into possibilities of emergence of these, by attending to details within a working science - in the present case, neuroscience⁶.

Along the way, Henman's discussion touches on many issues. There is, though, at least one main theme being served by the subtle weave, which I speak to at the end of this review. First, though, I provide a few samples from his book. Note that this is not by way of "summary," but to give the reader of this review an impression of some of what the chapters contain.

The three chapter titles are: "Can Brain Scanning and Imaging Techniques Contribute to a Theory of Thinking?"; "Generalized Empirical Method: A Context for Discussion of Language Usage in Neuroscience"; and "Implementing Generalized Empirical Method in Neuroscience by Functionally Ordered Tasks."

Chapter 1 begins by briefly reviewing what, at present, are standard experimental methods in neuroscience: electroencephalography (EEG), magnetic resonance imaging (MRI), functional magnetic resonance imaging (fMRI), near-infrared spectroscopy (NIRS), positron emission tomography (PET) and magneto-encephalography (MEG).⁷ Henman notes that one of the objectives of such methods include the effort "to obtain the data of graphs and scans signifying the cerebral correlates of problem solving."⁸ He then provides examples of puzzles similar to those given to participants in field studies with human subjects. He notes that he has used similar puzzles in his teaching, and asks readers to attempt these puzzles for themselves. He describes his own experience, and also informally reports on the experiences of his students. He goes on to claim that, in addition to data available from standard experimental methods for the biophysics and biochemistry of the brain, the experience of problem solving also provides data on problem solving. Henman elaborates: "I do not mean that the experience of 'attending' is data that can be measured, but rather is data in the sense of being experience, being something that can be described and explained."⁹ He goes on to draw the reader's attention to a range of experiences, such as "thinking, puzzling, explaining, understanding, knowing, judging, problem-

⁶ Some other books which explore Lonergan's results about method and functional specialization by appealing to established areas of inquiry include: books by Philip McShane, <http://www.philipmcshane.org/published-books/>; Bruce Anderson, *"Discovery" in Legal Decision Making* (Kluwer Academic, 1996); John Benton, *Shaping the Future of Language Studies* (Axial Publishing, 2008); Sean McNelis, *Making Progress in Housing: A Framework for Collaborative Research* (Routledge, 2014); Terrance Quinn, *Invitation to Generalized Empirical Method* (World Scientific Press, in press) and *The (Pre-) Dawning of Functional Specialization in Physics* (World Scientific, in press).

⁷ Henman, 1ff.

⁸ Henman, 2.

⁹ Henman, 3.

solving, decision-making and planning.”¹⁰ He observes that the “data of mental acts and the images from brain scans are two distinct forms of data. They are related but distinct.”¹¹ He notes, however, that in contemporary neuroscience, descriptions of mental acts often are “judged to be subjective reports”¹² (where the usual implication is *merely* subjective in some pejorative sense). Henman claims, however, that there is, in fact, a patterning of mental acts, verifiable by attending to what happens when one solves problems, and makes decisions¹³. For instance, he invites attention to three acts involved in solving puzzles: “paying attention, puzzling, . . ., (and) insight.”¹⁴ He suggests that such description of mental acts reveals that, contrary to common philosophical views, “insight precedes concepts.”¹⁵ On this issue, he also refers to supporting literature from neuroscience, such as results obtained by Janet Metcalfe, described in her book *The Nature of Insight*.¹⁶

Henman goes on to relate his observations to discussions from the neuroscience literature and the philosophy of neuroscience. In particular, he notes that a now-recognized problem in neuroscience is “how to unify results. The verifiable patterns of mental acts are conscious events, conscious in the sense of experienced. At the same time, neuroscience is uncovering verifiable patterns of aggregates of biochemical and cellular events. However, the conscious acts of attending, puzzling, understanding and judging ‘look’ nothing like scanned images of graphs.”¹⁷ Henman suggests that all of this reveals that neuroscience needs a “more balanced framework”¹⁸ and claims that the solution already was compactly described by Bernard Lonergan, namely, “generalized empirical method.”¹⁹

¹⁰ Henman, 4.

¹¹ Henman, 4.

¹² Henman, 4.

¹³ Henman, 5.

¹⁴ Henman, 3.

¹⁵ Henman, 7.

¹⁶ R. Steinberg and J. Davidson, *The Nature of Insight* (Cambridge, MIT Press, 1995), xiii.

¹⁷ Henman, 11.

¹⁸ Henman, 11.

¹⁹ The definition is quoted in Henman’s book, pp. 11, 17, 38. (The repetition would seem to be a relic of the original separate publications.) For the convenience of readers of this review, I include Lonergan’s description here as well: “Generalized empirical method operates on a combination of both the data of sense and the data of consciousness: it does not treat of the objects without taking into account the corresponding operations of the subject: it does not treat of the subject’s operations without taking into account the corresponding object” (Bernard Lonergan, *A Third Collection*, ed. by Frederick E. Crowe (New York: Paulist Press, 1985), 141).

Henman's Conclusion to Chapter 1 points out that there are "further questions and doubts raised in the literature about the process and method of the present scanning and mapping techniques of the brain."²⁰ To the question in the title of the chapter, however, Henman concludes with an answer in the negative: "'No.' A theory of mental operations cannot be provided by the scanning and imaging techniques but such techniques can and do assist in understanding the underlying biological aspects of cerebral activity."²¹

Chapter 2 picks up where Chapter 1 left off. In particular, Henman assumes that the reader now is aware and self-aware of "a distinction ... between the data of sense and the data of consciousness."²² The second section of Chapter 2 "begins with a focus on the use of language."²³ Henman invites the reader's attention to "terms that refer to mental operations but, in the context exhibited below (i.e., samples from the neuroscience literature), are attributed to biological processes."²⁴ Such terms include "information, decoding, storage, memory, determine, represent, recognize, process and knowledge."²⁵ Henman points out that the discussion there leads to the problem of objectivity. In the following section, then, Henman explores the problem of 'objectivity' somewhat, includes a few of his own observations and questions, makes linkages to the literature, and appeals also to doctrinal results of Lonergan. He points out that "the fact remains that there is no empirical evidence to support ... conclusions that biological processes carry out any of the mental operations that (are attributed) to biological processes."²⁶ The sixth and seventh sections of Chapter 2 are on human consciousness and brain function, and "the relationship between the two functions."²⁷ All along keeping to elementary and preliminary description, Henman suggests the possibility of a normative account of consciousness, hinted at by the following: "consciousness is experiencing."²⁸ The observation is used to help locate the problem, and so he also recalls McShane's comments on the same issue: "What is consciousness? The question is a massive empirical challenge of this millennium, moving up from the irritability of plants through higher levels of self-presence in plant and animal to the

²⁰ Henman, 13.

²¹ Henman, 13.

²² Henman, 17.

²³ Henman, 18.

²⁴ Henman, 18-19.

²⁵ Henman, 19.

²⁶ Henman, 30.

²⁷ This is also the title of the seventh section of Chapter 2.

²⁸ Henman, 31.

shades of human consciousness, where different consciousnesses of inquiry, judgment, planning and decision will be specified by investigating the chemical patterns of heterarchies of brain neurodynamics.”²⁹ In his conclusions to Chapter 2, Henman suggests that “a main inhibition to progress and development in neuroscientific research to be the lack of reflection on performance.”³⁰ But, “Generalized Empirical Method will provide new data to be considered that will eventually lift present methods of experimentation, observation and conclusion to a level that can meet the challenges of our times by shifting attention to a combination of the data of sense and the data of consciousness.”³¹

Chapter 3 begins by raising the question, ‘What is Science?’ He notes that there “has been in the West, a move towards what we might call clarity or ideal typology such that deviants from that clear type were considered, in some way, inferior. This is true whether one considers formulations of paradigms, such as constitute texts on philosophy of science, or discussions of paradigm shifts, such as occur in the Kuhnian tradition.”³² Henman draws attention to the fact that actual scientific development includes all applied sciences, medicine, aesthetics of science, ethics of science, technologies, and more. “But,” asks Henman, “are not these pursuits intelligent, rich with understanding of data of the flow of events?” The first section of Chapter 3 goes on to include the following claim: “It is time to raise the question, ‘What is Science?’ with a freshness that takes the full modern data seriously.”³³

Most of the rest of Chapter 3 is devoted to the task of describing something of eight tasks in science, namely, “eight (functional) specialties.”³⁴ Henman does so by discussing various aspects of the work of Furey *et al.*³⁵, on working human memory.

The stated purpose of the Epilogue is to “home in on the problem of realizing, in seminal fashion, the components of implementation.”³⁶ Henman points briefly to the full structuring that

²⁹ Henman, 31. The quotation from McShane is, Philip McShane, “The Hypothesis of a Non-Accidental Human Participation in the Divine Active Spiration,” *Method: Journal of Lonergan Studies*, vol. 2, no. 2 (2011), 193, note 35.

³⁰ Henman, 32.

³¹ Henman, 32.

³² Henman, 35.

³³ Henman, 36.

³⁴ Henman, 36-49.

³⁵ Several of Furey’s works are cited. There is, for example, the multi-author article on cerebral blood flow, <http://www.pnas.org/content/94/12/6512.full>. See also https://intramural.nimh.nih.gov/research/clinicians/sc_furey_m.html.

³⁶ Henman, 57.

will be functional specialization, “which can be symbolized by an “8-by-8 matrix C_{ij} that refers to exchanges between specialties.”³⁷ But, he also calls our attention to a “ninth zone, which ranges from outputs of the last specialty to inputs to the first specialty.”³⁸ With that more complete account, Henman ends the Epilogue, and so the book, with a challenge to the reader and community. “How does one break forward from ... monstrous conventions that ground the behavior patterns of greedy or gracious poise that make our lives unlivable, our sciences inadequate, our educational structures brutalizing?”³⁹ He observes that neuroscience itself is “nudging (neuroscientists) to review with horror a history of missing the points of the selves to be discovered, the selves that makes human neurodynamics so radically different from that of apes.”⁴⁰

As Henman includes in his description of his own work, the book is “very elementary,”⁴¹ an effort at “prescientific ... communication,”⁴² belonging to what, at the end of the book, he calls “a ninth zone”⁴³ (“the area of common sense, influenced by functional collaboration’s output, (and), providing input to the ongoing collaboration”⁴⁴).

Henman makes several provocative claims, some of which have been quoted in this review. A reader of his book might be tempted to enter into logical debate about this or that point. However, it seems to me that going that way one would be missing the main pointing of the book, the main flow that is implicit in the title of the book, *paradigmatic*. From the beginning, discussion (a) is about method, methods in neuroscience, in philosophy of neuroscience, and more generally, methods in science; and (b) regularly invites the reader to attend to their own experience. And, it seems to me that it is by seeing the book in that light that a main value of the book can be discerned. Yes, as Henman claims, it does seem that the book is written in what he calls a ninth zone. But, it also seems to me that there is a dominant lean, as input (to future) *functional research*.

³⁷ Henman, 58.

³⁸ Henman, 58.

³⁹ Henman, 59.

⁴⁰ Henman, 60.

⁴¹ Henman, 35.

⁴² Henman, 59.

⁴³ Henman, 59.

⁴⁴ Henman, 59, note 7.

With that observation, I also think that we can anticipate, at least in part, how the book should positively challenge both groups of intended readers, although each in somewhat different ways.

Why, though, do I suggest that a main lean is toward functional research? It is because the book calls our attention and self-attention to key and core anomalies in contemporary methods. For instance, readers in neuroscience are invited to an elementary observation and self-observation that in the effort to reach a “theory of thinking,”⁴⁵ “understanding ... neurochemical antecedents ... is not the same as identifying the acts with their correlates.”⁴⁶ Or again, in Chapter 2, Henman asks the following apparently naïve questions: “Can the operations that the terms *interpret, determine, knowledge, recognize, decode, information, recognize* and *formulate*⁴⁷ refer to, be empirically located in cellular processes? Do cellular processes have these abilities?”⁴⁸ As the last paragraphs of the Epilogue point to, resolving these anomalies will be difficult. In contemporary neuroscience, remarkable progress is being made in identifying biochemical and biophysical (aggregate) correlates of genera and species of feelings, inquiry, insight, deliberation, decision and choice⁴⁹. But, neither present-day education nor contemporary scientific methods invite investigators to attend to their own acts and operations, let alone ask for precision needed within the subtleties and layerings of front-line 21st century results.

The book also poses challenges for readers in Lonergan Studies. As defined by Lonergan, and as evidently needed in the sciences, generalized empirical method is to be⁵⁰ a balanced method normatively grounded in scientific understanding⁵¹. Among other things, it will be a basis for a control of meaning and, in particular, for being able to make progress toward

⁴⁵ Henman, 1.

⁴⁶ Henman, 7.

⁴⁷ In the book, these are boldface (Henman, 20).

⁴⁸ Henman, 20.

⁴⁹ The neuroscience literature is extensive and expanding rapidly.

⁵⁰ Note that I use the future tense. Generalized empirical method is not yet operative.

⁵¹ Lonergan’s explicit statements to this effect are numerous. For one example: “(M)etaphysics, as it is being conceived, ... regards being as explained” (Bernard Lonergan, *Insight: A Study of Human Understanding*, eds., Frederick E. Crowe and Robert M. Doran, vol. 3 in *Collected Works of Bernard Lonergan* (Toronto: University of Toronto Press, 1992), 420). No doubt, there are differences of opinion here in the community. Quotations from Lonergan aside, such positional differences will not be resolved by analytic methods or debate. One needs to meet in dialectic. *Effective dialectic* is brilliantly outlined and inlined by Lonergan (Bernard Lonergan, *Method in Theology* (London, Darton, Longman & Todd, 1975), 250).

identifying metaphysical equivalents. Unlike present-day disciplinary sciences⁵², the literature in Lonergan Studies does advocate self-attention. However, so far, Lonergan Studies has been dominated by methods of traditional scholarship. Anomalies here, then, are in an academic tradition that promotes ongoing scholarship about ‘feelings,’ ‘insight,’ ‘deliberation’ and ‘explanatory understanding’ of such, but does not call for explanatory understanding of such. No doubt, the control of meaning called for will be a remote future achievement for the entire Academy. In the meantime, Henman’s book invites Lonergan Studies to take note of various facets of the basic anomaly.

Another way that Henman’s book can help is by way of example. Details of the book aside, there has been Henman’s reach into contemporary neuroscience. Might not such an effort challenge and inspire students and young scholars in Lonergan Studies? Indeed, it seems to me that in order to eventually make its proper contributions to history, Lonergan Studies needs to eventually struggle free of rich description. For, among other things, even when “elements of meaning” are described in intimate or scholarly detail, without climbing to the modern horizon, there is little possibility of helping with problems and crises of these times.

I mentioned that challenges posed to both groups of intended readers are somewhat different. But, the two sets of anomalies revealed by Henman’s book also have commonalities. For, in both cases, there is the problem of (not yet) being adequately empirical⁵³. Neuroscience does not yet advert to all data, while a tradition of scholarship promoted within Lonergan Studies lacks core data. The presence and influence of these anomalies, however, are part of a long-term global problem, namely, that we are presently struggling within ongoing confusions and crises of a second stage of meaning⁵⁴ (identified by McShane to be Axial Times). So, it is fitting that Henman ends his book by pointing to the long-term solution discovered by Lonergan. Henman invites readers to think about the potentialities of a normative (8 +1) - fold functional structuring of human collaboration that will, in particular, promote ongoing attention to anomalies and cycle

⁵² Division of labor along disciplinary lines (occult entities) will become obsolete in mature functional specialization of third stage meaning (Lonergan, *Method in Theology*, sec. 3.10, 85-99).

⁵³ Adequate empirical method “envisages all data” (Lonergan, *A Third Collection*, 140). As noted by Fred Lawrence, eventually it will be known simply as “Empirical Method” (Fred Lawrence, “The Ethics of Authenticity and the Human Good,” in John J. Liptay, Jr. and David S. Liptay, eds., *The Importance of Insight: Essays in Honor of Michael Vertin* (Toronto: University of Toronto Press, 2007), 131).

⁵⁴ Lonergan, *Method in Theology*, sec. 3.10, 85-99.

round to cultivate the emergence of yet-to-emerge genera and species of global caring, outreach and embrace.

Brief Biographical Notice

TERRANCE QUINN did his Master's and Doctoral work in C^* -algebras, an area of mathematics originating in quantum physics. He held post-doctoral positions at Trinity College Dublin (1992–93) and University College Cork (1993–95). He has taught at Texas A&M International University (1995–2001), Ohio University Southern (2001–06), and Middle Tennessee State University, where he is currently professor and former chair of the Department of Mathematical Sciences. He has published in mathematics, mathematics pedagogy, and philosophy of science. Quinn's philosophical work focuses on the writings of Bernard Lonergan, as also illuminated by Philip McShane. Quinn is gradually expanding his range to include religious studies. Book manuscripts in press include *Invitation to Generalized Empirical Method in the Sciences* and *The (Pre-) Dawning of Functional Collaboration in Physics*. Currently Quinn's interests include studying and promoting functional collaboration, discovered by Lonergan in 1965.