



POLANYI AND GRENE ON MERLEAU-PONTY: HISTORICAL NOTES WITH FOOTNOTES TO CHARLES TAYLOR, FRANCIS WALSH, F. S. ROTHSCHILD, AND GILBERT RYLE



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ABSTRACT

This historically oriented essay treats Michael Polanyi and Marjorie Grene's discussions of Maurice Merleau-Ponty in their correspondence in the 1960s. It traces Grene's growing enthusiasm for Merleau-Ponty and notes both Polanyi's criticism and praise for Merleau-Ponty's perspective in relation to his account of tacit knowing. The essay also comments on Polanyi's criticism of Gilbert Ryle and his effort to align his perspective with Francis Walsh's and F. S. Rothchild's neurophysiological ideas about the operation of mind. I discuss the innovative Ford Foundation-funded conference program, spearheaded by Polanyi and Grene, that brought together an interdisciplinary group of scholars interested in transforming the prevailing philosophical paradigm. This project is the context in which discussion about Merleau-Ponty, Polanyi, and other figures flourished and Grene produced a complicated but fascinating set of little-known publications.

Introduction

Michael Polanyi was a fiercely independent thinker who often insisted on working out for himself the implications of his ideas. That is, Polanyi was certainly aware that other philosophical thinkers, earlier and contemporary, were a rich potential resource, but it seems that he diligently labored to extend his own framework of ideas rather than rely on complementary connections with other thinkers. From the time he met Marjorie Grene in 1950, she often pushed Polanyi to expand his philosophical horizons (and it seems likely that Dorothy Emmet did the same in the preceding decade). Sometimes it seems that Polanyi appreciated Grene's advice, but other times it seems he was hesitant to accept her suggestions because he wanted to work out things himself. As I have suggested before, the Grene-Polanyi relationship was a deep and enduring connection, but Grene and Polanyi also were combative intellectual companions. The following discussion attempts to knit together several seemingly disparate elements, some old and some more contemporary.

I draw from historical material and, as a general objective, seek to illumine Michael Polanyi's efforts to distinguish and yet link his own developing ideas to important contemporary philosophical figures and particularly Merleau-Ponty.

Charles Taylor on Michael Polanyi: Early Contact and More Recent Comments

In a 2014 paper, Charles Lowney insightfully comments on Charles Taylor's and Michael Polanyi's different appraisals of Merleau-Ponty. Here is the essence of what Lowney says about Polanyi and Merleau-Ponty:

After summing up the picture that Merleau-Ponty presented in the *Phenomenology of Perception* [in a series of direct quotations], Polanyi says, "These remarks foreshadow my analysis, but I find among them neither the logic of tacit knowing nor the theory of ontological stratification" (*KB*, 222). This, for Polanyi, presented a severe lack, precisely because Polanyi—coming from out of the tradition of scientific research—saw that without a structure like his own, the phenomenological approach becomes inadequate for the task of reforming the old epistemology to the point where it could stem the impetus to reduction (Lowney 2014, 15).

Lowney quotes from the Polanyi essay "The Structure of Consciousness" (1965), an important late essay. As my comments below make clear, it is an essay whose provenance and fate are strangely and interestingly woven with certain other mid-sixties Polanyi and Grene projects in which the young Charles Taylor was deeply involved.

Lowney concisely and accurately summarizes Polanyi's criticism of Merleau-Ponty articulated at the end of "The Structure of Consciousness." Polanyi's scientific imaginary emphasizes the logic of tacit knowing and a hierarchical ontology grounded in the principle of boundary control.¹ Both of these topics are treated concisely and eloquently in "The Structure of Consciousness." Lowney is generally correct about the nature of Polanyi's criticism of Merleau-Ponty. As a figure with a scientific background, Polanyi appreciated a more structural and epistemic approach that he found lacking in Merleau-Ponty's phenomenology.²

Polanyi's hierarchical ontology is his alternative to what Marjorie Grene began in the mid-sixties to call "one-leveled ontology," which drives a search for least particles or principles in most modern inquiry.³ The main idea behind the 1965 and 1966 Study Group conferences, funded by a Ford Foundation grant awarded to Bowdoin College and the Study Group on the Foundations of Cultural Unity (SGFCU hereafter), was to gather convergent voices who were beginning to articulate an alternative to the one-level ontology still dominant in mainstream science and philosophy in the sixties.⁴ The organizing committee for the SGFCU consisted of Polanyi (chair), Grene, and Bowdoin College philosopher Edward Pols. This is the organizing committee's justification for the SGFCU Bowdoin College conferences:

Convinced that there is an unsuspected convergence of ideas separately developed in various fields, we propose a meeting of a number of persons who actively oppose in their work the scientism, and the related methodological and ontological over simplifications, which in one or another form are ascendant in every field of scholarly and creative endeavor.⁵

Polanyi's ideas were touted as a kind of catalyst that might help bring about this convergence.

Charles Taylor came to both conferences at Bowdoin; thus, more than fifty years ago he was directly in contact with Polanyi and Grene in this period when Polanyi, with Grene's help, was working out details of his logic of tacit knowing and his ontology.⁶ As Grene's monograph *Towards a Unity of Knowledge* (1969c)—which included essays and discussion snippets from the 1965 conference—shows, Taylor was clearly an active participant in the Bowdoin discussions. The narrative report on the conference prepared for the Ford Foundation notes that he was a conference participant asking about the relation between Polanyi's account of tacit knowing and the thought of Merleau-Ponty.⁷

Taylor prefers Merleau-Ponty and Heidegger's existential phenomenological approach to that of Polanyi, as Lowney suggests. However, Polanyi is clearly included in the set of figures Taylor lifts up in some more recent publications as bent on fundamentally reforming the modern nominalist epistemological and ontological outlooks. In Taylor's discussion with Polanyi scholars in 2014 and a later publication (Taylor 2017, 27–49), he had many important things to say about the convergence of figures like Polanyi, Merleau-Ponty, and Wittgenstein.

Polanyi did closely study some of Merleau-Ponty's writing, and the push to do this came from Marjorie Grene. In the discussion that follows, I provide some interesting details about this push. Several letters in the Polanyi-Grene correspondence as well as another interesting letter from the period just prior to the Bowdoin conferences discuss Merleau-Ponty's ideas and reflect both Polanyi's excitement about and his criticisms of Merleau-Ponty.⁸ Polanyi's interaction with Grene thus seems to have been the venue in which he worked out his reaction to Merleau-Ponty that is reflected in the 1965 summary comments at the end of "The Structure of Consciousness."

Marjorie Grene on Merleau-Ponty and the Discussion in the Polanyi-Grene Letters

Greene's Discovery of and Growing Appreciation for Merleau-Ponty and the Link with Polanyi

Grene reports in her intellectual autobiography that she first began to read Merleau-Ponty in the academic year 1960. Merleau-Ponty was "something like a revelation" in part because he "seemed to me to be saying, in a different order, what Polanyi was saying, independently in *Personal Knowledge*" (Grene 2002, 20). However, Merleau-Ponty's "thesis of the primacy of perception, of his reflection on human perception in particular, gave me a starting point, not made explicit in Polanyi's account of from-to knowing, for a radically post-Cartesian conception of persons as part of living nature..." (2002, 20).⁹ Grene appreciated Polanyi's ideas about embodiment that are central to the theory of tacit knowing, but she eventually came to think Polanyi had not thoroughly explored embodiment at the primordial level of perception. To put it in language she used thirty-five years after she discovered Merleau-Ponty, Polanyi had shown that there is "no sharp cut between belief and knowledge," but she found Polanyi's work less effective in showing that there is "no sharp cut between perception and belief" (Grene 1995, 25).¹⁰ But in the early sixties, she began mentioning Merleau-Ponty to Polanyi as an important thinker in her correspondence, as the notes below on a few letters and other documents show.

The Polanyi-Grene Correspondence Concerning Merleau-Ponty

(1) Grene's letter of January 19, 1963 (B16, F1, MPP). This letter mentions Merleau-Ponty apparently in response to an earlier Polanyi inquiry about "existentialism": "Don't bother about existentialism, unless with your psychologists and (see below) Merleau-Ponty." Later in her letter, she gives bibliographic data on

Merleau-Ponty and other figures identified as “a group of [European] biologists and psychologists around Portmann” who are generating a literature that is “closest to your approach.” She names Merleau-Ponty, Goldstein, Buytendijk, and Portmann.¹¹ These are figures whose writing is generating “new theoretical biology-cum-animal-psychology” literature

which is consistent with and supports your epistemology, but...no one has made your distinctions between P. and O. awareness and therefore no one else has 1) incorporated epistemology into the new biology or 2) founded the new biology on an epistemology adequate to it, let alone; 3) generalized both the former to a comprehensive ontology. I don't think you have yet finished doing either. So please get on with it!!!¹²

In her lengthy letter, it appears that Grene primarily was responding to pointed questions posed in Polanyi's January 14, 1963 letter (B16, F1, MPP), which included a now lost attachment with some points treated in *PK*. Polanyi insisted that these points were true, important, and new ideas and bluntly asked if Grene agreed with him. He contended that he had read other writers (apparently referring to theoretical biologists and other philosophical scientists interested in the nature of life) who “had something of the kind in mind,” but he says these other writers did not “have any conception of achievement, of success, or failure, of causes and reasons, of generational principles, or of logical unspecifiability.” At the end of this letter, Polanyi acknowledges shortcomings in his own writing about living forms, but then he explains why he proceeded the way he did in *PK*:

I think the time has come when every statement on theoretical biology, or the logical structure of biology, should be made against a clear background of previous work that the author accepts or rejects. I have certainly been remiss in this respect, myself, in writing P.K. but I always felt that my own interpretation was so different from that of earlier writers that it would be excessively laborious to make their mutual relation clear. However, I regret the omission and hope you will be prepared to help me in remedying it.

While in the later phase of her long life Grene was more engaged with philosophical questions in biology, it is clear that she did *not* take on the task of shoring up the theoretical foundations of biology sketched in Part IV of *PK* and later Polanyi publications. To the contrary, the late Grene is often quite critical of some of Polanyi's responses to questions about the nature of life and evolution and even his stratified ontology (Grene 1978, 168; Mullins 2010–2011, 26–29). At times, it seems that she no longer understood ideas that she likely helped Polanyi articulate or, at the least, ideas for which she was sometimes early on an articulate spokesperson.

Grene's appreciation of Merleau-Ponty seems more resilient, although eventually she complains about his rhetoric (Grene 1995, 80) and suggests that an ecological account of perception such as that of the Gibsons “can contribute to a more adequate conception of the way we cope with the world around us” (131). She argues that Merleau-Ponty was a figure who was “developing a new, or renewed ontology” and thus providing “a metaphysical, as distinct from a purely epistemological, refutation of phenomenism” (Grene 1976, 606). She identifies his ontology as profoundly realistic and aimed against prevailing psychological views of “the causal theory of perception...which would exile significance from any ontological status” (606). She argues that Merleau-Ponty rejects the reigning “nominalistic thesis that only particulars are real” (606). His “refutation of phenomenism and of nominalism” affirms an “ontological pluralism”;

that is, Merleau-Ponty saw that “a one-level ontology is inadequate and incoherent” and recognized “that there are hierarchically organized systems, entities, or processes, that can be studied on more than one level because that is how they *are*” (607). However, any reader of Grene’s insightful discussion of Merleau-Ponty’s ontology who is thoroughly familiar with Polanyi’s thought will recognize similar themes in Polanyi and realize that Grene, in her earlier writing, articulated similar ideas and referenced Polanyi’s writing.¹³

(2) Polanyi letter of January 27, 1963 to Grene (B16, F1, MPP). This odd letter is likely a response to Grene’s January 19, 1963 letter or perhaps a letter a bit later that included some comments about Merleau-Ponty and other figures that Polanyi apparently regarded as “existentialists.” Polanyi is sharply critical but gives no indication that he has yet carefully read Merleau-Ponty:

Got your SOS about Merleau-Ponty. I have a theory about what went awry with these people. They discovered an epistemology, or at least sighted it on a distant horizon, which represented knowledge as shaped by the knower, and instead of worrying about the jeopardy of truth, turned a blind eye on this, while fascinated by the jeopardy of man as shaper of his own knowledge. Our business is to restrain this extravagance by a theory of knowledge which implies a limited responsibility of the knower and thereby restricts the range of his self-determination. This will enrich the conception of P. K. by feeding it with the more violent existential passions discovered by our age. You know that I always felt my ideas are lacking in vital concern. I think they can be given a deeper foundation by grafting them on outcroppings of existentialism.

Polanyi’s notion is that a “theory of knowledge” will “restrain the extravagance” of what some philosophers, perhaps including Merleau-Ponty, discovered, namely that knowledge is fundamentally shaped by the knower. Polanyi portrays this restraint as an appropriate prudential concern for the “jeopardy of truth” that limits the responsibility of the knower for the known. Nevertheless, Polanyi goes on to note what he apparently saw as an aridity in his “conception of P. K.” (personal knowledge), which should be enriched and deepened by grafting his conception of personal knowledge “on outcroppings of existentialism.”

(3) Polanyi’s July 22, 1963 letter to Grene (Box 16, Folder 1, MPP). It looks as if Polanyi was trying to articulate a similar criticism in this letter written while vacationing in Sils Maria, Austria. He explains that he has been reading *Panorama des idées contemporaines*, edited by Gaetan Picon, a well-organized, large collection of excerpts from writings of contemporary thinkers pulled together by this editor whom Polanyi describes as a Husserl-Heidegger follower:

I am at last convinced and clear that Husserl’s vision and its existentialist extension by Heidegger, Merleau-Ponty and Sartre become comprehensible in terms of tacit knowing. Most of what they say is an account of my own panorama as it would appear to a mind coming across its paradoxes without having recognized its mechanism. In certain respects this experience of a scene, familiar to me by light, in terms of how it feels in the dark, is revealing. It certainly stimulates me toward trying to explore some ultimate implications of its structure, which an understanding of this structure tends to cover up, or at least to distract from. What pleased me most, was to find that so much of Husserl’s struggle, as well as that of his successors, was conducted in trying to break the monopoly of “conceptual”

thought. They meant, of course, explicit thought. This explains, at long last, the famous “reduction”, so obscurely demanded by Husserl.

The July 23, 1963, letter goes on to link what he has said about Husserl and his successors to a point he made in his 1961 Virginia (also called Jefferson) Lectures and to Ryle, whose logical behaviorism Polanyi thinks is fundamentally misguided. About Ryle, Polanyi says he recognizes “up to a point only” a similarity in “Ryle’s writings with my own views.” This is

due to the fact that he demonstrates the absurdity of explicit descriptions in places where I conclude that only tacit knowing is possible—while he, of course, goes off at a tangent and comes down with some lame behaviourism or artificial and false trivialization of the problem (as in his critique of phenomenism).

What is most interesting here is Polanyi’s sense that Husserl, Merleau-Ponty, Heidegger, and Sartre all provide “an account of my own panorama” as it would appear to minds coming across certain paradoxes embedded in tacit knowing. Those paradoxes are perplexing to these figures because the “mechanism” of tacit knowing is not understood. That is, the fundamental distinction and connection between subsidiary elements and focal elements have not been understood. Polanyi seems energized to explore further the structure of tacit knowing based on what he has learned from these thinkers who have not made his basic distinction. Polanyi claims that he now has an insight into Husserl’s account of “reduction” as an effort on the road to Polanyi’s idea that not all thought is “explicit thought.” The extension of his comments here to the case of Ryle is also of interest. Ryle, like Heidegger, Merleau-Ponty, and Sartre, lacks the basic framework of tacit knowing that distinguishes and links tacit and explicit. Polanyi sees his own similarity with Ryle but notes that without an understanding of the framework of tacit knowing, Ryle slips into a logical behaviorist view that trivializes problems Ryle considers because he assumes that if there is no explicit knowledge then there is no knowledge at all. In the last section of “The Structure of Consciousness,” Polanyi’s criticism of Merleau-Ponty is also extended to Ryle (see discussion below), whom Polanyi portrays as sharing some ground with phenomenologists like Merleau-Ponty, but he thinks Ryle takes disastrous steps beyond Merleau-Ponty.

(4) Undated Letter to Polanyi from Grene (B16, F8, MPP) and Polanyi’s Duke Lecture 3. This undated letter on Queen’s University stationery was probably written early in 1963 (or perhaps 1964) when Grene was teaching in Belfast (she complains about winter weather). Grene comments on her growing interest in several European scientist-philosopher figures including Portmann. She directly asks Polanyi if he knows Merleau-Ponty’s *La Structure du Comportement*.

Clearly, by early 1964 Polanyi was attempting to sort out the relation of his own ideas to ideas of other thinkers, and his ongoing correspondence with Grene contributed to this process. In his third (February 24, 1964) Duke Lecture (online only at <http://www.polanyisociety.org/essays.htm>), Polanyi’s comments are akin to ideas in several letters. Particularly interesting are some of the things Polanyi says about Husserl: Husserl was trying to rescue the reality of a hierarchical universe from the flattened, one-level account of figures like Laplace, just as Polanyi himself does. Until near the end of his life, Husserl understood the lived structures of life as transcendental. But Polanyi says his own theory of knowledge, unlike Husserl’s, tries to show how “to discipline intentionality by its bearing on reality” (Duke 3, 10). Also especially interesting are comments about “existentialists” that echo some comments noted above. Polanyi claims that “once

interiorisation is accepted as intrinsic to knowing, an analysis of knowledge will keep bringing up various aspects of existence, and such observations will confirm the results of existentialist philosophy” (11). Nevertheless, he contends that his analysis goes “beyond existentialism by revealing the logical structure of the observed existential commitments” (11). He points out that “existential elements of human knowledge have a different quality from the existential elements of human destiny” (11). The “existentialists,” Polanyi suggests, treat matters of destiny, and this is more intense and interesting than his own work that focuses on the existential elements of human knowledge. Polanyi argues, however, that responsible inquiry in a society of explorers understood as a part of cosmic evolution makes human inquiry and human knowledge something that transcends death in ways “existentialists” did not envision.

(5) Polanyi’s June 6, 1964 letter to Grene (B16, F8, MPP) and his comment on Heidegger. Polanyi responded to a Grene letter or letters (probably from early 1964) in a June 6, 1964 letter (the year is not given, but Polanyi references his recent February 1964 Duke Lectures). He confirms that he has just purchased and begun to study Merleau-Ponty’s *The Phenomenology of Perception*. But he offers criticisms of Merleau-Ponty, whose approach he is at pains to distinguish from his own approach. He thinks Grene too readily links the rather different approaches: “I am grateful to you for exciting me into buying a copy of M. Ponty’s *Phen. de la Perception*, but I find very little to support your view that he anticipated the two kinds of awareness and their relation to each other.” He documents his claim by citing topics he has discussed and pages in Merleau-Ponty’s book where he thinks they apply:

I find that at every point where my analysis would most obviously apply (absurdification of language, blind man using stick, Stratton’s experiment) ‘positing’ and ‘non-positing’ thought (e.g., p. 241, p. 242 and 274) is used in the sense of ‘epicritical’ and ‘protopathic’ which may occasionally vaguely coincide with specified and not-specified. That is all.

Polanyi acknowledges that Merleau-Ponty is at times talking about tacit knowing, but he points out that Gestalt psychology has also done this. Then he shifts from somewhat defensive comments to praise Merleau-Ponty for what he believes is a magnificent achievement:

What is new and beautiful is his attempt to identify the power (but not the structure!) of tacit knowing. I have read all that with great enthusiasm. But his structure of knowledge, or knowing, is based on the distinction between phenomenological and intellectual knowledge on the one hand, for the body, and for *pour-soi* and *en-soi* for the difference between a person and an opaque thing.¹⁴

At the end of his discussion in the June 6, 1964, letter to Grene, Polanyi suggests that he is not quite sure how Merleau-Ponty’s account of knowledge in human beings extends to other living beings, but he gives Merleau-Ponty the benefit of the doubt, assuming he has taken this up in other writing:

The existence of living beings other than men is not apparent in the text I have seen, except with references to some animal experiments. I suppose there is more about that in the *Structure du Comportement*. I think the handling of the old question of perception as a source of true knowledge is very beautiful, though far too long for its content. There is genius here but no masterpiece.

Polanyi's implication seems to be that it is important to link what can be said about tacit knowing in human beings to other animals and all living things. Polanyi does extend his discussion of tacit powers in addressing the question "What is life?" His writing about tacit knowing sheds light on the kinship of all living things.¹⁵ These concerns were treated both before and after this 1964 letter in Part IV of *PK* and in later Polanyi publications.

Finally, an interesting postscript to this June 6, 1964, letter suggests how Grene mistakenly came to link Merleau-Ponty's account too closely to Polanyi's account of the structure of tacit knowing. Polanyi wrote,

I should add that the often very fine distinction of M. Ponty between cogito and existential movement towards meaning (my tacit knowing) may have reminded you of the two terms of tacit knowing. But this is not right. Cogito is contrasted to the existential, as I would contrast explicit inference to tacit inference. You find this difference clearly hinted at in Lorentz's paper (quoted in the new introduction to *Sc. F. and Soc.*) on Gestalt as a basis for epistemology and it is given a full exemplification in the interiorisation of a driving manual in the Duke Lectures. A good deal more is to be found on the subject in my notes of last year, yet unpublished. If you look at the opening of the third Duke lecture, you will find the distinction between three kinds of unspecifiability: 1. unspecifiability of clues, 2. indefinability of integrative principles, 3. inexhaustibility of heuristic co-efficient. The contrast between existential movement of meaning and a corresponding cogito belongs of course to the second of these limitations of specifiability.

It is also worth noting that in the Preface to the Torchbook Edition of *Personal Knowledge*, dated June 22, 1964, Polanyi links understanding with its tacit roots and Heidegger's discussion of being-in-the-world:

Things which we can tell, we know by observing them; those that we cannot tell, we know by dwelling in them. All understanding is based on our dwelling in the particulars of that which we comprehend. Such indwelling is a participation of ours in the existence of that which we comprehend; it is Heidegger's being-in-the-world. (*PK*, Torchbook Edition, x)

The Ford Foundation Connection

On June 14, 1964, eight days after his earlier letter to Grene, Polanyi wrote Sigmund Koch, a philosophically minded Duke psychology professor, just after returning home from his spring semester of residency at Duke (General Correspondence, Ford Grant 06500113). Polanyi apparently had gotten to know Koch quite well while at Duke, and Koch was deeply interested in Polanyi's ideas. This handwritten letter indicates that Polanyi is now back home and wants to

pick up the thread and tell you that, having spoken on the phone to Marjorie Grene about the relation of my thought to that of Merleau-Ponty, which she said to be close, I decided to face this situation and, rushing to Blackwell's, picked up a copy of *The Phenomenology of Perception*. This was yesterday after lunch and I am half way through already. It is a magnificent work. I see now also why I have always failed to get through it in the past. I could not understand it, let alone accept it, until I reached similar conclusions in my own way, that I can now use as a key, revealing his in some ways deeper meaning.

In this letter (which seems at odds with at least some of his own June 6, 1964 letter to Grene), Polanyi seems to be saying the penny finally dropped for him in reading Merleau-Ponty. He now understands *The Phenomenology of Perception* in a way he did not earlier. He suggests that he “reached similar conclusions in his own way” and that this opened up a “deeper meaning.” While his system is “more simply articulated” and clearer, Merleau-Ponty’s work has “restored to life” what Polanyi calls the coherent outline of the “subjects of thought, meaning, originality, etc.” Later in the same letter, he proclaims Merleau-Ponty’s book a “work of genius” that “opens widely the avenues of truth.” Polanyi contends that he now “sees his own work too in a new light” and suggests that in “joining my work to that of Merleau-Ponty, we reach the end of the beginning.”

In October 1964, Koch took a new position as Director of Humanities and Arts at the Ford Foundation. Polanyi had apparently first learned about this upcoming move when he was at Duke. In the Ford Foundation archival materials, there is a lively correspondence between Polanyi, Grene, and Koch in the summer and fall of 1964. It is clear that these three and Edward Pols (later letters suggest) were conferring about putting together a Ford grant proposal from Bowdoin College and the SGFCU, which was received early in 1965. This was the proposal that funded the 1965 Bowdoin conference and was extended to fund the 1966 Bowdoin conference (for a full discussion, see Breytpraak and Mullins 2017).

More on “The Structure of Consciousness”

The final “Retrospect” section of Polanyi’s 1965 essay “The Structure of Consciousness” includes what seem to be Polanyi’s summary comments on the virtues and shortcomings of Merleau-Ponty’s thought and some connections to other thinkers. Polanyi’s letters and interaction with Grene, going back to early 1963 a couple of years before this essay was written, reflect that Polanyi was thinking about and arguing with Grene about Merleau-Ponty. The short concluding “Retrospect” section of Polanyi’s essay in some ways appears to be a reflective extension of and perhaps a later addition to the earlier part of the essay. The section seems to look back (on the ideas of other thinkers) in a wider reflection; Polanyi moves from his essay’s constructive argument to some brief comparisons. He seems to have regarded the “Retrospect” as important since it summarizes his response not only to Merleau-Ponty but also to other figures he found of interest who held views both similar to and also different from his own.

The “Retrospect” section is included in all three published versions of “The Structure of Consciousness.”¹⁶ This essay was first published in *Brain: A Journal of Neurology* (Polanyi 1965) in November 1965 and then was republished four years later in *The Anatomy of Knowledge* (Grene 1969a) as an interesting artifact from the 1965 and 1966 Bowdoin conferences. Finally, the essay was again republished in 1969 by Grene as a selection in *KB* (211–224; this copy cited hereafter). Grene clearly liked the essay; she refused to include Polanyi essays in *KB* that she considered unsound, despite Polanyi’s lobbying. At least the first two stages of this publication history are of interest.

Polanyi and Walshe

“The Structure of Consciousness” was an invited essay for a *Brain* issue honoring the neurologist and neurophysiologist Sir Francis Walshe, who later contributed the essay “Personal Knowledge and the Concepts in the Biological Sciences” to the 1968 Polanyi festschrift *Intellect and Hope* (Walshe 1968, 275–314). The opening paragraph of Polanyi’s essay (*KB*, 211) suggests his respect for Walshe and that his essay supports

Walshe's views. Polanyi's essay comes back to Walshe in the last paragraph before the final "Retrospect" section (*KB*, 221), thus suggesting that the "Retrospect" section is something of a postscript.

Polanyi corresponded with Walshe for many years. In the Walshe archive at the University of Manchester are more than twenty-five items Polanyi sent to Walshe, including lectures, typescripts of forthcoming articles, a grant proposal, and offprints.¹⁷ The earliest of these materials go back to the 1950s. There are more than a dozen letters, written from 1956 to 1971, in the Polanyi-Walshe correspondence in the archival MPP. They make clear that Walshe held ideas about science akin to those of Polanyi.¹⁸ Walshe says in a September 16, 1970 letter to Magda Polanyi (B8, F14, MPP), "I have the greatest admiration for your husband's writings. With the late Sir Charles Sherrington and A. N. Whitehead I have had more inspiration from your husband than from any other scientist and philosopher." Walshe was on the list of prospective attendees for the 1965 Bowdoin conference. Walshe's essay in *Intellect and Hope* (see citation above) is a *tour de force* giving an account of—and often sharply criticizing—the recent history of neurophysiological thought. It is just the sort of essay that Polanyi, Grene, and Pols might have solicited for one of the Bowdoin conferences. It clearly shows how deeply Walshe understood and appreciated Polanyi's account of living nature and the nature of biological inquiry.¹⁹

The first paragraph of "The Structure of Consciousness" describes Walshe's critical stance, noting the "inadequacy of anatomic structures to account for the full range of mental actions." Walshe "insisted on the presence of integrative mental powers not explicable in these terms" (*KB*, 211). Polanyi clearly viewed Walshe as a contemporary whose views, as a first-rate neurologist and neurophysiologist, were akin to his own account of tacit integration. The last paragraph prior to the "Retrospect" section of "The Structure of Consciousness" comes back to Walshe and explicitly makes this connection:

The way integration functions in tacit knowing, as well as the presence of irreducible organismic principles in living beings, are both consonant with the arguments presented by Sir Francis Walshe for the presence of integrative mental powers, not accounted for by the fixed anatomic structure of the central nervous system (*KB*, 221).

Polanyi footnoted these sentences with references to Walshe's writing.

The final "Retrospect" section of "The Structure of Consciousness," which turns to similarities and dissimilarities with Merleau-Ponty, F. S. Rothschild, and Gilbert Ryle, is thus an addendum to the primary matter in this essay linking Polanyi's ideas to those of Sir Francis Walshe. But the "Retrospect," nevertheless, makes a connection that Polanyi emphasizes is important. The preceding two sections of Polanyi's essay lay out the theory of tacit knowing and his account of the ontological principles of stratified entities. He has argued that these accounts were derived independently, but these accounts together can be applied to understand how the mind relies for its operation on the body. This view, Polanyi suggests, more or less fits with Walshe's approach emphasizing the integrative nature of human mental powers that cannot be accounted for in terms of fixed structures of the central nervous system. The "Retrospect" is thus a short appendix turning from Walshe in a related but new direction: it very briefly notes that Merleau-Ponty, F. S. Rothschild, and Gilbert Ryle are other recent thinkers who have accounts of mind and body that are in part—but only in part—like Polanyi's account.

Rothschild and Ryle in the "Retrospect"

After Polanyi's comments on Merleau-Ponty in the "Retrospect" section, he goes on to comment on F. S. Rothschild, described as "another follower of Husserl" and a predecessor of Merleau-Ponty who arrived at the conclusion that "the mind is the meaning of the body" (*KB*, 222). Rothschild, a physician and neurophysiologist like Walshe, was interested in the evolution of complex brains. At the 1966 SGFCU Bowdoin conference, he gave a paper, "Biosemiotic Aspects of Human Evolution," which drew heavily on Husserl and secondarily on Peirce. Rothschild argues for what he calls a "triadic view" (1966, 2) of the operation of signs in the central nervous system to produce consciousness. He presents this view as a counter to the mainstream dyadic view of modern neurophysiology, which looks for physical (brain) events and subjective (brain) phenomena. Polanyi likely saw Rothschild's ideas as somewhat akin to Walshe's ideas.²⁰ However, Polanyi apparently found Rothschild's Bowdoin paper very dense and likely to obscure more than it illuminated: in his August 1, 1966, letter to Grene (Box 16, Folder 1, MPP), he complained that the paper is a "torrential flow of ideas," hard to follow, written in a breathless style and badly translated from German! He proposed to Grene to make more use at the conference of an earlier Rothschild paper (articulating similar views) that he thought was much clearer. This earlier 1962 Rothschild paper (plus other Rothschild writing) is cited in a footnote about Rothschild in the "Retrospect" section of "The Structure of Consciousness" (*KB*, 222–223, note 13).²¹ Polanyi suggests not only that Rothschild is a predecessor of Merleau-Ponty but (in his endnote) that Rothschild's discussion of consciousness in some respects "anticipates part of my theory of body and mind" (*KB*, 223, note 13).

After his comments on Merleau-Ponty and Rothschild in the "Retrospect" section, Polanyi goes on to attack Ryle's logical behaviorism in ways reminiscent of his comments in his letter of July 22, 1963, to Grene discussed above. He tags Ryle as a representative of "the mainstream of contemporary English and American philosophy" that "ignores the inquiries of phenomenologists" (*KB*, 222) but shares a certain ground with them. Both reject Cartesian dualism, but Ryle moves on to the false conclusion, Polanyi contends, that mind and body are not two things. He distinguishes Merleau-Ponty's position from that of Ryle, but there may be something of a hint that Merleau-Ponty's position is a slippery slope.

"The Structure of Consciousness" and the Publications of the SGFCU Conferences

Scott and Moleski (2005, 260–261) suggest that Polanyi was working on "The Structure of Consciousness" in May 1965; he likely had at least a draft in hand by the August 1965 Bowdoin conference, since the essay came out in the November issue of *Brain*. This Polanyi essay is included in *The Anatomy of Knowledge* (1969a, 315–328), which purportedly contains materials from the 1965 and 1966 SGFCU conferences. But this essay does not seem to have been used in either conference. However, there is an odd feature in *Towards a Unity of Knowledge*, the monograph (Grene 1969c) that Grene pulled together using some papers and an edited discussion of these papers from the 1965 Bowdoin conference. There is a surprisingly long (6.5 pages) comment (205–212) purportedly made by Polanyi that is presented as the major component of the twenty-page discussion of "Man in Biology," a paper by biologist M. R. A. Chance (1969, 177–193). This long comment does more or less fit into the context of the discussion, but it is introduced by Grene as editor with a short, bracketed paragraph titled "Levels of Reality," which says that a persisting problem in almost all of the conference discussions concerned "explanation in terms of hierarchies of structure as against a single principle of physico-chemical explanation" (Grene 1969c, 205). Except for the opening paragraph of Polanyi's long comment (which follows Grene's editorial injection), what Polanyi was supposed to have said in the discussion bears a striking resemblance to the second and third sections of "The Structure of

Consciousness” (i.e., “Principles of Boundary Control” [KB, 216–218] and “Applications of these Principles in Mind and Body” [KB, 218–221])! These sections seem to have simply been lifted from Polanyi’s essay without citation and inserted into the discussion of Chance’s paper as a Polanyi comment. Grene does complain to the Ford Foundation that late in the monograph’s publication process she was forced to cut the length in half; she apparently used sections of Polanyi’s essay to concisely treat the topic of levels of reality that she took to be immensely important.

Conclusion

My circuitous discussion of an important Polanyi essay, “The Structure of Consciousness,” ferrets out a number of historical details that illumine Polanyi’s interest in linking yet distinguishing the ideas he was working out in the mid-sixties and the ideas of other thinkers. The correspondence with Marjorie Grene reaching back to early 1963 suggests that Grene encouraged Polanyi to read Merleau-Ponty as well as several other European scientist-philosophers whom she thought were developing ideas akin to those Polanyi was developing, as he refined his theory of tacit knowing and his hierarchical ontology grounded in the principle of marginal control. Grene saw these figures as working on interesting ideas about what living things are. She noticed certain similarities between these ideas—in particular Merleau-Ponty’s account of embodied perception—and Polanyi’s account of knowing and being. Polanyi’s letters to Grene suggest that he resisted some of the comparisons Grene was making. He questioned, on at least some points, Grene’s effort closely to align his theory of tacit knowing with Merleau-Ponty’s phenomenological account of human embodiment that he associated with Husserl, Heidegger, and Sartre. He suggested that his fundamental distinction between tacit and explicit knowing is not a distinction he believed thinkers in the phenomenological tradition, like Merleau-Ponty, had clearly made, and this distinction is most important. But he also seems at times to have regarded Husserl’s “reduction” and perhaps Merleau-Ponty’s “embodiment” and accounts of “being-in-the world” as philosophical moves on the way toward something like his theory of tacit knowing. When Polanyi did seriously study Merleau-Ponty’s *The Phenomenology of Perception*, his letters reflect that he found some things that he deeply appreciated.

There is, unfortunately, very little that Polanyi published that clarifies his relationship with figures in the phenomenological tradition. “The Structure of Consciousness” was actually an invited 1965 essay honoring Sir Francis Walshe, Polanyi’s long-term friend. In this essay, Polanyi links his ideas about tacit knowing to Walshe’s neurophysiological ideas about how the mind works. But there is a 1.5-page “Retrospect” section added to the end of this essay in which Polanyi briefly summarizes his views on Merleau-Ponty as well as on F. S. Rothschild and Gilbert Ryle.

The 1965 and 1966 Ford Foundation conferences at Bowdoin College drew into discussion a set of intellectuals looking for a philosophical paradigm shift. Polanyi’s philosophical writing was promoted as an innovative perspective that could instigate a convergence of the innovative work of other thinkers. The SGFCU publications comprise an interesting but confusing set of material that overlaps somewhat with Grene’s collection of Polanyi essays *Knowing and Being* and the Polanyi festschrift *Intellect and Hope*, edited by Poteat and Langford. All of these volumes came together from 1965–1969. Interestingly, Grene included “The Structure of Consciousness” in one of the SGFCU publications, *The Anatomy of Knowledge* (as well as *Knowing and Being*), although the essay does not seem to have been officially part of either Bowdoin conference’s program. In *Towards a Unity of Knowledge*, the monograph with materials from the 1965 Bowdoin conference, she also included without citation two important sections of “The Structure of Consciousness”

as part of the discussion section for another paper. She, or perhaps she and Polanyi, apparently believed that Polanyi's discussion in the second and third sections of his 1965 *Brain* essay was an outstanding study of the central questions about levels of reality and levels of explanation.

Finally, a last word about Marjorie Grene: About *Personal Knowledge* in his Acknowledgements, Polanyi said of Grene that "she has a share in anything that I may have achieved here." He recognized that his discussion with Grene "catalyzed...progress at every stage" on his magnum opus, and every page "benefited from her criticism" (Polanyi 1958/1964 Torchbook, xv). The discussion here makes clear that Grene's role as a catalyst for Polanyi continued after 1958 at least through most of the mid-sixties. She pushed before him important reading; she was a sparring partner; she was a formidable force on the ground in getting together projects like the Bowdoin conferences; she saw to it that some of Polanyi's essays were published, and she was an important Polanyi interpreter in several of her own publications.

ENDNOTES

¹"Imaginary" is a Taylor term defined as "socially shared ways in which social spaces are imagined" (Taylor, 2011, 86), but see also Taylor's *Modern Social Imaginaries* (2004).

²Lowney's 2014 paper argues that Taylor's philosophical project of reforming modernity should be joined with Polanyi's similar philosophical project that is grounded less in the phenomenological/hermeneutical tradition and more in a reformed scientific tradition rooted in an account of discovery. This paper should be linked to an extraordinarily insightful but yet unpublished 2009 Polanyi Society paper, "Of One Mind? Merleau-Ponty and Polanyi on the Reduction of Mind to Body" (Lowney and Verlage 2009) that explores Polanyi's criticisms of Merleau-Ponty and lays out fundamental differences between Merleau-Ponty's and Polanyi's approaches to basic philosophical questions. I don't dispute the insightful Lowney and Verlage account, although I read Polanyi (as I sketch below) in a way that connects him more fundamentally with questions about what life is than this 2009 paper does.

My comments below on the Polanyi-Grene correspondence suggest that Polanyi seems to work out his differences with Merleau-Ponty (and others that Polanyi links to Husserl) over several years in the early sixties. Polanyi's comments on Merleau-Ponty in "The Structure of Consciousness" (quoted above by Lowney) is the 1965 culmination of Polanyi's process of rumination. Perhaps more than Lowney, I read Polanyi's philosophical ideas as developing over the course of his life, just as Lowney shows that Merleau-Ponty's ideas did also change, leading Merleau-Ponty eventually to criticize his own starting point in *Phenomenology of Perception*. Lowney and Verlage somewhat overstate matters in suggesting in their 2009 paper that deep within Polanyi's thought is a residual analytic picture that affirms a new kind of dualism and is a representational account of knowing with a complementary ontology that matches up being with knowing. Polanyi's new kind of dualism is, of course, not a substance dualism, and it is primarily concerned to identify a duality basic to the operation of living beings. I think Lowney and Verlage's picture is more balanced when they point out that whereas Merleau-Ponty finally wanted to look at the pre-personal and pre-conceptual and completely exorcise dualism, Polanyi could not imagine the pre-personal. But this limit of Polanyi's imagination is not simply the result of his emphasis on intellection. Polanyi stresses the difference and connection between mind and body or minding (a Grene term) and bodying. Polanyi certainly thinks animals other than humans are individual, autonomous, centered beings using tacit powers; the personal is not limited to human persons, although human persons can rise to responsible personhood. From the time he was working on *PK* (and particularly the final "Knowing and Being" section), Polanyi was driven by questions about what is life and what is responsible human life. Although Polanyi does not abandon an epistemic perspective after *PK*, he moves toward developing a clearer ontology of life, as late essays like Polanyi's "Life's Irreducible Structure" (1968b) show. The theory of tacit knowing is in fact a theory of living agency (Mullins 2003–2004), and Polanyi seems more and more to recognize this. Polanyi could not imagine the pre-personal because he was convinced that philosophy starts with an affirmation that living forms are niche-embedded, autonomous, centered systems with tacit powers used for self-creating achievements; living forms in the long haul of evolutionary history either fail to survive or they survive and evolve.

³Grene uses this phrase in her essay on Hobbes as an early modern source of the denial of hierarchy in nature (Grene 1969a, 4). Her essay doubles as an introduction to *The Anatomy of Knowledge* (Grene 1969a), a volume of essays from the 1965 and 1966 Bowdoin College conferences she edited that is discussed below. Her interest in a hierarchical ontology came from her early work

with Polanyi. She later argues that Merleau-Ponty is an opponent of a one-leveled ontology (1976, 606–607); see my further comments below.

⁴See discussion below and Breyspraak and Mullins 2017 for an extended discussion of the SGFCU programs. See Breyspraak and Mullins 2020 for Polanyi's and Grene's work in the larger successor project of the Study Group for the Unity of Knowledge (SGUK).

⁵This is part of the statement Grene included at the beginning of *The Anatomy of Knowledge* (Grene 1969a, ix–x). This material was Appendix A taken verbatim from the funding proposal submitted January 18, 1965, to the Ford Foundation. All material concerned with the 1965 and 1966 SGFCU Bowdoin conferences are Ford Grant 06500113. Appendix A and most other archival materials cited below that concern these Bowdoin conferences (excepting a few especially important documents) are jointly listed in References simply as Archival Materials Ford Grant 06500113.

⁶Polanyi's "The Creative Imagination" (1969a) was the featured paper for opening discussion in the "Philosophical Introduction" session of the 1965 Bowdoin conference and is included (with the discussion) in the monograph *Towards a Unity of Knowledge* (Grene 1969c, 53–91). This Polanyi essay was published several times (see Polanyi 1966 [April] for the earliest publication). Grene included what purports to be the 1965 conference version (and the discussion) in her monograph (Grene 1969c, 53–91). The Narrative Report on August 1965 Conference (p. 2, Ford Grant 06500113) says Polanyi "outlined the theory of tacit knowing" and showed how "scientism, and the consequent reduction of man to an automaton, was the product of a demand for a totally explicit knowledge."

⁷Narrative Report on August 1965 Conference, p. 2, Ford Grant 06500113.

⁸The Polanyi-Grene materials (letters plus other materials) are in the first eight folders of Box 16 of the Michael Polanyi Papers (hereafter MPP) in the Department of Special Collection at the University of Chicago Library (cited hereafter in parenthesis by box [B] and folder [F]). This large collection contains an incomplete and confusing set of letters.

⁹Grene identifies what she found special in Merleau-Ponty as revolving around Merleau-Ponty's appropriation of ideas in recent Continental philosophy. The discussion (below) in the Grene-Polanyi letters and her 1965 book, *Approaches to Philosophical Biology*, make clear that Grene read many Continental thinkers and often made reading recommendations to Polanyi. She notes in *The Knower and the Known* (Grene 1966, though, according to her 1974 Preface to the Paper-bound Edition, most of the book was written from 1961–1963) that there is a connection between Polanyi's ideas about indwelling and "the existentialist thesis that our being is *being in a world*" (Grene 1966, 56). She extends this claim to give her account of mind: "This interpenetration of 'self' and 'world' is not only a central characteristic of mind; it is what mind is" (56).

It is unclear if Polanyi read any of Grene's book before its publication, but she comments on the book in correspondence before its publication. As noted below, Polanyi connected his ideas to Heidegger's "being-in-the-world" in his June 22, 1964, Preface to the Torchbook Edition of *Personal Knowledge* (Polanyi 1958/1964, x–xi). However, Grene unequivocally contends in her later book, *A Philosophical Testament*, that Merleau-Ponty "took what was right in it [i.e., being-in-the-world] and placed it in a more appropriate context" (Grene 1995, 69). She means, of course, a more appropriate context than Heidegger, whom she argues ignores the body or bodiliness. Merleau-Ponty provides "the most effective account so far of what it is to be in a world: to be a person living his (her) life in the odd fashion vouchsafed us by the contingencies of global, biological and human history" (Grene 1995, 80). Merleau-Ponty's account distinguishes the "physical, the vital, and the human order," showing how these "spheres of reality" operate successively in boundaries left open by the next lower order of existence (80). Interestingly, Grene articulates this appreciation of "spheres of reality" using Polanyian ideas about the principle of boundary control. See Mullins 2009–2010, 59–63 for a fuller discussion of Polanyi, Merleau-Ponty, and the Gibsons as important mentors shaping Grene's philosophical outlook.

¹⁰Eventually, Grene comes to hold that "something like what Merleau-Ponty meant by the 'primacy of perception'...is the necessary foundation of Polanyi's doctrine of tacit knowing" (Grene 1995, 25).

¹¹Grene treats Kurt Goldstein, F. J. J. Buytendijk, and Adolph Portmann (plus Helmuth Plessner and Erwin W. Straus) in *Approaches to Philosophical Biology* (1965). She mentions some of these figures from time to time in letters to Polanyi, perhaps because she is sporadically working on this book that Polanyi eventually reviewed. Grene's Preface (1965, v–vii) indicates that she might have included Merleau-Ponty in this book, but she says he was not really a practicing scientist but "purely a philosopher" (vii) and his work was already known. She contended that English speakers needed to know more about these "European scientists—or scientist-philosophers—whose reflections on the conceptual foundations of biology deserve more attention than

they have received so far” (v). Polanyi’s short 1971 review of *Approaches to Philosophical Biology* was positive, although he raised a few questions about the views of some of these scientist-philosopher figures. Polanyi seemed most interested in Plessner, who argues that life will eventually be explained in terms of physics and chemistry, but he also promoted a hierarchical account of living things. Plessner was a participant in the 1965 Bowdoin conference, and his essay “A Newton of a Blade of Grass?” (1969) is included, along with a very interesting discussion, in Grene’s monograph (1969c, 157–176). Straus also made a presentation at this conference that Grene included in her monograph (see Straus 1969). Other participants working on issues in philosophical biology in the two Bowdoin conferences included the neurophysiologist Rothschild (discussed below), M. R. A. Chance, C. F. A. Pantin, Barry Commoner, and Hans Jonas.

¹²This quotation is from a lengthy, handwritten, and often virtually illegible January 19, 1963 (B16, F1, MPP) Grene letter that is responding to three earlier Polanyi letters. Polanyi apparently thought her letter was valuable because he had it typed up (not an unprecedented practice) to save along with the original, but his typist may have had difficulty reading Grene’s handwriting in places. The typed version uses the abbreviation “P. and O.” as above, but this may be a misreading. “F. and S.” (focal and subsidiary) is a reading that would make more sense. It is unclear what “P” and “O” could be abbreviations for.

¹³In the sixties, Grene tightly links ideas of Polanyi and Merleau-Ponty. She often seems to see each thinker through the eyes of the other. But this linkage becomes looser later, and eventually she comes to believe that the Gibsons’ ecological account of perception has an empirical orientation she prefers or at least finds more useful for application to issues in philosophy of biology.

¹⁴Polanyi seems here to point to a certain inadequacy in what he calls the “structure of knowledge, or knowing” in Merleau-Ponty, and this is later echoed in his comment in “The Structure of Consciousness.” This comment also seems akin to another reference to Husserl and Merleau-Ponty, which Lowney and Verlage (2009, 4) comment on in Polanyi’s 1964 address published in January 1966, “The Logic of Tacit Inference” (see also *KB*, 138–158, copy cited hereafter), the year after “The Structure of Consciousness.” Here Polanyi speaks of his own writing about the “unspecifiable powers of thought” as a “theory of non-explicit thought” that he comments might be linked to Ryle’s ideas about an informal logic of science and Husserl and Merleau-Ponty’s ideas that help clarify “a phenomenology of science and knowledge.” What immediately follows Polanyi’s comment pointing out these links is his claim that neither analytic philosophy nor phenomenology and existentialism extend a “theory of non-explicit thought,” as does he, to show “how true knowledge bears on an essentially indeterminate reality” and provide “my theory of a stratified universe” (*KB*, 155).

¹⁵See Mullins 2003–2004 for a discussion of how the theory of tacit knowing is an account of living agency.

¹⁶The “Retrospect” section also appears at the end of Polanyi’s “The Body-Mind Relation,” an unpublished lecture given at Yale on December 10, 1965 (B37, F15, MPP). This lecture seems to be closely akin to “The Structure of Consciousness,” except that Polanyi has inserted a section following the third section of “The Structure of Consciousness.” Here he discusses creativity in nature and human affairs and then closes the lecture with the “Retrospect” section (recall that “The Creative Imagination” was the opening presentation at the 1965 Bowdoin conference in August 1965). The inserted section interestingly expands Polanyi’s account of a hierarchical ontology insofar as he tries to discuss how new levels of control emerge as new comprehensive entities in natural history and human thought (which is part of natural history). There is also a published essay, “The Body-Mind Relation” (Polanyi 1968a), that grew out of a 1966 California conference paper. This essay is akin to but not identical to the December 1965 Yale lecture with the same title. It does not include the “Retrospect” section.

¹⁷The earliest document is a typescript of Polanyi’s “The Stability of Belief” with a bibliographic entry at the top of the page indicating it was published in the *British Journal for the Philosophy of Science* in November 1952, 217ff. The grant proposal, apparently a draft written in 1964 or after (since it references the Duke Lectures) and printed on American-size paper, was to “publish a volume of essays and hold a consultation.” This may be a proposal for what became the Polanyi festschrift *Intellect and Hope* (1968), a volume in which Walshe’s essay “Personal Knowledge and the Concepts in the Biological Sciences” appears (275–314).

¹⁸Two Grene essays are in the Walshe collection, a typescript of “Hobbes and the Modern Mind,” which became Grene’s introduction to *The Anatomy of Knowledge* (Grene 1969a, 1–28), and a ditto copy of “Tacit Knowing and the Pre-Reflective Cogito,” which has a note indicating it was to be included in the 1968 Polanyi festschrift *Intellect and Hope* (Langford and Poterat 1968, 19–57). In his August 1, 1969, letter to Polanyi (B7, F 1, MPP), Walshe comments, “I have enjoyed Marjorie Grene’s two recent publications very much, and I have a feeling that the era of ‘nothing but’ physics biology is gradually on the way to decline.”

¹⁹The Walshe essay in the Polanyi 1968 festschrift was likely written soon after the 1965 Bowdoin conference and may have been originally intended for the 1966 Bowdoin conference; it makes much use of Polanyi's article in the November 1965 *Brain* issue honoring Walshe as well as a May 1965 Polanyi essay titled "On the Modern Mind." *Intellect and Hope* is likely the work primarily of William Poteat, and it was put together in the same years that the publications from the 1965 and 1966 Bowdoin conferences and *Knowing and Being* were put together. Poteat, an important friend of Polanyi and Grene, was involved in both Bowdoin conferences and was originally scheduled to work with Grene on *Knowing and Being*, but he withdrew from this commitment in early 1968 (see Mullins 2009–2010, 40–42). How much input Polanyi and Grene may have had about the selection of material in *Intellect and Hope* is unclear. A striking number of the essays included in the festschrift are by authors who were involved in the Bowdoin conferences or were people on the early lists of prospective attendees. See the Breytspraak and Mullins discussion (2015–2016, 18–33) of Poteat and Polanyi's changing relationship and Poteat's involvement in projects that centered on Polanyi.

²⁰Some but not all published versions of Polanyi's 1966 paper "Sense-Giving and Sense-Reading" (*KB*, 181–210) link the triad of tacit knowing to Peirce's semiotic triad. See the detailed discussion in Mullins 2011–2012, 7–10.

²¹This earlier 1962 Rothschild essay is today cited by theoretical biologists and biosemioticians as one of the first places the term "biosemiotics" was used. Rothschild is regarded as an early figure who promoted the centrality of sign processes in biology.

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