



The Delicate Empiricism of Goethe: Phenomenology as a Rigorous Science of Nature

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Abstract

Johann Wolfgang von Goethe's approach to natural scientific research has unmistakable parallels to phenomenology. These parallels are clear enough to allow one to say confidently that Goethe's delicate empiricism is indeed a phenomenology of nature. This paper examines how Goethe's criticisms of Newton anticipated Husserl's announcement of the crisis of the modern sciences, and it describes how Goethe, at a critical juncture in cultural history, addressed this emerging crisis through a scientific method that is virtually identical to the method of contemporary empirical-phenomenological research in the human sciences. Goethe's practice of science shares with phenomenology a participatory, morally-responsive, and holistic approach to the description of dynamic life-world phenomena. Delicate empiricism has its own version of the phenomenological epoché, and, like Husserl's technique of imaginative variation, it strives to disclose the essential or archetypal structure of the phenomenon through the endowment of human imagination. However, a close reading of Goethe suggests that the tendency amongst some scholars to distinguish phenomenology as human science from the natural sciences is actually a costly error which unwittingly falls prey to implicit Cartesian assumptions. Goethe, however, manages to avoid these problems by performing from the first a phenomenology of nature's sensibility.

A human being is part of the whole called by us universe, a part limited in time and space. We experience ourselves, our thoughts and feelings as something separate from the rest. A kind of optical delusion of consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from the prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty. ... We shall require a substantially new manner of thinking if mankind is to survive. (Albert Einstein)

There is a delicate empiricism which makes itself utterly identical with the object, thereby becoming true theory. But this enhancement of our mental

powers belongs to a highly evolved age. (Johann Wolfgang von Goethe)

Introduction

Johann Wolfgang von Goethe (1749-1832) is perhaps best known as a novelist, dramatist, and poet. However, Goethe was also a philosopher, politician and scientist. Goethe's friendship with Schiller, as documented through their correspondence, reveals Goethe to be a shrewd and witty debater on issues central to philosophy in his time - issues which played out implicitly in his literary and scientific work. He was also active in politics and spent ten years as Minister of State in Weimer. Yet, in spite of all these accomplishments, Goethe was proudest of his

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scientific achievements, and most especially his work on optics in his *Theory of Colours* (Goethe, 1970), which provided an empirical argument refuting Newton's physics of light and later inspired Wittgenstein's (1978) *Remarks on Colour*. Moreover, Goethe's discovery of the human premaxilla jaw bones and his other work in plant and animal morphology has had a lasting influence upon the field of biology. Indeed, Goethe's work informed and is referenced by Darwin (1859/2003) in his *Origin of Species*.

Perhaps because Goethe's theory of colour pointed its barbs at Newton's theory in a time when Newton was celebrated as a hero, and likely due to the fact that he was identified primarily as an author of fiction and poetry, Goethe's scientific discoveries have not always been taken very seriously, or they have simply been ignored. (See Amrine, Zucker, & Wheeler, 1987, for a broad survey of responses to Goethe's work). Nevertheless, some of the most eminent minds in science and philosophy have turned their admiring attention to Goethe's empirical crafts, including, among others, Herman von Helmholtz (1971), Werner Heisenberg (1974) and Walter Heitler (1963), who each dedicated substantive essays to the exploration of Goethe's scientific work. In recent years, several volumes of work have been dedicated to the examination of Goethe's empirical studies, including Amrine, Zucker, and Wheeler's (1987) *Goethe and the Sciences: A Reappraisal*; Seamon and Zajonc's (1996) *Goethe's Way of Science: A Phenomenology of Nature*; and, most recently, a special issue of *Janus Head* on "Goethe's Delicate Empiricism", edited by Craig Holdrege, Bill Bywater, and myself (Robbins, 2005a). In the meantime, the work of scholars such as Henri Bortoft (e.g. 1996) and Dennis L. Sepper (1988) has been instrumental for the purpose of explicating the intricacies of Goethe's methodology. Also, in a special paper in *Physics Today*, Ribe and Steinle (2002) have paid tribute to the virtues of Goethe's exploratory method of physical science. All of these publications are signs that Goethe's science is more relevant today than ever.

Even in recent years, various authors have still dismissed Goethe's methods and findings. (For a review of the literature, see Amrine & Zucker, 1987). Yet, most Goethean scholars, in my experience, have turned to his work because they see in it a radical alternative to modern science - an alternative that they, each in their own way, hope will remedy fundamental problems with science as it has been traditionally conceived.

Among those who take Goethe's science as an alternative to modern science, there appears to be a growing consensus that his delicate empiricism is best conceptualized as a phenomenology of nature (Bortoft, 1996; Brady, 1998; Holdrege, 2005; Robbins, 2005b; Seamon, 1998, 2005; Shotter, 2005; Simms, 2005). In this paper, I will provide a summary of Goethe's methodology and demonstrate its relationship to the phenomenological tradition of philosophy and its deep affinity with current practices associated with holistic approaches to nature and phenomenological psychology.

From Husserl to Goethe: Delicate Empiricism in Historical Context

Phenomenology as a method begins with what Husserl (1964a) called the phenomenological reduction or *epoché*, which involves a setting aside or "bracketing" of the "natural attitude". In the natural sciences, as in everyday experience, consciousness is presupposed and therefore usually taken for granted. By forgetting its ground in consciousness, the "natural attitude" remains ignorant of its own meaning or point of departure. Through the *epoché*, then, it becomes possible for the investigator to explore the role consciousness plays as a condition of possibility for all knowledge, including that of the sciences. By setting aside all presuppositions about the relationship and nature of consciousness and the world, phenomenology seeks to build a coherent foundation for the sciences that will give due recognition to the constitutive role of consciousness in the presencing or givenness of the natural and social world.

Husserl (1964b) was particularly concerned with the presuppositions of "naturalism", which involve the reduction of consciousness to a spatio-temporal entity in the material world. Naturalism necessarily undermines its own foundations. It does so by forgetting how its own activity is grounded in experience. With this forgetting, consciousness is taken for granted and mistaken for a material entity which is determined by discrete, external forces. At that moment, the scientist who asserts a reductive naturalism has already destined his or her work to the whims of scepticism, because the theory and empirical evidence, which depend upon the experience of the scientist him- or herself, must be called into question by his or her own assertions. The same problem arises in psychologism, sociologism, and historicism, where in each case the discipline undermines its own foundation. As Merleau-Ponty (1964) writes:

If, indeed, the guiding thoughts and principles of the mind at each moment are only the result of external causes which act upon it, then the reasons for my affirmation are not the true reasons for this affirmation. They are not so much reasons as causes working from the outside. (p. 44)

This is why it is only through the phenomenological reduction that consciousness can disclose itself properly - not from the outside looking in, but through its intentional relation to a meaningful world.

Increasingly, over time, Husserl (1977) came to realize that reductive scientism had become so entrenched in the modern world - and so closely aligned with the general, historical worldview of our age - that a historico-genetic explanation of the natural attitude was necessary for the purpose of opening up a space for the phenomenological *epoché*. As Moran (2000) explains, Husserl's attention to "the crisis of the European sciences" became acutely focused on a particular aspect of the life-world - namely, "the way in which scientific consciousness with its guiding norm of rationality emerges out of ordinary non-theoretical forms of everyday lived consciousness and its practices" (p. 182).

Husserl's historical analysis focused upon the phenomenological origins of the mathematization of nature most identified with Galileo, Descartes and Newton. This modern scientific worldview is based on a metaphysics that took aspects of the world that can be quantified - essentially movement and extension in space - and conceived an ontology which made these elements of perception the bedrock of reality. All other qualities of the world - such as sound, colour, pain - were relegated to the status of mere products of subjectivity. Those aspects of the world that lent themselves to quantification were designated "primary qualities" by Galileo and those who followed. All other dimensions of the experiential world were assigned to the category of "secondary qualities", which Galileo dismissed as "nothing but mere names" that "hold their residence solely in the sensitive body; so that if the animal were removed, every such quality would be abolished and annihilated" (Galileo cited in Burt, 1932, p. 85).

Galileo's distinction between primary and secondary qualities was predicated on a presupposition that the universe, and all that is contained within it, is something like a machine and that therefore the laws of the universe operate according to principles of mechanics. A machine, by definition, is a human construction that is built from isolated, discrete parts that operate through a cause and effect chain of events

in order to produce the desired result. Further, a machine's function has little to do with its aesthetic properties - those properties most identified as secondary by Galileo - and everything to do with the movement of spatially configured parts in causal relation to each other. And, finally, as a machine's activity and products are determined in advance, so did Galileo and Newton conceive of the physical world "as a closed and self-contained corporeal world within which all events are determined in advance" (Gurwitsch, 1966, p. 412).

All of these aspects of the modern worldview gave rise to the crisis diagnosed by Husserl. The crisis is a crisis of meaning or value. When nature is objectified in this Cartesian perspective - the same perspective that animated Newton's physics - then *all* meaning is essentially reduced to that of movement and extension. As Fuller (1990) notes, "Extension, pure spreadoutness, ... is defined in advance as meaning's very exclusion, the very exclusion of quality and differences in quality, of this and that, of the right and the wrong, of the better and the worse" (p. 11). If this modern worldview were true, value and human meaning would lose their ontological status and become epiphenomenal; that is, they would be secondary derivatives of external causal forces that are, in themselves, indifferent to human concerns. If the universe is like a machine, we either become in essence one of the cogs in that machine, or we conceptualize ourselves as somehow different from the rest of the universe - that is, as subjects rather than objects - in which case we become alienated from the world.

Husserl's answer to the crisis of modernity was to understand, through the phenomenological reduction, how the worldview of modern science is in fact founded on, and abstracted from, what he called the "life-world". As Gurwitsch (1974) defines it, the life-world can be described as "all items and objects which present themselves in prescientific experience and as they present themselves prior to their scientific interpretation in the specific modern sense" (p. 17). If phenomenology can demonstrate how, for example, Newtonian physics has its origins in the world of everyday meanings, then it follows that the life-world founds Newtonian physics and not vice versa. To the extent that it can be demonstrated that the life-world is the meaning and ground of Newtonian physics, we are able to restore everyday meaning and value to our lives. To the extent that meaning and value are restored to our lives, it becomes sensible once again to speak of science as purpose-driven and not merely the product of blind forces of nature and/or history. As David Abram (1996) writes so eloquently:

Indeed, the ostensibly “value-free” results of our culture’s investigations into biology, physics, and chemistry ultimately come to display themselves in the open and uncertain field of everyday life, whether embedded in social policies with which we must come to terms or embodied in new technologies with which we all must grapple. Thus, the living world - this ambiguous realm that we experience in anger and joy, in grief and in love - is both the soil in which all our sciences are rooted and the rich humus into which their results ultimately return, whether as nutrients or as poisons. Our spontaneous experience of the world, charged with subjective, emotional, and intuitive content, remains the vital and dark ground of all our objectivity. (pp. 33-34)

Thus, without a rigorous descriptive science of the life-world, science remains blind and ignorant of its own activity, ultimately to the detriment of ourselves and the planet that sustains us (Robbins, 2005b). And yet we must not mistake this activity to be merely that of a subject cut off from the world; rather, this activity is founded, embedded in, and always already in contact with, the encompassing earth.

The term “encompassing earth” is one I have carefully chosen. The transitive verb *encompass* has three meanings (Merriam-Webster Online Dictionary, 2006). First, in its most archaic, Middle English sense, it means to form a circle about; to enclose. In this sense, the earth is the horizon that encircles and encloses us within its embrace. The second sense of *encompass* is to envelop or to include. Thus, in the notion of the life-world, in principle, the perception of the carnal body is emergent from and included within the flesh of the earth. And, finally, the third sense of *encompass* is to bring out; to accomplish. This latter meaning intimates the teleological notion of earth in Husserl as well as in the more mature expression of earth in Merleau-Ponty’s (1968) flesh ontology. The earth here is not a finished event, but a temporal happening or unfolding within which the human being and other life forms are both participant and witness at the same time. This unfolding, encompassing earth that includes and envelops us is the life-world.

As Ted Toadvine (2005) has elaborated, Maurice Merleau-Ponty’s extension of Husserl realized this notion of earth in a way that was still only anticipated by Husserl. Inspired by his teacher Franz Brentano, Husserl understood consciousness in terms of the quality of intentionality. Intentionality describes the

mind’s activity as one that is directed toward objects that transcend it. In transcending itself, the mind does not represent its own activity directly as much as implicate itself indirectly through the constitution of the object in perception. The intentional nature of consciousness therefore includes two poles: the *noesis*, which is the activity of consciousness, and the *noema*, which is the product of that activity which appears as the object of perception. However, in this formulation, Husserl speaks as if consciousness were active and the object passive. In contrast, Merleau-Ponty revised Husserl to better emphasize the fact that sense or meaning is an activity that erupts in a chiasmic exchange of flesh upon flesh - the carnal sense of bodily flesh conjoining in co-constitution of the thing *with* and *through* the carnality of the animate earth. Through this co-constitutive conjoining of earth and body, and never without that coupling, meaning happens. Meaning or sense here signifies also a directionality, or telos. Finally, in this context, the distinction of world and subject - *noema* and *noesis* - is no longer adequate, for instead we must speak of a “meeting point of world and life” (Toadvine, 2004, p. 276).

In Merleau-Ponty’s flesh ontology, every life form instantiates itself as a ‘hollow’ or ‘fissure’ in the flesh of the world, through which it creatively transforms, or de-forms, the flesh of the world into a sensibility and finally into expressivity (Merleau-Ponty, 1973). However, this activity of the organic is not a happening that transpires over and against the earth, but is a coming-to-expression *of* the earth itself *through* itself. As Toadvine (2004) writes, “My body’s struggle to express ... [is] nothing other than the world’s struggle to express itself through me, as if I were an organ of this single massive body named Nature. Human being might be thought of as nature’s engine of self-expression, its own coming-to-consciousness” (p. 279). Meaning or sense, therefore, is not something invented by the mind of a constituting subject, but something more primordial than either subject or substance alone. As Merleau-Ponty (1962) writes,

... what I call experience of the thing or of reality - not merely of a reality-for-sight or for-touch, but of an absolute reality - is my full co-existence with the phenomenon, at the moment when it is in every way at its maximum articulations The passing of sensory givens before our eyes or under our hands is, as it were, a language which teaches itself, and in which the meaning is secreted by the very structure of the signs, and this is why it can literally be said that our senses question things and that things

reply to them. ... The significance of a thing inhabits that thing as the soul inhabits the body: it is not behind appearances. (pp. 318-319)

Having passed through the realm of phenomenology on the way to Goethe, we have travelled a long way from the Cartesian/Newtonian worldview. Within the phenomenological perspective outlined above, the Galilean distinction between primary and secondary qualities is no longer tenable. Because sensibility is a product of the earth itself, then all sensibilities, and not simply the sense of movement and extension in space, have ontological validity that must be taken seriously on their own terms. To take sensibility on its own terms is to maintain fidelity to the phenomenon as it most primordially appears in its life-world context. By doing so, values - which is another word for the inherent *telos* of sensibility - are recovered from oblivion and, with a place for value, it becomes possible to say that science, as all human activity and life, has a directionality that *makes sense*. The danger arises when the sense-making of human expressivity forgets that the earth is its meaning, ground, and point of origin.

Finally, the universe is conceived with the phenomenology of nature not through the metaphor of the clock, but through a grasp of the organic, or *life*. In contrast to a machine, "Life values and chooses; it throws a world up before itself and is therefore already intentionally engaged rather than merely causally connected" (Toadvine, 2004, p. 276). So, if we are to have a phenomenological approach to the science of nature, that approach will be less concerned with isolating cause and effect relations, instead focusing upon the careful, rigorous articulation of a unified field of organic being coming-to-awareness of itself through discovery. However, where phenomenology as a tradition has generally been lacking in applications to the life sciences, in particular biology, Goethean science had already long anticipated phenomenology's insights.

Goethe's Delicate Empiricism

Like Husserl's phenomenology, Goethe's delicate empiricism is a response to the emerging crisis of what was at the time the new empiricism of Newton's physics. For heuristic purposes, Goethe's science can be described as having at least four qualities that resonate with phenomenology: it is (a) participatory, (b) morally-responsive, (c) holistic, and (d) dynamic.

Participatory

When I say that Goethe's delicate empiricism is "participatory", I do not mean that his approach to

nature is magical or animistic. In other words, Goethe does not project his own verbal or pre-verbal conceptions onto the phenomenon under consideration. Rather, it is participatory in the sense that it flows from an intimate engagement with the phenomenon under study. To engage with the phenomenon in this way is not to step back from it and view it from a detached, intellectual perspective; it is to *dwell* with it and *deepen* the phenomenon through what Goethe called the "exact sensorial imagination" (Goethe, 1971). The final product of the investigation is neither there in the first impression of the phenomenon nor in any prior organizing idea. Rather, the discovery of the primal phenomenon (*Ur-phenomenon*) unfolds over time as the organism becomes more fully present as a whole to the investigator's consciousness.

Our predisposition in our everyday mode of consciousness - what Husserl called the "natural attitude" - is to see the world in an over-simplified, abstract way via our categories of understanding. As Langer's (1992) research has demonstrated, many people are accustomed to engage the world in a way that imposes *a priori* categories and distinctions - for example, categories handed down by language or culture. This kind of "mindless" style of cognition forecloses the individual's openness to novelty and sensitivity to context. In contrast, a mindful cognitive style is one that maintains fresh contact with the phenomenon, always aware of how the phenomenon's meaning is also constituted by its context and the perspective of the investigator. Interestingly, this kind of mindfulness is not at all a disengaged intellectual process; it is a wholehearted plunge of attention into the thing's form.

In order to cultivate an intimate immediacy with the phenomenon under investigation, Goethe often began his empirical work by sketching the subject of his research. Most Goethean scientists, and especially those who work on plant and animal morphology, follow in Goethe's footsteps by developing sequences of careful drawings of their subjects (e.g. Hoffman, 1998; Holdrege, 1998, 2005; Riegner & Wilkes, 1998). When sketching is less feasible, such as in Goethe's investigations of colour, then the investigator can turn instead to careful, rigorous descriptions.

David Seamon (2005) has often repeated Goethe's colour studies with his college students. As he describes it, the process of accurately describing colour phenomena takes great care and is much more difficult than it may at first appear. In the early descriptions, the students have a tendency to impose their expectations on the phenomena. As Seamon

(2005) describes, “Many participants first beginning the exercise expect to see colour everywhere or, with vague memories of high school physics in mind, expect a full-colour rainbow to appear, which in fact does not readily happen” (p. 89). When these initial expectations are set aside by the students, they fall into other traps. Their descriptions are too vague or they make observations that are incorrect. Other students borrow abstract concepts from the physics of light that cannot actually be found in direct observation of the phenomenon. Eventually, however, they learn how to see the colours directly and immediately, and through a collaborative, interpersonal process, they are able to formulate these fresh perceptions in words that gradually extend each observation into a whole fabric that describes the broader patterns and relationships of colour phenomena. Through this immediate participation in the colour experiments, the students come to understand Goethe’s approach to science in a way that is not accessible through abstract formulations. As Goethe would say, they have cultivated “new organs of perception” in themselves.

Isis Brook (1998) describes Goethe’s participatory science as having four phases: (1) exact sense perception, (2) exact sensorial fantasy, (3) seeing is beholding, and (4) being one with the object. In the phase of “exact sense perception”, the investigator brackets or sets aside all categorical preconceptions in order to see the phenomenon in pure form. In the phase of “exact sensorial fantasy” (*exakte sinnliche Phantasie*), the researcher uses his or her imagination in order to retain the unfolding process of the phenomenon’s dynamic form. The third phase, “seeing is beholding”, involves the investigator’s giving him- or herself fully to the phenomenon in order to allow the phenomenon to impress itself on his or her consciousness. Finally, in the fourth phase, “being one with the object”, the investigator comes to a well-earned insight into the archetypal or essential structure of the phenomenon.

Following Brooks’s description of the sequence of Goethean investigation, one can see that the emergent, archetypal form of the phenomenon is something that is not possible - that could not have been realized - without the conscious participation of the investigator. The emergent insight is neither subjective nor objective in the traditional Cartesian sense, but a *sensibility* that emerges from a conversation between a receptive consciousness and the phenomenon’s carnal directionality. However, the character of this participation differs from the Newtonian approach, which attempts to isolate causes and effect for the purpose of manipulation and control.

As John Shotter (2000) describes it, the participatory character of Goethean science is a “relationally-responsive understanding” rather than a “referential-representational understanding”. Rather than an approach to investigation that thinks *about* the phenomenon from a space of distance and detached reflexivity, the Goethean scientist thinks *with* the phenomenon. “Witness-thinking”, according to Shotter (2005), “is a form of reflective interaction that involves our coming into living contact with the living (or moving) being of an other or otherness” (p. 145). By thinking with the phenomenon, according to Goethe, the emergent product of investigation is “utterly identical with the object” (Goethe, 1971).

Morally Responsive

Shotter’s notion of “witness-thinking” carries with it an implicit ethical or moral responsiveness to the other or otherness. From personal experience and from other descriptions of Goethean practice, I’ve found that careful description of a phenomenon is an intimate experience of sensual contact with an other. With a receptive will, the delicate empiricist lends him- or herself to the phenomenon, allowing the dynamic form of the unfolding organism to penetrate his or her patulous imagination, where its archetypal form can be disclosed in gradual cessation.

What qualities of the investigator are necessary for this receptivity to be an ethical/moral engagement? In Goethean science, the responsiveness to the phenomenon is ethical to the extent that the scientist *consciously* participates in the phenomenon and is not merely absorbed by it (Bortoft, 1996, p. 271). Considering the case that the human being is a reflexivity - a fold in the flesh of the world - through which earth comes to self-consciousness, the Goethean scientific endeavour responds to the call by allowing the organism under investigation to come into being as a visibility or appearance that would otherwise remain invisible without human intervention. The encounter obligates the investigator to give generously of his or her open receptivity and sensuality, as well as his or her imaginative faculties, in order to allow the phenomenon to show itself from itself in the very way in which its formative impulse wants to appear. However, as Bortoft (1996) writes, “What occurs in consciousness in this encounter *is* the archetypal plant itself and not a representation of it” (p. 270). The ethical call announces itself as an obligation to respond to the phenomenon’s otherness. Our capacity to engage otherness in this way, without being absorbed by it and without reducing it to abstract categories, is a developmental achievement that takes much time and patience to nurture in ourselves and in others (Robbins, in press).

In practice, the ethical responsiveness initially emerges either through a bracketing or, sometimes, a surprising and perhaps even violent shattering of our habitual ways of seeing so that we no longer see past the phenomenon toward our abstract categories, such as “this is a leaf”. Instead, the particularities of the organism’s form emerge from outside the boundaries of our understanding into the shape of a concrete, palpable insight of its magnetic, vital structure which comes into being through the sustaining activity of a vigorously active yet receptive consciousness.

For example, in Craig Holdrge’s (2005) encounter with the skunk cabbage, he begins to see past the biologist’s habit for seeing the organism in terms of parts in mechanical relation. He catches sight of the phenomenon as a whole, and thus the skunk cabbage yields to him through his imaginative receptivity its quality of “wateriness” - its “fluidity, movement, continuity, and the tendency to form surfaces” - which remains invisible to the modern scientific mindset (pp. 44-45). From this insight, he is able to understand, and not merely explain, the meaning of the skunk cabbage’s unique way of decomposing: “...they don’t dry and crumble”, he writes, “they dissolve. With few fibres, they consist mainly of water and air ... and disintegrate into these elements” (p. 45). He now sees with his own eyes, and with the sensory integration that comes only with experiential wisdom, the plant’s fluid quality.

Through the dimension of morally-responsive engagement, we can see in a new way the contribution of Goethe’s poetic sensibility to his science. The capacity to remain open and receptive to the phenomenon demands a certain way of speaking or writing in which language is creatively de-formed; or, in the words of Merleau-Ponty (1985), it is a process whereby stereotypic language is transformed into fertile language so that it can properly “sing the world”. Borrowing from the sedimented, stagnant meanings of everyday language, the poet formulates creative and figurative ways of speaking that put us in contact with the phenomenon. The poem provides us with ‘new organs of perception’ that, when expressed through those who have mastered the medium of poetry, render the invisible visible. For Merleau-Ponty, and I think Goethe would agree, this capacity for permitting the other to break through and express itself in language is a condition of possibility for ethical responsiveness to the other. And thus every scientific breakthrough, to the extent that it offers a genuinely shattering insight into the phenomenon, always has the character of poetizing (Sepper, 2005) as well as the virtue of ethical responsiveness (Bywater, 2005). With ethical receptivity, the

organism becomes sensible, and with poetic speech, the sensible becomes expressible.

Holistic

The meaning and value of a phenomenon can only reveal itself properly through a participatory, morally-responsive, and holistic approach to the phenomenon. Fuller (1999) defines value as “a whole of meaning that is positively or negatively required in its place within a lifeworld context” (p. 136). Borrowing from Gestalt psychology as well as phenomenological philosophy, Fuller’s treatise on values hinges upon the notion of “the law of requiredness”. Within the life-world, sensible qualities are emergent from tension within and between constituent parts of the phenomenon such that a loss of any of those parts, or a reduction of meaning to any single one of those parts, would fundamentally corrupt the meaning and value of the phenomenon. Thus, meaning or value is highly context-dependent (Fuller, 1990, p. 117). Within this holistic way of seeing, requiredness can be understood as the directionality, or sensibility, of the phenomenon that points us in the appropriate direction for fulfilling the phenomenon’s meaning. To the extent that the investigator yields to the directionality or requiredness of the incarnate phenomenon, the organism will be revealed in its most balanced, clear, and simple articulation. Patient receptivity is rewarded with the revelation of the thing’s “goodness of form” (p. 118). On the other hand, deficient observation will tend to have the quality of negative requiredness - a “not good enough” form which therefore will demand to be revisited by further and more careful means of disclosure.

This kind of qualitative seeing - a seeing based on an appeal to “the law of requiredness” - necessitates that the investigator take into consideration both the unfolding, dynamic character of the phenomenon, and its emergent, formative meaning as dependent and founded upon its background context. As Bortoft (1996) has noted, there is a great danger of misunderstanding when we speak of the “whole” of the phenomenon. Within Goethean science, wholistic perception is a matter of preserving the organic unity of the phenomenon, which means that the scientist “avoids reducing multiplicity to uniformity” (p. 147). At first, this statement may appear to be a contradiction in terms. How can a wholistic approach appreciate *multiplicity* when the *unity* of the organism is the aim of the investigation?

Bortoft’s argument helps us to see that our customary, sedimented cultural understanding of “unity” is based on our entrenched habit of thinking in the abstract rather than concretely dwelling with the phenomena.

In detached, analytic thinking, the tendency is to reduce particular categories into larger, more abstract generalities that, in the final equation, lose the unique qualities of the elements that compose the category. Like Plato, the modern, analytic mindset ends up with a split between the intelligible, which is expressed through abstract categories, and sensible or observable phenomena. Both in phenomenology and delicate empiricism, however, the end product is very different: we have in the wholistic seeing a “multiplicity in unity” rather than an impoverished unity (p. 254). For example, in plant morphology, Goethe’s product was the *Urpflanze*, the archetypal plant; but this is not an abstract category, because it retains the organic unity of the plant as a tension or directionality that can only appear through a vivid imaginative retention of the constituent parts. An apt metaphor is that of either a field or fabric within which the interwoven, constituent parts emerge in polar tension to disclose a new, emergent unity or form, while at the same time maintaining the integrity of each *particular* constituent.

Seeing the whole as a “multiplicity in unity” is not only an empirical or theoretical position; it is an ethical one. As post-colonial theory has made clear, the tendency in Western civilization has been to incorporate the other in such a way that obliterates his or her difference. And this is why, as Bill Bywater (2005) has argued, we must fashion a science that “does not eat the other”. The obliteration of difference happens not only on broad social-political levels, but also occurs in traditionally Western conceptions of nature, where the content of the incorporation of otherness is different but still retains the style of exploitation witnessed at the socio-political level. The rape of the earth and its relation to the modern scientific worldview is a subject that continues to be thoroughly investigated by other scholars, though Carolyn Merchant’s (1980) work is especially recommended.

Dynamic

To say that delicate empiricism is “dynamic” is to convey that it is a project that never entirely exhausts itself. This incomplete quality of the investigation is not a weakness but a strength, because it means that Goethean science appropriately bears witness to the fact that things change. Rather than reducing transformation to static pictures of phenomena - whether such pictorials appear in the form of graphs or symbolic representations - the Goethean scientist instead opens him- or herself to the endowment of the imagination, which permits him or her to retain past forms of the phenomena and anticipate how they will unfold into the future. In this anticipation, however, as in the wisest of common sense, the delicate

empiricist is quite aware that protention of the future is always precarious and subject to error. The scientist can never rest on his or her laurels, but must remain open to how the phenomenon will next surprise us. With patience and time, we find that the phenomenon will eventually grace us with the organs of perception we need in order to witness the phenomenon from within its new level of organization.

Receptivity to the dynamic nature of the phenomenon is related to Goethe’s (1971) notion of *Bildung*, which is the unfolding development of new faculties of observation. These faculties can only ever emerge through the concrete *practice* of delicate empiricism. Only the phenomenon can teach us how to adequately approach and ethically respond to its multiplicity in unity.

Remarkably, even while predating Husserl’s phenomenology by a century, Goethe had already outlined the appropriate empirical counterpart to Husserl’s philosophy. He had not only provided an alternative to the Newtonian-Cartesian worldview that had already addressed with earnest the problems that would only become a full blown crisis by the time Husserl began his work - but, most importantly, he had demonstrated how this answer to Newton could be put into concrete practice as a rigorous but delicate empirical project. Likewise, then, Goethe’s scientific approach also long anticipates the emergence of human science research which, at least since the 1960s, has attempted to put into empirical practice a science founded on Husserl’s revolutionary alternative to positivism.

Goethe and the Human Sciences

What has become known as the Duquesne “school” of empirical phenomenological research emerged in the 1960s, first with Van Kaam’s (1966) applications of Husserl’s philosophy to psychology and then later through the theoretical and methodological refinements of Fischer (1974), Giorgi (1975), and others. As with Goethe’s criticisms of Newtonian science, these researchers found phenomenology through their initial rejection of the narrow perspective of contemporary empirical psychology. While none of these researchers explicitly reference Goethe’s scientific approach, the method of empirical phenomenological psychology is strikingly similar.

The empirical phenomenological method can be broken down into three stages that parallel Husserlian phenomenological philosophy. First, the researcher brackets or suspends the natural attitude by performing the phenomenological reduction. Second, the researcher interprets the empirical data with the assistance of imaginative variation. And, finally, the investigation yields the essential structure of the

phenomenon by virtue of the researcher's performance of the eidetic reduction (Giorgi & Giorgi, 2003).

In practice, the phenomenological psychologist collects thick, experiential descriptions from the participants. These descriptions, or protocols, are read with a relationally-responsive understanding. The researcher thinks with and through the participant's experience in a morally-responsive style of participation so that the world of the participants can be vividly re-animated through the researcher's empathic imagination. The investigator then takes each narrative and distils the psychological meaning of the protocol in the form of a situated structural description that evokes the participant's world (Robbins, 2006). This process parallels delicate empiricism's participatory, morally-engaged style of encountering the phenomenon.

As the researcher reads and re-reads the various narratives, he or she develops, through a depthful retention and protention of the form of each protocol, an intuitive grasp of the common constituents or themes that emerge synergetically amongst the narratives. Once these general themes are identified, the researcher varies these constituents through the method of imaginative variation and decides whether any given constituent is or is not essential to the phenomenon. Those constituents that remain at the end of this process are then shown to be a multiplicity in unity, in which the unity of the phenomenon is given as a general situated structure. Within the context of the general situated structure, each constituent retains its unique character; but now standing in relation to the whole, they all take on new meaning through their role in the constitution of the phenomenon's directionality or sensibility. This directionality or sensibility is fulfilled by the intrinsic structural demand of the phenomenon taken as a whole.

Again, the process of identifying invariant general themes through imaginative variation is remarkably similar in purpose to the Goethean enactment of the "exact sensorial imagination". Also, the process of disclosing different profiles of the phenomenon through multiple narratives repeats the Goethean method of "manifolding" (*Vermannigfaltigung*). "Manifolding" is a process of observing the phenomenon in a wide variation of contexts, profiles and phases, until the phenomenon finally begins to disclose its dynamic, archetypal form (Goethe, 1971). The archetypal form of the phenomenon, which for Goethe is the primal phenomenon (ur-phenomenon), is realized in empirical-phenomenological research as the general situated structure. Every phase of the

empirical-phenomenological method has its analogue in Goethe's delicate empiricism, which leads me to conclude that, in essence, they are the same method.

Despite the obvious similarities between the methods of Husserl and Goethe, Eva-Maria Simms (2005) has argued that they diverge on at least one cardinal point. While Husserl was almost certainly influenced by Goethe's approach to science and his critique of Newton - in fact, Husserl possessed in his library several books on Goethe's scientific work - he nevertheless retains, in spite of himself, certain fundamental Cartesian assumptions which lead him astray. Namely, Husserl "places the problematic of human consciousness and its world-constitution at the centre of phenomenological inquiry" (Simms, 2005, p. 171).

The same emphasis on "humanism" in human science - the placing of human subjectivity at the centre of scientific inquiry - is retained in many contemporary empirical-phenomenological formulations. Cartesian in essence, this attitude is evident for example in Polkinghorne's (1989) assertion that "the locus of phenomenological research is human experience, and it approaches the topics of interest to psychology through their presence in conscious awareness" (p. 45). He goes further to say that phenomenological psychology has no interest in the body as an organic object, which implies that phenomenology has no regard for organic life outside of human concerns. In short, he retains consciousness for psychology, but capitulates to the naturalistic attitude by surrendering all organic phenomena to the Newtonian-Cartesian knife. But to acquiesce to the natural attitude in this way is to give up everything, including consciousness, for without the organic matrix through which it emerges and within which it is sustained, the body-subject is literally nothing. Consciousness would be nothing without the flesh of the earth, because consciousness is nothing other than a fold in the flesh of the world. And so, when Polkinghorne takes the fold out of the flesh of the world, consciousness disappears.

Goethe's delicate empiricism highlights the artificiality of the phenomenological researcher's claim to human science as a domain distinct from the natural sciences. To cleave the human sciences from the natural sciences is only to enact another repetition of the Galilean split between primary and secondary phenomena - a terrible mistake. Instead, Goethe's approach to science invites us to imagine a different conception of the psychological which, in Romanyshyn's (2003) words, is "neither a thing nor a thought, neither empirical fact nor mental reality, but a way of seeing which opens up a world that matters

and must be understood” (p. 200). In other words, consciousness within the Goethean phenomenological attitude can no longer be conceived as a container of mental representations caused by mechanical, causal forces - but instead takes form as an *activity of disclosure* through which the earth can realize itself at a new and higher level of organization that would not be possible without human receptivity.

Because the Cartesian assumptions are so pervasive and elusive in our common sense and in our sciences, Husserl was correct in his prescription of a genetical-historical approach to healing the stubborn residua of

the Newtonian-Cartesian dis-ease. In other words, we need a cultural therapeutics. As I have suggested elsewhere, the very practice of delicate empiricism is a potential balm for our cultural malady (Robbins, 2005b). By putting into practice the participatory, morally-responsive, and holistic “witness-thinking” of delicate empiricism, we can hope that the earth may yield to us “new organs of perception” through which to behold, as never before possible, the earth’s latent sensibility.

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