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Preface

This is a special issue of *TAD* built around the program of the 2002 annual Polanyi Society meeting, which featured a paper by cell biologist Ursula Goodenough, a thinker who today is making interesting contributions to science and religion discussions. See Walter Gulick's introduction to this special issue (p. 5) for comments on the articles included. Walter worked hard to put together both the 2002 annual meeting program featuring Goodenough and this issue that grows out of it.

Please especially take note of my open letter to Polanyi Society members that follows (p. 3). The Society embarks on an experiment with electronic publication with the next issue of *TAD*. Paper issues of the journal will continue to be distributed but the Society's Board of Directors has decided the time has come to explore alternatives since the cost of printing and mailing are increasingly burdensome.

The program for the 2004 annual meeting in San Antonio appears in this issue (p. 4). There are two sessions that promise to be very interesting. One session considers Esther Meek's Polanyi-grounded book *Longing to Know* and the other session puts together Polanyi and Whitehead, a topic that for years some members have proposed for discussion.

Phil Mullins

Electronic Discussion List

The Polanyi Society supports an electronic discussion group exploring implications of the thought of Michael Polanyi. Anyone interested can send e-mail to Struan Jacobs (swjacobs@deakin.edu.au) who is the moderator. The address for the list is polanyi-list@deakin.edu.au

Tradition and Discovery is indexed selectively in *The Philosopher's Index* and *Religion One: Periodicals*. Book reviews are indexed in *Index to Book Reviews in Religion*.

An Open Letter to *TAD* Subscribers

At the November 2003 meeting of the Board of Directors of the Polanyi Society, the Board approved an important experiment for *Tradition and Discovery* that will begin with the next issue (October 2004). In addition to the paper copy of *TAD*, the Society will begin publishing an Adobe PDF version of the journal, which will be available in a password-protected section of the Polanyi Society web site. Today many journals are, of course, opting to provide an electronic issue. This experiment by the Society is thus part of a larger change in academic publishing. **Although an electronic copy will be online, I want to emphasize that at least for the immediate future any Society member anywhere in the world who wants a paper copy can have one delivered to your mailing address.**

There are some particular circumstances that have led to a decision to begin experimenting now with an on-line issue. *TAD* has always been published internally. In the past, we have considered contracting with one of the large presses that now handle the production and mailing of most academic journals, but such a contract would have required a sharp increase in annual dues. Further, since about 75% of those receiving *TAD* live in the US and Canada, we have been able for years to take advantage of the so-called “bulk” postage rate for most of our mailing. This is the same subsidized mailing program that brings the weekly grocery ads and tons of junk mail to your doorstep in North America. Although the bulk rates have risen slightly in recent years, the Society as a non-profit organization will likely continue to be able to mail issues in North America very inexpensively. Unfortunately, the process and the rate for mailing issues outside North America has changed rather drastically in recent years and it will likely change more soon. If you live outside North America, you may have noticed that the remainder of a green tear-off sticker is attached to your copy of *TAD*. In the new era of terrorism, every piece of mail packaged as *TAD* must have an individual tracer. The price for mailings going outside of North America continues to rise precipitously and the size of *TAD* must be carefully monitored to keep within weight limits.

In sum, I brought a proposal to the Board to begin experimenting with an on-line publication of *TAD* because I think rising costs and the unpredictability of our present production system warrant exploring alternatives. We are an international society and we need to develop ways to continue producing *TAD* within the constraints imposed upon us. As noted above, we will continue to produce paper copies of *TAD* and any member anywhere in the world can continue to receive a paper copy. I hope, however, that some members, especially those living outside of North America, will volunteer to print off an Adobe PDF copy from the Society web site rather than receive a mailed copy. If you are interested, please send me an e-mail and I will set you up with a password. I may also ask some subscribers to try the electronic version. I am sure that there will be some details to work out as this electronic publishing experiment develops. At the moment, for example, we cannot immediately shift too many subscribers in North America to an electronic version since we will lose our “bulk” mailing privilege for paper issues if the number of units mailed drops below 200. Eventually, there will be a password protected electronic archive that houses many past issues of *TAD*; this will be available to any Society member. Also the Society may eventually offer an electronic subscription rate that will be less than a regular subscription, but at present we need to explore the ways such an adjustment can be made and at the same time keep the Society solvent. Please send questions or suggestions to me at the e-mail address below.

Phil Mullins, Editor
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2004 Polanyi Society Annual Meeting in San Antonio

The year's Polanyi Society annual meeting will be held in San Antonio, Texas on November 19 and 20, 2004. As in past years, meetings are to be held in conjunction with the annual meeting of the American Academy of Religion. To secure hotel reservations in the immediate convention area, it is necessary to register for the AAR annual meeting. However, anyone who is interested is welcome to attend the Polanyi Society meetings, whether or not they are attending the AAR meetings. Other hotels in San Antonio are not reserved for the AAR. If you want information about registration for the AAR meetings, go to <http://www.aarweb.org/> or phone (1-404-727-3049) or fax (1-404-727-7959) or email (aar@aarweb.org). Room locations for the annual meeting sessions are not yet available but will, in the late summer, be posted on the Polanyi Society web site (<http://www.mwsc.edu/orgs/polanyi/>) and will be listed in the AAR Annual Meeting Program as Additional Meetings. Additional information will be included in the issue of *TAD* to be published in the fall of 2004. When the complete papers are available in the fall, they can be downloaded from the Polanyi Society web site by clicking on the title.

Program

Friday, November 19, 9 - 11 P.M.

Topic: Polanyi and Whitehead

Joseph Bracken, Xavier University

"Emergent Monism and Final Causality: A Field-Oriented Approach"

Respondents:

Walter Gulick, Montana State University-Billings

Richard Moodey, Gannon University

Polanyi Society Annual Business Meeting: 10:30 PM

Saturday, November 20, 9:00 am-11:30 A.M.

Topic: Responses to Esther Meek's *Longing to Know*

Respondents:

Dale Cannon, Western Oregon University

Jere Moorman, Resident Fellow, Center for Studies of the Person, La Jolla, California

David Rutledge, Furman University

Comment: Esther Meek, Geneva College

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Introduction To This Issue On Biology and Polanyian Ethics

Walter B. Gulick
Guest Editor

This issue's lead article by Ursula Goodenough and Terrence Deacon is the result of an invitation to Goodenough to present her current explorations concerning the biological roots of morality (with special reference to the work of Michael Polanyi) at the Annual Meeting of the Polanyi Society. Her essay, ultimately co-authored with Terrence Deacon, was offered in Toronto on November 22, 2002, and responses were given by Phil Mullins, Diane Yeager, and Nancy Howell. Unfortunately, health problems prevented Howell from revising her comments for publication, but I'd like to acknowledge here the significant role her thoughtful questions played in elucidating details of the Goodenough-Deacon essay.

Phil Mullins wrote a review essay, published in *Tradition and Discovery* 28:3 (2002), on Goodenough's book, *The Sacred Depths of Nature*. In that book, Goodenough explored the biological roots of religion in a virtuoso performance combining clarity and conciseness. Her current project is to replicate for ethics what she accomplished for religion. The co-authored essay published here was also published in *Zygon* 38:4 (December, 2003), and it omits specific commentary on how Polanyi's thought relates to their proposals.

The article by Mullins compensates for that omission by juxtaposing Polanyi's thought with ideas set forth in the Goodenough-Deacon essay. He finds a number of parallels. Yeager's article focuses especially on how the ethical claims articulated by Goodenough and Deacon fit into the history of ethics in Western civilization. She is particularly concerned about the authors' inattention to the functions of human societies in creating a viable morality. I offer an essay that gathers together insights from this issue's articles and integrates them with Polanyi's general perspective as well as his specific attention to moral matters.

In welcoming the readers to these fine essays, I would be ungrateful not to acknowledge the insights and support I have received from each author. My indebtedness to Phil Mullins is long lasting and much appreciated; we have been conversation partners for decades now. While Ursula Goodenough and to a lesser extent Terrence Deacon have impacted my thought only in recent years, their contribution has been significant. Lastly, I deeply admire Diane Yeager's ability to illuminate key moral issues. Her discussion in *TAD* 29:1 of how Polanyi's intellectual passions may play out either in support of the "firmament of values" (*M* 216) or in moral inversions is a model of interpretive exposition.

The reader will find, I believe, that these essays give additional support to the sense that Polanyi's moral philosophy has a significant role to play in ethics today. The essays serve to clarify how that philosophy is grounded in evolutionary biology, how ethics takes further shape in social reality, and how it may fund a distinctively Polanyian moral point of view. Time will tell what impact these ideas might have. For now, here are some excellent essays to read and savor. Enjoy!

From Biology To Consciousness To Morality

Ursula Goodenough and Terrence W. Deacon*

ABSTRACT Key Words: biology, consciousness, morality, emergence, brains, symbolic language, culture, moral ideals, moral motivation, virtue

Social animals are provisioned with pro-social orientations that transcend self-interest. Morality, as used here, describes human versions of such orientations. We explore the evolutionary antecedents of morality in the context of emergentism, giving considerable attention to the biological traits that undergird emergent human forms of mind. We suggest that our moral frames of mind emerge from our primate pro-social capacities, transfigured and valenced by our symbolic languages, cultures, and religions

Introduction

One of us has recently offered a strong claim: “Biologically we are just another ape; mentally we are a whole new phylum of organism” (1).

So how did this come to be? How does our apparently novel mentality, and its attendant sense of self, relate to our evolutionary heritage? We offer here some perspectives on these questions, with a particular focus on the dynamics of our moral sensibilities.

We begin with the concept of emergence. We point out that biological emergence is undergirded by semiotic (encoding) systems, and describe how such systems are manifested in single-celled and multicellular organisms, particularly as they generate cellular awareness and, in animals, brain-based awareness. We then note that a unique semiotic system — symbolic language — has evolved in the hominid lineage, and offer a scenario for the unfolding of that evolutionary process. We conclude by proposing that a core feature of our mentality is our ability to access and experience primate states of mind, and that our moral capacities are rooted in this dynamic. Whereas human transcendence is commonly configured as a “from-to” trajectory towards the beyond, we suggest that much of human transcendence entails a circling back to the “from” dimension and transfiguring it with our symbolic minds.

Emergence

The explosion of interest in emergentism (“something more from nothing but”) among both natural scientists and philosophers has not surprisingly generated considerable ambiguity in what is meant by the term emergence. One of us (2) has therefore offered an inventory of emergent phenomena in the natural world, proposing that emergence takes three forms:

- **First-Order Emergence:** Properties emerge as a consequence of shape interactions. Example: The interaction of water molecules (nothing but) generates a new property, surface tension (something more).
- **Second-Order Emergence:** Properties emerge as a consequence of shape interactions played out over

time, where what happens next is highly influenced by what has happened before. Example: The formation of a snowflake, where initial and boundary conditions become amplified in effect over time. In general, complex or “self-organizing” systems display second-order emergence.

- Third-Order Emergence: Properties emerge as a consequence of shape, time, and “remembering how to do it.” Example: Biology, where genetic and epigenetic instructions place constraints on second-order systems and thereby specify particular outcomes called biological traits. These traits then become substrates for natural selection by virtue of the fact that 1) their instructions are encoded and 2) they endow organisms with adaptive properties.

Biological Traits as Emergent Phenomena

It is important at the outset to expand upon this concise summary of third-order emergence and, in particular, set forward what is meant by trait, natural selection, encoding, and adaptation.

Biological traits are made up of biomolecules, like enzymes and hormones and ion channels, that interact and play out in space and time. The difference between traits and complex systems is that the traits are specified by instructions. The shape of an enzyme, and its capacity for productive shape changes, and the timing of its appearance in a given cell, and how much of it is made, and what regulates its interactional possibilities — these things are not left to chance or to fluctuating initial conditions or boundary conditions. They are encoded, either in the genomic (DNA) instructions themselves or in epigenetic instructions (cell-cell interactions), such that pretty much the same outcome — the same emergent trait — occurs with a quite remarkable degree of reliability. And indeed, to generate a reliable outcome is what organisms are about. When a species is unable to reproduce itself in a reliable fashion, it either drifts towards extinction or, via mutation and natural selection, evolves a more reliable strategy.

Granted that the ultimate substrate for natural selection is the organism itself, the units of selection are biological traits. Thus natural selection does not “see” the enzymes, the individual gene products, that catalyze an organism’s energy transduction. Rather, natural selection “sees” the outcome, the emergent trait we call metabolism. In the same way, natural selection “sees” an organism’s motility and not the contractile and regulatory proteins that together allow that motility to happen. Instructions for a less adaptive metabolism or motility are less likely to spread through a population than instructions for a more adaptive metabolism or motility, with the wild-card word “adaptive” having everything to do with the match between an organism’s genomic expectations and the niche wherein it in fact finds itself. Metabolism and motility are nothing but their constituent parts. But they are also something more, something new and emergent. And they are the “stuff” of what an organism is.

With this much background, we can re-visit the definition of third-order emergence using motility as an example. Our muscles contract and relax by virtue of regulated interactions between two kinds of proteins, actin and myosin. Muscle motility can therefore be said to be *nothing but* actin/myosin interactions that generate the ability to move (*something more*). The actin/myosin system self-organizes in muscle cells using second-order “rules” which, in turn, are constrained by the first-order shapes of the participating proteins. That there exists a selectable biological trait called actin/myosin-based motility is dependent on, and the consequence of, there being third-order genetic instructions that specify and constrain and transmit the parameters for such self-organization.

Motility *per se* is not an exclusive property of actin/myosin systems. A number of self-organizing systems in the biological world — the bacterial flagellum, the eukaryotic cilium — generate motility using proteins and mechanisms that are very different from actin/myosin. Thus motility is independent of the *nothing-but*s that serve to generate it, which is true of emergent properties in general (surface tension is a property not only of liquid water but of liquids in general). Motility emerges again and again during evolution because its acquisition is often adaptive for organisms and hence it is subject to positive natural selection.

The larger point, then, is that third-order systems, by being remembered/selected and not simply the episodic outcome of unspecified initial and boundary conditions, have the all-important property that they are subject to constructive influence. We can talk about evolutionary “improvements” in motility — about how a particular kind of motility became better adapted to particular niches via mutation and natural selection of participating proteins — in a way that we cannot talk about improving surface tension or improving the meteorological ramifications of a butterfly flapping its wings in Japan.

Importantly, then, the onset of third-order emergence defines the onset of telos on this planet and, for all we now know, in the universe. Creatures have a purpose, and their traits are for that purpose. What’s particularly important about biological traits is that they are about something. Metabolism allows an organism to carry out its chemistry; motility allows it to move towards food and mates and away from toxicity and predators. There is a point to a trait that we cannot ascribe to a snowflake. A trait, and the collection of traits that it combines with to generate an organism, has a purpose, namely, to allow the organism to carry on and thereby transmit the instructions. Organisms of different sorts may inhabit other planets in the universe, but the organisms on this planet, and their inevitable evolution given its inhomogeneous environment, are steeped in teleology.

Emergent Semiotic Systems

Biology is not only a physical/chemical science but also a semiotic science, a science wherein representation and significance are central elements. Semiotic systems, by definition, are emergent: virtually any material property (*nothing but*) can become endowed with semiotic information (*something more*). Given our goal of understanding something about the nature of human minds, it is apt to begin by considering how semiotic systems undergird the construction and perpetuation of biological organisms in general.

At the heart of any semiotic system is the “sign” relationship — the ability of something to “stand for” something else, to “mean” something else, to carry *interpretable* information. So, in DNA, the codon ATG *means that* the amino acid methionine should be placed in a particular position in a protein. The hormone insulin, binding to and activating a receptor on a fat cell, *means that* blood sugar levels are high. And a molecule diffusing from a decaying food source and binding to and activating a receptor on the surface of an amoeba *means that* the food source is nearby. The molecule is not the food source itself but rather a sign indicating its proximity. In each case, a sophisticated biochemistry is recruited to translate/interpret the sign’s meaning: Numerous “translation factors” (ribosomes, transfer RNAs) are involved in going from ATG to methionine, and complex signal-transduction pathways instruct the fat cell and the amoeba that certain information has been perceived and that certain responses are indicated.

Awareness in Single-Celled and Multi-Celled Organisms

At this point we need to lift up some important distinctions between the awareness systems of single-celled vs. multi-celled organisms.

Most organisms on the planet today, and doubtless the only organisms on the planet for the first several billion years, were single-celled organisms, of which bacteria, yeasts, and amoebae are the most familiar. Each inherits a genome (a collection of genes) that specifies traits suited to negotiating the niche that the organism expects to encounter, and if the match between genome and niche is in fact a good one, the organism will be able to grow, copy its genome, and divide into two daughter organisms with one genome apiece. Many of the encoded traits make use of receptors (like the amoeba's receptors for decaying-food molecules) that detect relevant signs in the environment and convey their meaning to the organism. These systems can be said to mediate *cellular awareness*.

Multicellular organisms, originating at least 600 million years ago, partition out the job of being alive to two different kinds of cells: The germ-line cells (eggs and sperm) engage in transmitting genomes to daughter generations, and the remaining somatic cells engage in growth and niche-negotiation. The somatic cells, in turn, go on to sub-specialize in the execution of particular traits — fat cells specialize in glucose storage and heat insulation, muscle cells specialize in motility, and so on — and each is again studded with receptors — insulin receptors on fat cells, neurotransmitter receptors on muscle cells — that mediate cell-type-specific modalities of cellular awareness.

The amoeba, then, is basically a one-man band, whereas a multicellular organism is a very large orchestra. Orchestras require conductors, and while the task of coordinating the traits of a multicellular animal is carried out at many levels, the brain is unquestionably the maestro. The brain receives a vast array of inputs/signs about the environment via various kinds of sensory neurons; it also receives a vast array of inputs from the rest of the body about “how things are going,” signs — often hormones or neurotransmitters — that *mean* pain or hunger or fear or sexual attraction; it then integrates this information and oversees the resultant responses we call emotionally-valenced behavior. We can call these semiotic feats *brain-based awareness*.

Particularly distinctive about brain-based awareness is its *indexical* semiotic capacity. When a sensory system is stimulated, it proceeds to make synaptic connections in the brain with 1) neural pathways that encode memories of previous encounters with that kind of stimulus, 2) pathways that encode its various emotional and instinctual valences, as well as 3) numerous learned associations between that stimulus and others that impact on its meaning. So, for a dog, the visual stimulus of a food dish will elicit all manner of memories (previous meals), instincts (hunger), emotional states (anxiety about being hungry, anticipation of pleasure in being fed) and learned associations (the human food-provider, the sound of the food bag opening) that are brain-integrated and then converted into some sort of coherent behavioral response.

In the end, brain-based awareness is *nothing but* cellular awareness. Each neuron is a cell, and neurons utilize the same kinds of receptors and hormones and signal transduction pathways to mediate perception and synaptic transmission that are found in single-celled organisms and in fat cells and muscle cells. But brain-based awareness is quintessentially also *something more*: The indexical possibilities of learning and memory and emotional valence are in theory limited only by the kinds of stimuli that a brain is equipped and motivated to perceive. With all due respect for the highly adaptive hormonal strategies used by plants to integrate their

multicellularity, we would say that it is not just anthropocentrism that motivates our admiration for brains. Brains are inherently amazing.

How Do Mammalian Brains Change?

Not yet mentioned, but key to our story, is the fact that during the course of evolution, brains underwent a major transition in their mode of genetic specification. Whereas the brain of each and every worm of the species *Caenorhabditis elegans* contains 302 neurons that are found in identical locations and mediate identical synaptic pathways, the brain of a mammal contains some 100 billion neurons, plus or minus, whose locations and synaptic relationships are established “on the fly.” Genetic scripts endow the neurons that grow up into the embryonic cranium with general instructions as to where they are going and what kind of neurotransmitters they are able to produce, but most of what happens after that is elicited by the other neurons they encounter, the growth factors they secrete and perceive, and the signals they transmit to one another as they make contact and move past. When a neuron picks up on a developmental cue and differentiates along the lines indicated by that cue, its resultant properties then influence the neurons with which it next interacts. That is to say, mammalian brain development is robustly “epigenetic”: genes set the process up and continuously participate in differentiation events, but most of the information is exchanged at the level of cell-cell interactions.

The epigenetic course of brain development is clearly reliable: if one were to examine 100 fetal mouse brains, one would find their overall organization to be strikingly similar. But it can also be said to be underdetermined in the sense that if one were able to analyze any two of these brains at a neuron-by-neuron level, there’d be lots of differences —as contrasted with the brains of two worms.

When a developmental process is as underdetermined and epigenetically encoded as is mammalian neurogenesis, then small changes can generate major differences in outcome. That is, the process takes on features of second-order emergence — what happens next can be highly influenced by what has happened before — and simple mutations can have large-scale downstream consequences and hence large-scale evolutionary consequences.

We can consider three ways that this can happen.

- Parts of the brain may *change in size*. A single gene mutation can result in an increase or a decrease in the number of cell divisions that a given lineage undergoes during the course of embryology. Mutations of this kind routinely generate heritable differences in the overall size of an organism, and the evolutionary consequences of such changes can be significant. This is particularly true for loosely-determined mammalian brains, where an additional doubling of certain neurons provisions the brain with a “new set of players,” and hence new connective opportunities, while a halving of such neurons means that their former potential synaptic partners will probe the “brain space” in search of new connective opportunities.
- Brain pathways may *degrade* when they are no longer under selection. For example, when fish or mammals come to inhabit caves or underground niches where there is no light, natural selection no longer operates to maintain their visual systems. Therefore, mutations that compromise visual acuity are not selected against — no one can see anything anyhow — and

the animals eventually become heritably blind.

- Degraded pathways may be *selected to reconfigure*. Figure 1 compares the brain of a sighted rodent and a blind mole rat. In the sighted species, the visual cortex, heavily innervated with optic-nerve input, mediates vision, whereas in the blind species, lacking optic input, this same region of the brain has been “taken over” by neurons delivering auditory and tactile input. Not only does this illustrate the underdetermination of mammalian brains — there is no hard-wired “visual cortex” *per se* but rather a cortical region that is induced to mediate vision when programmed by optic input and to mediate touch and hearing when programmed by tactile and auditory input. It also illustrates the strong role that natural selection can play in shaping brains, since the enhanced hearing and touching afforded by these new cortical connections are presumably adaptive for the blind mole rat in negotiating its underground niche.

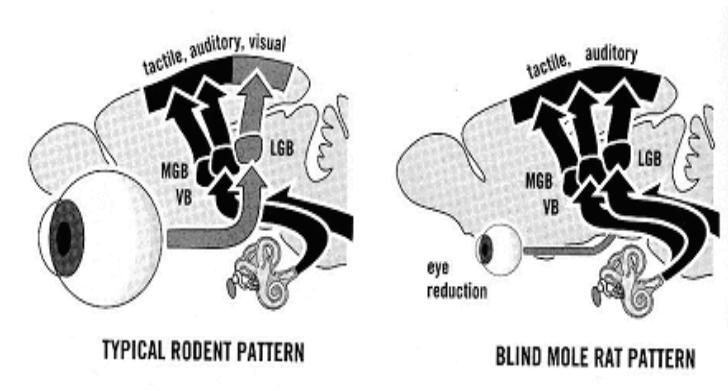


Figure 1 Innervation of the cortex in a typical rodent and in a blind mole rat inhabiting an underground niche. (From Deacon, T., *The Symbolic Species*, 1997)

Mental Traits Shared by Human and Non-Human Primates

So what about human brains?

Figure 2 illustrates our family tree. Some 5 million years ago — a short span in the ~600 million years of animal evolution — a common ancestor gave rise to 3 lineages: the human, the chimpanzee, and the bonobo. The mental traits shared by these 3 kinds of animals can be assumed, as a first pass, to have been present as well in our common ancestor, whereas traits found in only one lineage can be assumed, again as a first pass, to have evolved as lineage-specific events.

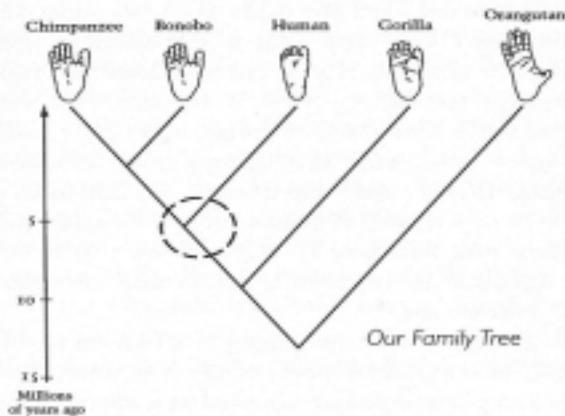


Figure 2. Family tree of the great apes. Common ancestor is circled. (From Wrangham, R. and D. Peterson, *Demonic Males*, Houghton Mifflin, 1996)

Humans, chimps, and bonobos share numerous mental traits which, by this reasoning, would have been displayed as well by our common ancestor. We are all highly intelligent animals with impressive abilities to learn by both experience and imitation and to remember what we have learned. We display a similar range of temperaments generated by similar emotional systems: primatologists who come to know chimps and bonobos can readily describe one as shy, another as extroverted, another as impatient, and so on. We are all similarly dependent on maternal care and nurture for appropriate mental development, with deprivation generating a similar syndrome of impairments. And finally, we are all social animals, living in highly structured groups with similar organizing principles. As considered more extensively in ref. 3, these include a robust attention to *social hierarchy*; a preoccupation with the *nurture* of the young (also called kin altruism); skillful engagement in *strategic reciprocity* (“I’ll scratch your back if you scratch mine”); also called reciprocal altruism) and the attendant formation of friendships and alliances; a hostility towards outgroups (*xenophobia*) and an endowment of the pro-social capacity we can generically call *empathy*.

Preston and de Waal have recently published a comprehensive review of the evidence for empathy in non-human primates (4), and the findings are convincing: Co-existent with the self-interest inherent in all organisms and necessary for their survival (3), and co-existent as well with such “negative” capacities as aggression (considered briefly at the end of this article), primates are disposed to help one another out in the service of group stability, to be tolerant, to offer forgiveness and consolation and forge reconciliation. Countering arguments that “being nice” fails to foster transmission of one’s genes and that any genetic disposition towards empathy would be quickly trumped by winner-take-all “cheats” is the compelling argument that when survival is dependent on group coherence, as is by definition the case for robustly social animals like the primates, there occurs positive selection for the capacity to sense and respond to the emotional status of others in the troop, and negative selection against sociopathic behavior.

Mental Traits That Are Uniquely Human: A Scenario for their Emergence

It goes without saying that humans have many unique mental traits, but we would argue that one trait is foundational to the rest: Humans learn not only by imitation and experience but also by accessing information from cultures that are encoded in symbolic languages. It’s not so much that we have more of chimp-like intelligence; rather, we also have a different kind of intelligence.

In the following paragraphs we present a scenario for the co-evolution of language, culture, and symbolic human minds; many of these ideas are presented in greater depth in refs. 1 and 5. The scenario is by definition a speculation — what actually happened may never be fully known — but we find the scenario heuristic, helping us to focus in on what’s distinctive about human mentality, and some of its propositions should eventually be amenable to empirical evaluation.

Niche Construction

To understand the role of culture in human evolution, it is helpful to start with the beaver. Beavers exhibit the remarkable trait of damming up streams to form ponds and then inhabiting the ponds, thereby protecting themselves from predators. This trait is clearly “hard-wired:” If the sound of running water is broadcast to captive beavers, they proceed to pile sticks on top of the speaker. It also exemplifies *niche construction*: beavers are adapted to the ponds that they themselves create; they are selected for their ability to produce the niches upon which they depend.

And so it is with the human. The niche to which we are adapted — human culture — is a niche that we ourselves construct; we are selected for our ability both to produce and to inhabit culture-based niches. Since human culture is encoded in and acquired by symbolic languages, this means we have been selected for our symbolic minds in the same way that beavers have been selected for their dam-building skills.

Co-Evolution of Culture, Language, and Brain

Culture, language, and symbolic brains that manipulate language have co-evolved, by our scenario, in a constructive, accretive fashion: If a more facile symbolic manipulation were made possible by a new kind of brain configuration which in turn allowed better access to adaptive kinds of culture-based understandings, there would occur selection for such a trait which, in turn, would generate hominids yet more dependent on culture for survival and hence more likely to be selected for further “improvements” in their language facility. While we have no speculations to offer here as to why/how this might all have gotten started in the first place, once a co-evolutionary cycle like this gets set up, it can take on a life of its own and can evolve very rapidly.

This being said, there remain many questions as to how it all might have played out. We next suggest a dynamic that could have been operant.

Masking, Degradation, and Reconfiguration

As we saw in our story of the blind mole rat, a trait that is no longer under selection, like vision in darkness, is prone to degradation. This is not because the darkness “causes” the degradation, of course. Mutations leading to a loss of function occur on a regular basis — most changes in information systems result in information loss, as *per* the second law of thermodynamics. As long as the trait is under selection, degradative changes are winnowed out, but when selection backs off, they persist and accumulate.

Selection can become attenuated when the trait is no longer needed, like vision in darkness. It can also attenuate when the trait’s function comes to be provided by the environment, rendering the trait redundant, a dynamic known as *masking*.

To illustrate masking, we can consider the story of how ascorbic acid came to become vitamin C. Most organisms are genetically programmed to synthesize their own ascorbic acid, which is necessary for their survival. Ancestral apes in our lineage, however, started to eat ripe fruits, which are rich in ascorbic acid. As a consequence, mutations compromising the enzymes involved in ascorbic acid biosynthesis were not debilitating because abundant ascorbic acid was already coming in from the diet; that is, the mutations were masked from natural selection. Hence the pathways degraded, and ascorbic acid became a vitamin: Chimps and humans now *must* obtain it from the outside.

Applying this concept to human evolution, we can posit that to the extent that culture came to provide hominids with useful information from the outside, any genetically established programs specifying overlapping kinds of information in the brain would be similarly masked from selection and would therefore become prone to degradation. As this occurred, hominids would become increasingly dependent on — indeed, addicted to — cultural information for their survival.

We can now circle back to our consideration of brain evolution, recall that degraded brain programs tend to become reconfigured to support alternative adaptive traits, and posit that parts of the hominid brain became reconfigured for language. Since the neural basis for language capability is not now understood, it is not yet possible to point to novel features of human brains, and absent from chimp brains, that illustrate the physical basis of this emergent skill. Still, it is by definition the case that to the extent that any degraded programs became re-configured for linguistic operations, this would allow better access to the cultures upon which hominids had become dependent, meaning that such degradation/reconfiguration events would be adaptive and subject to positive selection.

To summarize, then, we can offer an evolutionary model for the emergence of human minds:

- Culture has masked the need for certain genetically-encoded (“phylogenic”) primate mental pathways, and these have degraded.
- The freed-up “brain space” has been reconfigured to generate minds adept at learning symbolic language and hence acquiring cultural information.

What Does Symbolic Language Accomplish?

So what’s so special about symbolic language? One of us has written a 500-page book (1) on this subject; therefore, in lifting up a few key concepts, we are by definition leaving out most of the story.

Symbolic representation is a novel emergent semiotic capacity found only in the human (and in machines designed by humans). The *nothing but* is the indexical primate brain, highly sophisticated and versatile, that we admired earlier. The *something more* is the ability of the human brain to use symbols (*words*) to refer to indexes and to sets of indexes, and to use *syntax* to indicate the relationships of these words to one another. As stressed in *The Symbolic Species*, these operations are not likely to have evolved, as some have proposed, *via* adding some “language box” to a primate mind so that it can manipulate languages that are somehow “out there” to be discovered. Rather, there likely occurred a co-evolution of language and brain such that symbolic languages were selected for their ability to be learnable by children’s brains and children’s brains were selected for their ability to learn symbolic languages. If we add to the mix the proposed selective effects

exerted by niche construction and cultural addiction, and the proposed degradation/reconfiguration dynamics facilitated by cultural masking, we come away with the conviction that the evolution of human minds can be modeled in plausible evolutionary terms, and hence need not be relegated to the miraculous or mysterious.

Nevertheless, if brains are amazing, the human brain is flat-out astonishing, most especially because the language user can generate constructions that are independent of “lower” levels of reference, meaning that *the words themselves come to define a virtual reality that has a life of its own*. When challenged we can pause, “unpack” our symbols and syntax, and examine their antecedents, but for most purposes we inhabit the linguistic constructions themselves.

Words can function as straightforward signs, but most words can also be used to encode and convey what we call concepts or ideas, pointing to complex sets of indexes that are integrated via complex syntactical relationships. Moreover, since these concepts inhabit a virtual reality with a life of its own, we can and do engage in *conceptual blending*, mixing and matching and transfiguring concepts in an orgy of semiotic freedom, constrained only by whether what emerges has some sort of meaning (the definitional constraint on semiosis). As our cultures have evolved to harbor and convey increasingly sophisticated concepts and ideas, moreover, the criterion as to what-has-meaning has also lost its obligation to real-world antecedents: Whole new kinds of meaning permeate the virtual world that we call the imagination.

And now, a central claim. We would argue, as have many others, that our sense of “self,” what we will call human self-awareness, is made possible by symbolic language. That is, when we say that we are aware of our thoughts and ideas and plans and memories, we do this using symbolic constructions. It may be possible to have a thought without linguistic representation, but we only know that we have had one when it is self-represented in symbolic form. This claim is made in full awareness of its attendant ambiguities, such as “how do we know that a dog is not also self-aware?” or “what about the pre-linguistic human infant?” While we find these questions intriguing, they fail to vitiate our sense that once language is in place, there emerges not only symbolic reference but also symbolic self-reference in the sense that we humans experience that experience.

How symbolic self-reference “works” is as elusive as how language itself “works.” But if neuroscientists were tomorrow to publish a definitive description of the biophysical/neural basis for human self-awareness, the account would be unlikely to have much impact on our understanding of our mental theaters because we are already expert at what they are like. Moreover, our self-awareness *seems* to be independent of mechanism. As much as we are able to acknowledge the embodiment of our ideas and feelings, we experience them as operating in a disembodied virtual realm.

Emergent phenomena are not prefigured. They come for free, apparently out of thin air. And so it is with our selves. Our thoughts and actions are determinate but not predetermined. Self and experience are both entirely physical and entirely representational. What a person is and what a person is conscious of are representations, and representations — although *nothing but* physical objects and events — are *something more* as well.

Our very selves, then, are by this rubric emergent phenomena. It is the very possibility of being a locus of experience, and feeling, and perpetual coming into being, that is a person. This emergentist view of who we are, neither radically reductionist nor setting us apart in some disconnected realm, is for us a thrilling way to ground our existence.

Experiencing Our Primate Minds Symbolically

No question about it: Our symbolic minds allow us to access mental experiences, like mathematics and aesthetics and spiritual intimations, that we have every reason to believe are novel to the human, unique to the human. Our poets, artists, philosophers and religious leaders provision us with rich and provocative descriptions of these experiences, and our cultures allow us to transmit, retrieve, and build upon their seminal insights. In what follows we are in no way suggesting that these insights are not of utmost importance to what it means to be human.

But we suggest that it is also of utmost importance that we not lose track of our mental evolutionary antecedents. To say that our brains have undergone critical reconfigurations as they evolved their capabilities for symbolic (self)-representation is not to say that our common-ancestor brains were left in the dustbin. As noted earlier, we share strong cognitive and emotional homologies with our primate cousins, and to the extent that degradation/reconfiguration went into generating our capacity for language, it occurred in the midst of a primate brain that remains very much a primate brain. Any perspective on the human condition that brushes this fact aside is an incomplete perspective — indeed, we would say that it is an impoverished perspective.

A common response to this interface is to propose a *de facto* dualism. Yes, it is acknowledged, much of who we are has primate antecedents, but, given our emergent minds, our rationality, our spiritual yearnings, and our culturally-encoded meaning systems, we somehow have the wherewithal to transcend these antecedents and operate in a set-apart matrix of human-specific truths. Indeed, this dualism is inherent in the claim, loosely called the naturalistic fallacy, that *you can't get an ought from an is*. We may well inherit an (often awkward) evolutionary legacy, but it has no *a priori* claim on our modes of valuation and, in particular, on our ethical codifications.

An alternative to such forms of dualism, and one that we find more germinative and satisfying, is the notion that one of the things that we do with our symbolic minds is to *experience our primate minds symbolically*. Our primate minds have not gone away (albeit some phylotypic “instincts” have been lost and perhaps reconfigured), nor are they experienced as apes would experience them. They are experienced as experienced by human minds: symbolically.

This notion can be fruitfully applied to many traits, e.g. our experience of sexuality. In the remaining sections of this paper we will develop the notion in the context of morality. The thesis: Given that we have evolved from an intensely social lineage, we are uniquely aware of what it feels like to be pro-social, and it is this awareness of what it feels like to be moral — this moral experience — that undergirds and motivates the actions of a moral person.

Moral Experience

Moral experience, we suggest, entails a coupling of our rich heritage of social orientation with our ability to symbolically represent it to ourselves. During this coupling, the experience of our pro-social capacities, and their role in affecting action, is radically transformed, and what emerges is a major augmentation of our social heritage. We are able to apply these amplified pro-social capacities to experiences and imaginings and modes of action that are no longer constrained by evolutionary precedents and classes of phylotypic stimuli. Indeed, our capacity for conceptual blending allows a synthesis of moral understandings and emotional experiences that

would otherwise be mutually exclusive.

It follows that morality is not something that humans acquire via cultural instruction, albeit, as we discuss later, culture serves to complement the process in important ways. Rather, we are led to moral experience and insight. Real morality can't be forced on people, nor can they be fooled into having it, nor do they just act on their 'moral instincts.' Real morality does not simply bubble up from beneath, nor is it imposed from the outside. In each one of us, it must be discovered anew. The discovery process may require great mental and emotional effort and may bloom only in the right climate, but human beings see morality, recognize it, regardless of what it is that they want or need or love or hate or feel compelled to do.

We can put flesh on the abstractions by considering the psychopath. A psychopath can negotiate hierarchy and execute strategic reciprocity without difficulty, and can learn, and simulate, moral behavior when this suits his purposes. But, be it by inborn error or brain injury or childhood deprivation, he lacks the capacity to experience moral experience, to feel anything in the way of empathy, to put himself in another's shoes. Morality without empathy is by definition oxymoronic. Therefore, his simulation of morality is strictly instrumental, and, in extreme cases, he is able to say things like "I killed that kid because I'd never killed a kid before and I wanted to see what it felt like." The tragedy of the psychopath reminds us that without access to moral experience we are no longer fully human.

Virtues, Pro-Social Orientation, and Moral Experience

The notion that human morality is located within moral experience is not a new insight. It is embedded, for example, in the thinking of Aristotle, who wrote: "We have the virtues neither by nor contrary to our nature. We are fitted by our nature to receive them." Subsequent philosophers have continued to explore this approach, developing a tradition known as virtue ethics (see, e.g., ref. 6).

So what are the virtues, and how do they relate to the thesis that morality entails the human experience of pro-social orientations? Four of the virtues that appear on most lists — humaneness/compassion, fair mindedness, care, and reverence — can be thought of as related to four of the inherited pro-social capacities that we listed earlier — empathy, strategic reciprocity, nurture, and hierarchy (see also refs.3 and 7). We develop these correspondences briefly below in order to indicate how this line of thinking might be pursued.

Morality without empathy is oxymoronic, as we have said, and the words humaneness and compassion are among those used to describe the emergent way that humans access, experience, and manifest the empathic nature inherent in our heritage. We come to grasp that to put oneself in another's shoes is not only something that applies to our kin or friends or social group. Indeed, as our vocabularies mature and our ability to manipulate concepts complexifies, we become able to articulate empathic connection with such abstractions as "life itself" or "the planet Earth." Moreover, we can engage in conceptual blending and configure empathy in radically new ways, as in "Love Thine Enemy."

If humaneness/compassion can be said to entail the symbolic accession of empathy, then fair mindedness strikes us as entailing a symbolic synthesis of humaneness and strategic reciprocity. Once someone takes on board the notion that for every winner there is a loser, and once someone has the experience of putting oneself in the shoes of the loser and caring about her, it becomes evident that there is another way to think about these social interactions, namely, that more important than winning or losing is that the outcome be fair. Strategic

reciprocity fused with humaneness emerges as a sense of justice, a centerpiece of moral philosophy. And again, we can complexify further and articulate a sense of ecological justice.

The third virtue, care, inherent as well in such concepts as responsibility, commitment and kindness, emerges from the strong primate sense of nurture, not only of one's own offspring but also, in a lineage wherein paternity is uncertain, of all the youngsters in the troop. Primate nurturance entails not only protection and provisioning but also relationship, play, and affection, and this capacity, we suggest, transfigures as the capacity to care about one another and about larger concepts like ecosystems and future generations. Compassion and care overlap, but care is the more active noun and emerges, we believe, from distinct primate antecedents.

The fourth virtue, reverence, can be modeled as a complex emergent manifestation of our orientation in hierarchy. Reverence, in its mindful manifestations (7), describes the capacity to carry the sense that we inhabit contexts that are larger and more important than ourselves, to which we accord awe and respect and gratitude. We come to speak of reverence for our leaders, and leaders to speak with reverence of their followers. We orient ourselves in reverent family life and reverent communities, and offer honor to revered understandings in ceremony and ritual (8). Many find orientation in a theistic reverence, while others become besotted with reverence for the natural world, the emergent material world, in all its wondrous manifestations and evolutionary history (9). The human capacity for reverence, we suggest, may represent a transfigured version of our innate grounding in social valuation, endowing us as well with a sense of humility that allows us to ward off the perils of hubris.

Moral Motivation

To have moral experience is, of course, quite a different matter from acting in a moral way, particularly when it is against one's self-interest to do so. We may see what is right but not be motivated to act on it.

The all-too-common practice, now and probably throughout human history, is to provide moral motivation by rewarding "good" thoughts and behavior and punishing "bad," as in "Santa knows if you've been good or bad so be good for goodness sake" or "If you do that you will be punished by the gods/ancestors." This practice turns morality into a commodity that can be bartered, a substrate for self-interested strategic reciprocity, an entity that fills the Christmas stocking or assures a glorious afterlife. The problem with this, of course, is that humans quickly notice that there are other strategies that also fill the stocking, like deception and greed, and that these are in fact more reliable strategies. The commodification of morality is, to our mind, one of the most dangerous things that we do, quite as dangerous as fundamentalism or moral relativism.

But if moral motivation is not to be provided by punishment/reward systems, then where is it to come from? Aristotle makes an interesting claim here, which is that "virtuous conduct gives gladness to the lover of virtue." Note that he is not saying that virtue brings gladness to the virtuous, but rather to the lover of virtue.

One way to think about Aristotle's claim is in the context of what 17th century philosophers like Shaftesbury and Hume called moral beauty. The idea is that we access and enjoy moral beauty along the lines that we access and enjoy aesthetic beauty, where in both cases the rewards are both private and ineffable. Importantly, the lover of virtue is made glad not only by experiencing moral beauty in himself, which could carry a lurking reward motivation as in "this will assure my place in heaven," but also by witnessing moral beauty in others – New York firefighters, for example, or persons who reach a fair outcome to a conflict. We say that moral

experience “warms the heart,” often reflexively placing our hand over our heart as we say it; we say that we are uplifted. Indeed, those who self-identify as worldly sophisticates may feel somewhat sheepish to find their eyes filling with tears at some experience of moral beauty, and this can be dismissed all too quickly as sentimentality. Before dismissing sentimentality, we might first want to deepen our understanding of what it entails.

To invoke as a moral motivator the heart-warming sense of gladness that we experience when we encounter moral beauty is, on the one hand, to say very little since we know so little about what it means to perceive beauty, be it aesthetic or moral. But we do know that we seek such experiences and find them meaningful, and to our mind there is much to explore along these lines, particularly from the perspective of helping our children to access morality for its attendant sense of beauty rather than because it promises a full stocking.

Moral Ideals

Our focus on the “bottom-up” sources of moral experience has seemingly ignored our earlier focus on the importance of human culture, a deficit we will now address.

Cultural traditions include the writings of numerous philosophers and theologians who derive moral constructs from a priori rational premises and offer resultant codes of ethical conduct. Many of their insights and codifications — the Golden Rule, the Categorical Imperative, the Veil of Ignorance, the Eight-Fold Path — robustly complement the understandings that are accessed during the process of moral self-discovery. But we would suggest that the core contribution of culture along this axis is that it encodes and presents to us moral ideals that guide our moral maturation and stimulate our moral motivation.

Moral ideals come to us in artistic/narrative form. We hear stories or see paintings or sing songs about people who are good, who do the right thing at the right time in the right way, and we lock in, we sense the correspondences with our own pro-social biases. We are “inspired” to be like them.

All religious traditions, throughout the ages, rely on artistic narrative to convey moral ideals, to educate the emotions. Moreover, these narratives function independently of the metaphysical claims of the tradition: a Christian has no problem accessing the compassion that inheres in the images and stories about the Buddha, nor the reverence that permeates a Native American tribal ceremony. Indeed, a recent survey of world religions reports a deep congruence in moral ideals despite vast differences in metaphysical premises (10). And while, of course, religious institutions, like all institutions, are vulnerable to being hijacked under stressful circumstances into advocating the likes of violence and cruelty, they return to their pro-social narratives once the stressful circumstances abate.

Moral experience, we suggest, is the wellspring of our virtue — without it we are doomed to psychopathology — but once it is perceived, which seems to begin early in childhood, we embark on a lifelong journey, fraught with encounters with fear, greed, hubris, prejudice, and self-absorption, wherein we seek to act in accordance with the beauty of the good. This journey is described, in countless metaphors, by our religious traditions, and whether persons encounter these metaphors as the word of the gods or, as we do, the word of the best that resides within the human, our journey would be barren without them.

Most importantly, moral experience is not only something that we develop within our own beings. We also share this experience with one another, and it binds us together. There are many ways that communities are held together via “straight” kin altruism and hierarchy and strategic reciprocity; indeed, these are robustly operant in our political and economic forms of social stabilization. But our shared moral experiences generate as well a thirst for moral communities. Humaneness, fair-mindedness, care, and reverence can be considered to represent cardinal virtues in the sense that a human community mindfully infused with these qualities can be described as a moral community — within which, we believe, can best flourish our emergent, and most astonishing, minds and selves.

A-Sociality

To look at the primates and lift up only their pro-social capacities is, of course, to tell only part of the story. Always central to our evolutionary nature is our self-interest, and always lurking in the wings of self-interest are its “darker” manifestations. It is here that the project of naturalizing morality encounters for many its insurmountable hurdle. When we remember that apes are also observed to injure and even kill one another, to use force in sex, to be cruel and rejecting, and to display robust xenophobia, we become distinctly uncomfortable, and invoke with a shudder the specter of the criminal basing his legal defense on the claim that “my genes made me do it.”

A full consideration of the interplay between self-interest and pro-sociality, particularly as each plays out in its emergent manifestations, is well beyond the scope of this essay, but a few observations are germane. First, it is important to point out that the existence of self-interest, and its darker forms however defined, does not negate the existence of pro-sociality. Pro-social capacities are not just the absence of a-social capacities. They have lives of their own.

We can then recall that primates, both nonhuman and human, most often engage in a-social behaviors when they are subjected to stress, and particularly to prolonged stress. Under these circumstances, we hunker down and engage in self-interested survival patterns, the default behavior of all creatures, and these often take forms that are antithetical to pro-sociality. One way to stack the deck in favor of morality, therefore, is to ameliorate the conditions wherein humans find themselves physically or emotionally impoverished, threatened, defeated, abused, humiliated, lonely, or insecure. Such conditions foster the dehumanization and demonization of those identified as the “cause” of our frustrations, allowing them to become targets of exclusion and brutality (11). Such conditions also render humans vulnerable to rigid fundamentalisms — many carrying a morality label — that activate our fear and greed in their promises of deliverance.

References

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1. Deacon, T.W. 1997. *The Symbolic Species: The Co-Evolution of Language and the Brain*. New York: W.W. Norton.

2. Deacon, T.W. 2003. “The hierarchical logic of emergence: Untangling the interdependence of evolution and self-organization.” In: B. Weber and D. Depew, eds. *Evolution and Learning: The Baldwin Effect Reconsidered*.

Cambridge: MIT Press.

3. Goodenough, U. 2003. "Religious naturalism and naturalizing morality." *Zygon*, in press (March edition).
4. Preston, S.D. and F.B.M. de Waal. 2002. "Empathy: Its ultimate and proximate bases." *Behavioral and Brain Sciences*, in press. Online: www.bbsonline.org/preprints/preston
5. Deacon, T. W. 2003. "Multilevel selection in a complex adaptive system: The problem of language origins." In: B. Weber and D. Depew, eds. *Evolution and Learning: The Baldwin Effect Reconsidered*. Cambridge: MIT Press.
6. Hursthouse, R. 1999. *On Virtue Ethics*. New York: Oxford University Press.
7. Goodenough, U. and P. Woodruff. 2001. "Mindful virtue, mindful reverence." *Zygon* 36:585-595.
8. Woodruff, P. 2001. *Reverence: Renewing a Forgotten Virtue*. New York: Oxford University Press.
9. Goodenough, U. 1998. *The Sacred Depths of Nature*. New York: Oxford University Press.
10. Ferrer, J.N. 2001. *Revisoning Transpersonal Theory: A Participatory Vision of Human Spirituality*. New York: State University of New York Press.
11. Glover, J. 1999. *Humanity: A Moral History of the Twentieth Century*. New Haven CT, Yale University Press.

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Polanyi Society Membership

Tradition and Discovery is distributed to members of the Polanyi Society. This periodical supercedes a newsletter and earlier mini-journal published (with some gaps) by the Polanyi Society since the mid seventies. The Polanyi Society has members in thirteen different countries though most live in North America and the United Kingdom. The Society includes those formerly affiliated with the Polanyi group centered in the United Kingdom which published *Convivium: The United Kingdom Review of Post-critical Thought*. There are normally three issues of *TAD* each year.

Annual membership in the Polanyi Society is \$25 (\$10 for students) beginning in the fall of 2002. The membership cycle follows the academic year; subscriptions are due September 1 to Phil Mullins, Missouri Western State College, St. Joseph, MO 64507 (fax: 816-271-5680, e-mail: mullins@mwsc.edu). Please make checks payable to the Polanyi Society. Dues can be paid by credit card by providing the card holder's name as it appears on the card, the card number and expiration date. Changes of address and inquiries should be sent to Mullins. New members should provide the following subscription information: complete mailing address, telephone (work and home), e-mail address and/or fax number. Institutional members should identify a department to contact for billing. The Polanyi Society attempts to maintain a data base identifying persons interested in or working with Polanyi's philosophical writing. New members can contribute to this effort by writing a short description of their particular interests in Polanyi's work and any publications and /or theses/dissertations related to Polanyi's thought. Please provide complete bibliographic information. Those renewing membership are invited to include information on recent work.

Polanyian Footnotes To “From Biology To Consciousness To Morality”

Phil Mullins

ABSTRACT Key Words: Michael Polanyi and emergence, critical biology, ultra-biology, minding as embodied.

This brief response to Goodenough and Deacon’s essay “From Biology to Consciousness to Morality” sets forth Michael Polanyi’s criticism of evolutionary ideas of his day. It analyzes Polanyi’s approach to biology and suggests there are affinities with the provocative evolutionary sketch Goodenough and Deacon provide of the development of the human capacity for moral experience.

Polanyi and Contemporary Biology: A Cautionary Note

Thanks are due to Ursula Goodenough and Terrence Deacon for producing an interesting paper, a paper that they point out at the beginning takes some giant steps, in a sweeping Polanyian style, to address a deeply interesting question: how is the apparently novel human mentality and its sense of self related to our evolutionary heritage? This is a question akin to the large questions Polanyi tried to address philosophically in the last section of *PK* and elsewhere; Polanyi’s wrestling with such questions, of course, did not, like Goodenough and Deacon, make use of the exciting results of today’s biological research. What I aim primarily to do in this brief response to their paper is to try succinctly to articulate some philosophical points and themes that Polanyi offered, some Polanyian footnotes, from his discussion of evolution, emergence and tacit knowing in the roughly twenty years before his death. These footnotes are intended primarily to open an exploration of questions about the general fit of Polanyi’s philosophical ideas with the account that Goodenough and Deacon sketch.

I see hints that Goodenough and Deacon are moving in directions akin to those of Polanyi’s earlier discussions, but there remain ambiguities. Nobody more than Polanyi emphasized that a living research tradition grows, so it is hardly a surprise that contemporary biologists think rather differently than they did at the time Polanyi first carefully formulated his ideas in the fifties as he wrote *PK*. Polanyi then offered both criticisms of the new synthesis’ account of natural selection and his own constructive account of evolutionary “emergence,” which he identifies with the “logic of achievement” (*PK* 382). These days “emergence” is a common (if not always a clear) term in the vocabulary of biologists.

I don’t think it is useful to try to bind Polanyi too tightly to contemporary scientific discourse, but I do believe that Polanyi clearly sounded some notes worth preserving as thinkers work out the melodies appropriate to today’s move from science to broader philosophical and religious accounts. Insofar as Goodenough and Deacon are moving in this direction, Polanyi is a forbearer worth scrutinizing.

However, to see Polanyi’s importance for contemporary efforts to link the discourse in biology, philosophy and religion, it is important to put aside certain dualistic conceptual schemes. Polanyi himself sometimes employs such a framework in order to articulate his criticisms of the biological literature of his time and to put forth an alternative. I am referring to a dichotomous framework whereby accounts are identified as either “reductionistic” or “non-reductionistic.” For those with philosophical background, this pair seems

quickly to link to another pair, “materialist” as opposed to “idealist” accounts. For those with more background in biology, there is a similar dichotomy between “non-vitalist” and “vitalist” accounts. All of these dichotomies lead discussions through the battlegrounds of the past. They may have been somewhat useful in a particular context for drawing the issues, but they have become liabilities and need to be put aside or re-contextualized. Clearly, many contemporary biologists like Goodenough don’t consider themselves “reductionistic,” although they may find the term helpful for pointing out the differences in the way of thinking of contemporary biologists and those in Polanyi’s time. In what follows, I will strip Polanyi’s account of these now problematic terms; I invite others to do the same in linking Polanyi to thoughtful papers like that of Goodenough and Deacon.

Criticisms of Certain Interpretations of Natural Selection

There is no doubt that Polanyi was a dissenter about what he took to be the primary orientation of evolutionary thought in the so-called new synthesis. He apparently worked for some years at the project of articulating his discomfort. Marjorie Grene has reported that when she agreed to help Polanyi in the early fifties with his Gifford Lectures and later with the production of *PK*, one of her tasks was to “look up heresies in evolutionary theory, specifically criticism of the evolutionary synthesis...”¹. Polanyi’s criticisms seem to be articulated in several different ways. Perhaps the clearest way revolves around what is essentially a logical point; further, his constructive alternative to the status quo also turns on this point. He makes his case most succinctly in one paragraph in *PK*:

... the theory of natural selection, by subsuming all evolutionary progress under the heading of adaptation as defined by differential reproductive advantage, necessarily overlooks the fact that the *consecutive* steps of a long-range evolutionary progress—like the rise of human consciousness—cannot be determined *merely by their adaptive advantages*, since these advantages can form part of such progress only in so far as they prove *adaptive in a peculiar way, namely on the lines of a continuous ascending evolutionary achievement*. The action of the ordering principle underlying such a persistent creative trend is necessarily overlooked or denied by the theory of natural selection, since it cannot be accounted for in terms of accidental mutation plus natural selection. Its recognition would, indeed, reduce mutation and selection to their proper status of merely *releasing and sustaining the action of evolutionary principles* by which all major evolutionary achievements are defined (*PK* 385).

Reduced to a sentence, Polanyi’s claim is “we can know living beings only by appreciating their achievements” (*PK* 385). Applied to the matter of change in living beings, his claim is that “we can know their evolution only by appreciating the development of their achievements in the course of succeeding generations” (*PK* 385).

Biology as Critical and Convivial

Polanyi articulates his alternative to the new synthesis interpretation of natural selection in a variety of different ways. One way is to distinguish the nature of knowing in biology. Polanyi emphasizes what he terms the critical and convivial aspects of biology: “Since all life is defined by its capacity for success and failure, all biology is necessarily critical.” (*TD* 51). Although he thinks there are hints of evaluation (i.e., “critical” aspects) in terms of success and failure in some inanimate studies (e.g., crystallography), it is at the level of life where appreciation of function is imperative. Biology is “critical” for Polanyi in the sense that the study of life always

involves suppositions about an active center and that center integrates the functioning of the whole. The more complex the life form, the more the critical aspects are deeply bound up with convivial aspects:

Each new branch of biology that was developed to cover the increasingly complex function of higher animals sets up additional standards, to which the observer expects the animal to measure up. And this intensification of criticism coincides with an increasing enrichment of relations between the critic and his object. We know an animal, as we know a person by entering into its performance, and we appreciate it as an individual, in the interests of which these performances have their meaning. Even at the lowest, purely vegetative level, we accept the interests of the animal as the standard by which our own interest in the animal is determined. All biology is, in this sense, convivial. But this conviviality rises to emotional concern as the animal approaches the human level. We then become aware of its sentience, of its intelligence, and above all of its emotional relations to ourselves.

Yet, however greatly we may love an animal, there is an emotion which no animal can evoke and which is commonly directed toward our fellow men. I have said that at the highest level of personhood we meet man's moral sense, guided by the firmament of his standards. (*TD* 51).

Polanyi here sketches a pattern of intensifying personhood and this pattern has at least some rough parallels with the kind of emergence sketched by Goodenough and Deacon, in which ultimately human beings are described as creatures who experience our primate brains symbolically, as creatures "uniquely aware of what it feels like to be pro-social," (16) and who possess the "ability to symbolically represent it [our rich heritage of social emotions] to ourselves" (16).

I should emphasize, however, that many of Polanyi's discussions are focused insistently upon the fact that we must never lose sight of the centeredness of all living creatures and there are suppositions about this centeredness that we bring to knowing life.² Marjorie Grene, a most able Polanyi interpreter, perhaps more directly than Polanyi, suggests what is philosophically at stake in acknowledging active centers:

To know life is to comprehend comprehensive entities; to know knowing is to comprehend those particular achievements of living things which consist in their acts of comprehension. Mind is once more a natural reality, and nature once more both the medium and the object of mind's activity.³

In the same discussion, Grene also emphasizes "neither is sheer givenness, the only way things are"; minds or proto-minds are real things and Polanyi's kind of philosophical evolutionary realism frees us from that tyrannical dualistic division between materialism and idealism:

The achievements of all living things, the achievements of human minds, are more than tiny superscripts on a single monotonous succession of mere facts. They are enrichments of being itself (*KK* 223).

She suggests, in a way that Polanyi was certainly reaching to articulate, that

only such an acknowledgment . . . will enable us to see knowledge itself as a real achievement of real beings. The recognition of scientists at work . . . is an instance of the

recognition of responsible persons, a performance of the same general kind as the recognition of patterns, individuals, or persons at lower levels of existence (*KK* 223).

Goodenough and Deacon clearly want to make a place for human moral awareness; their essay is an effort to outline a case. Polanyi's account of biology in terms of active centers and the critical and convivial aspects is a way ultimately to acknowledge the achievements of human minds, a way to affirm the reality of mental things.⁴ Goodenough and Deacon seem to be moving toward such a broader affirmation.

Polanyi on Emergence

If you give priority to an active center (i.e., if you treat biology as critical and convivial), Polanyi believed you must think about evolution in a particular way. The emphasis upon centeredness can be found in the ways in which Polanyi discusses emergence. He thinks of emergence in terms of the release of self-sustaining operational principles that must be described as at a different and higher level than the principles that released them:

I have described this process [the emergence of a living being from inanimate constituents] as a chance fluctuation which releases the action of certain self-sustaining operational principles. This results in the formation of two levels of existence: an upper level governed by physiology, and a subsidiary, lower level defined by physics and chemistry—the operations on the upper level being predicated on the emergence of an individual, whose interests they serve. In the course of anthropogenesis, individuality develops from beginnings of a purely vegetative character to successive stages of active, perceptive, and eventually responsible, personhood. This phylogenetic emergence is continuous—just as ontogenetic emergence clearly is. Hence the higher principles governing the emergent forms of evolution presumably gain control gradually of the evolving beings, in the same way as they gradually become more pronounced and predominant in the course of man's embryonic and infantile development (*PK* 394-395).

At least on the surface, Polanyi's focus upon a hierarchical account of emergence seems to resemble Goodenough and Deacon's succinct description of emergence as "something more from nothing but" (6). Much of Polanyi's attention, however, is drawn to the matters of (1) how we are compelled to articulate the connection between two logically distinct levels in emergence and (2) how it is appropriate to describe the transition in evolutionary history through which new operational principles come into being.

On the first matter, Polanyi insists higher principles operate in margins left open by lower principles and higher principles need to be described as serving an emerging active center. As noted above, Polanyi was unhappy with much of the biology of his day because he believed the active center deploying higher operational principles was overlooked. Ultimately, in evolutionary history, that active center is the human person. Clearly, Polanyi, as well as Goodenough and Deacon, are impressed by the human mind. In an impassioned idiom that frightens many readers, Polanyi suggested that anthropogenesis should be central to evolutionary biology and, ultimately, such study must account for human responsibility as an ongoing personal and communal enterprise:

The point is reached here at which the observer's appraisal of biological achievement turns into his submission to the leadership of superior minds. This corresponds to the extrapo-

lation of biology into ultra-biology, where the appraisal of living beings merges in an acknowledgment of the ideas transmitted by our intellectual heritage. This is the point at which the theory of evolution finally bursts through the bounds of natural science and becomes entirely an affirmation of man's ultimate aims. For the emergent noosphere is wholly determined as that which we believe to be true and right; it is the external pole of our commitment, the service of which is our freedom. It defines a free society as a fellowship fostering truth and respecting right. It comprises everything in which we may be totally mistaken (*PK* 404).

On the second matter, Polanyi emphasizes that we need very carefully to describe the way higher principles come into being in evolutionary history. Since Polanyi regards active, centered subjects as "an embodiment of an ordering principle" (*PK*, 401),⁵ he insists upon a distinction between what releases and sustains a principle and the action which generates the principle: "Random impacts can *release* the functions of an ordering principle and suitable physico-chemical conditions can *sustain* its continued operation; but the *action* which *generates* the embodiment of a novel ordering principle always lies in this principle itself" (*PK*, 401).

Goodenough and Deacon portray emergence in terms of three orders. The difference between the first-order and second-order seems to be time; in shape interactions played out over time, what happens next can be influenced by what has happened before. The difference between second and third-order emergence seems to be that shape and time are compounded with "remembering how to do it" (7). Instructions constrain self-organizing systems specifying particular outcomes called biological traits, which can change through mutation and selection. In third-order emergence, what seems to be involved is the coming into being of what Polanyi would regard as a higher order principle embodied in a center.⁶

Although Goodenough and Deacon want to move (as their title suggests) "from biology to consciousness to morality," they don't, in this short paper, frame the issue, like Polanyi did several decades ago, in terms of a claim that biology is critical and convivial. They don't directly emphasize that such an acknowledgment is a prerequisite as well as a prime motive for making the move from biology to consciousness to morality. In a sense, what Polanyi claims is that biology must explain our interest in understanding biology and our struggle for moral responsibility as explorers of the universe, but to do so requires at least tacit recognition and affirmation of that which is to be explained. Philosophically, this Polanyian move, as Grene says, puts mind back in nature, but recognizes mind or minding as a real and dynamic feature of reality. I emphasize, however, that Goodenough and Deacon's paper is a short paper. I don't think these contemporary scientists are preoccupied, like Polanyi was, with taking a stand against what Polanyi in an earlier day sometimes labeled the "materialism" and "reductionism" of biology. On the other hand, I think it is certainly the case that all contemporary scientists interested in the move "from biology to consciousness to morality" need to appreciate what is sometimes called the hermeneutic circle but that Polanyi called the critical and convivial nature of biology. At the heart of biology is respectfully acknowledging that responsibly knowing nature is an aspect of reality. Such an acknowledgment brings biology to merge seamlessly into what Polanyi called "ultra-biology" (*PK* 404). Finally, I also note that I find much more in Goodenough's *The Sacred Depths of Nature* than in this short paper that emphasizes the critical and convivial nature of biology. I can see clearly that understanding life is inextricably bound up with the moral enterprise when Goodenough speaks of framing a perspective on "how Nature is put together, and how human nature flows forth from whence we came"⁷ issuing ultimately in gratitude for existence, reverence for the way life works and a deep sense of the importance that life continue.

Living Things as Centers That Possess Tacit Powers and Grow Meaning

There is another way in which one can formulate Polanyi's peculiar but consistent emphasis on the active centeredness of living things (i.e., the critical and convivial aspects of biology). This way of formulating matters draws somewhat more on his late thought. It is worth briefly outlining this perspective because I think it may have more affinities with ideas Goodenough and Deacon sketch.

Another way to put Polanyi's point that acknowledging active centers is central to biology and philosophy is to say living forms have and live through the use of tacit powers. There is nothing mysterious about Polanyi's model or this claim, in my view. It simply means living things have the capacity to acquire, combine and make natural skills through which they respond to a changing environment. Although they want clearly to distinguish the mediation of cellular awareness from brain-based awareness, Goodenough and Deacon outline a contemporary description of how life works that seems akin to Polanyi's account in terms of deploying tacit powers. Living things are creatures that develop skills that are habituated, according to Polanyi. Our physical bodies operate--and we also engage the world beyond us (cultural and physical)--by attending from what we dwell in to our interests. The scope and complexity of habit and its potential for active integration is mind boggling when we move from an amoeba to a human being, a creature offered the rich resources of language and culture.⁸ Active centers dwell in subsidiaries and integrate them to produce comprehensive achievements. Comprehensive achievements may also be described as meaning. Meaning for human beings, in Polanyi's account, ultimately becomes articulate; articulate beings have an opportunity and a mandate to explore the unknown and understand the rich universe, using our sophisticated tools. But Polanyi insists also that "all life is endowed with originality and originality of a higher order is but a magnified form of a universal biological adaptivity" (*PK* 124). Articulate meaning is an extension of the use of tacit powers found in the simplest life forms.

Goodenough and Deacon provide a perspective that insightfully sketches the way in which meaning works in the development of evolutionary history. Like Polanyi, they point out that meaning in an amoeba's world and in a human being's world are in continuity and yet are sharply distinguishable. As certainly Peirce and likely Polanyi also recognized, semiotic systems are emergent at least in the sense that meaning grows.⁹ Goodenough and Deacon helpfully adapt a Peircean semiotic distinction to talk about the indexical nature of meaning in the world of an amoeba:

And a molecule diffusing from a decaying food source and binding to and activating a receptor on the surface of an amoeba *means that* the food source is nearby. The molecule is not the food source itself but rather a sign indicating its proximity. In each case, a sophisticated biochemistry is recruited to translate/interpret the sign's meaning. . . (8).

To extend this account from a Peircean framework, one might say the sign has a significant effect, an interpretant. That interpretant itself becomes an object which gives rise to a new sign that produces a future interpretant. Thus the cycle of organismic action and reaction in a niche unfolds and this ultimately plays itself out over time in the changes in the frequencies of different sets of instructions for making organisms. From a more Polanyian framework, one might say the molecule binding and activating a receptor is an organismic tacit integration of clues, an achievement of sense-reading, if you want metaphorically to apply a Polanyian semiotic triad.

Goodenough and Deacon, of course, want also especially to focus on the way the one-man band amoeba differs from the large orchestra multicellular organism. I find their account provocative. The indexical semiotic capacity of brain-based awareness is complex and even more fascinating is what they describe as the robustly epigenetic mammalian brain development and its “second-order emergence” (6). Ultimately, the “something more” than indexical meaning emerges in the co-evolutionary cycle of culture, language and brain in their account. Goodenough and Deacon want to hold equally to what Polanyi might call both levels of a two-level description when describing a person: “What a person is and what a person is conscious of are representation, and representations—although *nothing* but physical objects and events—are *something more* as well” (15). They caution that it is important “that we not lose track of our mental evolutionary antecedents”(16):

... we share strong cognitive and emotional homologies with our primate cousins, and to the extent that degradation/reconfiguration went into generating our capacity for language, it occurred in the midst of a primate brain that remains very much a primate brain. Any perspective on the human condition that brushes this fact aside is an incomplete perspective—indeed, we would say that it is an impoverished perspective (16).¹⁰

Remembering our evolutionary antecedents is something that I think Polanyi does do in his own fashion insofar as he works out a model of the person as an active center engaged in minding, which is always an embodied action. Certainly in his day he never dreamed of what Goodenough and Deacon discuss as the degradation/reconfiguration that likely occurred in evolutionary history, but Polanyi consistently emphasizes both embodiment and continuity: that is, he wanted to show how what he calls tacit powers work throughout the organic world. It appears to me in fact that Polanyi’s account of minding as embodied might be quite a fruitful venue to develop the emphasis that Goodenough and Deacon place upon meaning and evolutionary antecedents. What Polanyi, of course, wants to emphasize is the growth of meaning and the way this entails the nurture of certain kinds of human responsiveness /responsibility as human beings take up their callings in interpretative communities.

Endnotes

¹ Marjorie Grene, *A Philosophical Testament* (Chicago and La Salle, IL: Open Court, 1995), 91.

² In *PK*, Polanyi refers to the “three-storied” character of perception in biology (*PK*, 364). We can, for example, be aware of an animal’s active-perceptive responses only in relation to a focal awareness of the animal as an individual. We must see the particulars of an animal’s activity subsidiarily in a focus upon the whole animal in order to know what the animal is knowing or doing.

³ Marjorie Grene, *The Knower and the Known* (Berkeley: University of CA Press, 1966), 224. Hereafter this book is abbreviated as *KK* and cited in parenthesis.

⁴ This does not, of course, mean that living things that are not human are uninteresting and insignificant.

⁵ Polanyi suggests that a higher level principle comes into being as it becomes embodied within the margins left open by lower level principles. I think Polanyi probably thought in his day that an overemphasis upon mutation and natural selection obscured interesting questions about hierarchically-organized sets of principles. I am not sure that such questions are today regarded as philosophically interesting or important in biology.

⁶ Can the way instructions constrain self-organizing systems which change through mutation and selection appropriately be described as “fields of opportunity and of striving” that are “neither conscious nor deliberate” but are “directed toward this opportunity”? This is the way at the end of *PK* (404) Polanyi puts his description of evolutionary emergence. He is here interested in casting the whole of evolutionary emergence in terms of a “heuristic field” (*PK* 303). He contends the field description is the best way to portray evolution if one is committed to showing that knowing is but

a member of “*the class of achievements that are comprised by all forms of living*” (PK 403). Polanyi’s account of emergence, in other words, never allows one to separate completely—and treat as logically distinct—matters of mutation and selection and matters of knowing. They belong together, he insists, and responsible knowing must in some ways set the terms used to describe the results of mutation and selection.

⁷ Ursula Goodenough, *The Sacred Depths of Nature* (New York: Oxford University Press, 1998), xviii.

⁸ The opening chapter of “Part Two: The Tacit Component” of *PK* is titled “Articulation” and is a critical chapter for understanding Polanyi’s account of tacit powers and language. Marjorie Grene has reported (in her appraisal of Polanyi in “Tacit Knowing: Grounds for a Revolution in Philosophy,” *Jou. Brit. Soc. for Phenomenology*, 8:3, Oct. 1977: 164-171) that this chapter took Polanyi a year to write and she was originally puzzled by this but came to understand its centrality for Polanyi’s post-critical philosophy:

I did not really understand at the time why just this problem: the grounding of articulation in the inarticulate, should need to be spelled out so painfully. But it is indeed the heart of the matter—not, again, because Polanyi was developing an “irrationalism” . . . but because the understanding of understanding, of rationality itself, demands an understanding of the way in which the subsidiary supports the focal, in particular of the way in which the ineffable supports the activities of voice or pen (168).

Three of many interesting comments by Polanyi about language and its roots and fruits seem much akin to suggestions sketched in Goodenough and Deacon’s short essay:

The origin of this intellectual striving which (somewhat paradoxically) both shapes our understanding and assents to its being true, must lie in an active principle. It stems in fact from our innate sentience and alertness, as manifested already in the lowest animals in exploratory movements and appetitive drives, and at somewhat higher levels in the powers of perception. Here we find self-moving and self-satisfying impulses of both purpose and attention which antedate learning in animals and themselves actuate learning. These are the primordial prototypes of the higher intellectual cravings which both seek satisfaction in the quest for articulate knowledge and accredit it by their own assent.” (PK 96).

As language enlarges the range of our thought, the ape’s pleasure in playing with a stick is expanded to a complex system of emotional responses by which scientific value and ingenuity of many kinds are appreciated throughout natural sciences, technology and mathematics. (PK 133).

To learn a language or to modify its meaning is a tacit, irreversible, heuristic feat; it is a transformation of our intellectual life, originating in our own desire for greater clarity and coherence, and yet sustained by the hope of coming by it into closer touch with reality. Indeed, any modification of an anticipatory framework, whether conceptual, perceptual or appetitive, is an irreversible heuristic act, which transforms our ways of thinking, seeing and appreciating in the hope of attuning our understanding, perception or sensuality more closely to what is true and right. (PK 106).

Diane Yeager’s recent article “Confronting the Minotaur . . .” (*Tradition and Discovery*, 29:1 (2002-03): 22-48) offers an excellent discussion of Polanyi’s concern with the fragility of the cultural firmament that language makes possible.

⁹ Peirce, of course, defined the human being as a sign. Vincent Colapietro’s *Peirce’s Approach to the Self: A Semiotic Perspective on Human Subjectivity* lucidly treats Peirce’s account of semiotics and how he applies this to human beings. Polanyi comes closest to outlining his account of semiotics in his 1967 essay “Sense-Giving and Sense-Reading” included in Grene’s collection of Polanyi essays, *Knowing and Being*. Although Polanyi’s semiotic triad seems to have been designed primarily to outline the growth of articulate meaning in the human world, I suggest that it works reasonably well to model philosophically the growth of meaning in the activity of any living center deploying tacit powers. Robert Innis (“Peirce and Polanyi: Perceptual Consciousness and the Structure of Meaning,” *Proceedings of the International Colloquium on Language and Peircean Sign Theory*, Series 4. NY: Berghan: 531-560), like me, thinks Peirce and Polanyi

offer a similar semiotic account. Both regard perception as an “instance and an exemplar of semiosis or meaning-making” and for both perception is “the matrix and condition of all ‘later’ or ‘higher’ signitive events such as language and art, which drive the expanding spiral of semiosis and the construction of those webs of signs by means of which we ‘articulate’ both ourselves and our worlds and are enabled to double back to ourselves and control and evaluate our conduct” (532).

¹⁰This seems to me a sensible cautionary note. It resembles the note that biologists and philosophers of biology have sounded in the work done over the last forty years on explaining the concept of function in biology. This work has carefully developed a way to conceive and talk about function that incorporates the emphasis upon evolutionary history that is central in modern biology. See the excellent summary of stages in this development in David J. Buller, “Introduction—Natural Teleology,” *Function, Selection and Design*, ed. David J. Buller (Albany: SUNY Press, 1999): 1-27. The challenge, of course, of a discussion of persons is (as Goodenough and Deacon suggest) not to lose track of our mental evolutionary antecedents, but also not to lose track of human mental prospects. It is these prospects that Polanyi’s odd discussion of evolution tries to bring into focus. Explaining persons must avoid explaining away the futural. That is, persons are living realities oriented toward the future; we pursue, even as we revise, our anticipations. This is the gift of symbolic language, and moral life is bound up with our responsiveness as creatures able to anticipate the future and revise that anticipation.

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Submissions for Publication

Articles, meeting notices and notes likely to be of interest to persons interested in the thought of Michael Polanyi are welcomed. Review suggestions and book reviews should be sent to Walter Gulick (see addresses listed below). Manuscripts, notices and notes should be sent to Phil Mullins. Manuscripts should be double-spaced type with notes at the end; writers are encouraged to employ simple citations within the text when possible. MLA or APA style are preferred; because the journal serves English writers across the world, we do not require anybody’s “standard English.” Abbreviate frequently cited book titles, particularly books by Polanyi (e.g., *Personal Knowledge* becomes *PK*). Shorter articles (10-15 pages) are preferred, although longer manuscripts (20-24 pages) will be considered. Consistency and clear writing are expected.

Manuscripts normally will be sent out for blind review. Authors are expected to provide a hard copy and a disk or an electronic copy as an e-mail attachment. Be sure that electronic materials include all relevant information which may help converting files. Persons with questions or problems associated with producing an electronic copy of manuscripts should phone or write Phil Mullins. Insofar as possible, *TAD* is willing to work with authors who have special problems producing electronic materials.

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From Biology to Social Experience to Morality: Reflections on the Naturalization of Morality

D. M. Yeager

ABSTRACT Key words: ethics, moral sense theory, U. Goodenough, T.W. Deacon, G. H. Mead, social construction, emergence, coevolution

Placing Goodenough and Deacon's "From Biology to Consciousness to Morality" against the background of the ethical naturalism of seventeenth- and eighteenth-century British moral theory, Yeager highlights the contribution the authors make to the moral sense tradition as well as indicating the limitations of such accounts of moral agency, judgment, and conduct. Yeager also identifies two strands of the essay that seem to open toward a more comprehensive account than the authors actually give. The first concerns the "interplay between self-interest and pro-sociality," and the other concerns the ethical implications of coevolution. On the latter point, the work of G. H. Mead is offered as an illuminating contrast.

"From Biology to Consciousness to Morality" undertakes "the project of naturalizing morality" (20). Working from a lucid and fascinating account of "biological emergence . . . undergirded by semiotic (encoding) systems," Goodenough and Deacon extend their empirical approach in support of the thesis that primates equipped with language become aware of their "pro-social" capacities and that this self-awareness—characterized as "awareness of what it feels like to be moral" or as "moral experience" (16)—makes possible an amplification of these capacities to such an extent as to constitute "experiences and imaginings and modes of action that are no longer constrained by evolutionary precedents and classes of phylotypic stimuli" (16). They not only explore the grounding of morals but also make some normative judgments that they take to follow from the understanding of morality that they propose.

As the authors rightly indicate (18), their treatment of the phenomenon of moral judgment has affinities with that developed by the British seventeenth- and eighteenth-century moral theorists Shaftesbury and David Hume (though technically, Francis Hutcheson and Hume might be the more appropriate lineage). Known by convention as "moral sense theory," and extended through Adam Smith into the utilitarian school so prominent in nineteenth-century English moral thought, this account of moral behavior and judgment grounds morality in human nature (thus dispensing with both ecclesial and social authorities as arbiters of right behavior). It is a predominantly psychological account of the moral (giving central place to mental states, specifically the feelings, of the agent), and it tends toward intuitionism. It presupposes an empiricist epistemology, and the representative theorists in this movement all link moral with aesthetic judgments. Probably reflecting Protestant religious influences, these theorists reserve moral approbation for intentions or motives rather than deeds *per se*, and this, together with the emphasis placed upon feelings of pleasure and approbation, provides the bridge to utilitarianism. Moral sense theory developed in opposition to the received rationalistic accounts of morality as a rational achievement and was thought by many to be superior to such theories because the moral sense account seemed to close the gap between moral knowledge and moral action that had been so troublesome to the rationalists. It is equally important to note that moral sense theory also developed in opposition to the (at the time) shocking work of Thomas Hobbes, who also closed the gap between knowledge and action, essentially by dispensing with "the moral" altogether. He had painted a powerful but very unattractive picture of human

action and human collective arrangements as a field of unrelenting self-seeking and ego-interest conflicts. The authors' current naturalization project, like many contributions by contemporary sociobiologists, has the virtue of counterbalancing accounts of human behavior—whether they arise from Hobbesian pessimism, Spencerian theories of evolution, depth psychology, or economic rational choice models—that reduce human motivation to individual self-interest driven by indelible and invariant desires to survive, possess, and dominate.

Brief Summary

Out of their consideration of the range and development of biological life, Goodenough and Deacon identify four “organizing principles” of the group life of primates: “robust attention to *social hierarchy*,” “preoccupation with the *nurture* of the young,” “skillful engagement in *strategic reciprocity*,” and “a hostility towards outgroups (*xenophobia*) and an endowment of the pro-social capacity we can generically call *empathy*” (12). These characteristics, together with self-interest and “such ‘negative’ capacities as aggression” (12) are, I take it, what the authors have in mind when they later refer to “our primate minds” (16, subhead) or, rather differently, “a primate brain that remains very much a primate brain” (p. 16, text). To develop the “something more” emergent from this “nothing but,” the authors point out that humans are unique in having developed abstract, symbolic, syntactical languages which make possible a kind of niche construction that is not open to any other creatures. Once this power emerged, somewhere, in the incomprehensibly distant past of our hardly recognizable ancestors, it set in motion the complex and marvelous process of “the co-evolution of language, culture, and symbolic human minds” (13), an evolutionary process that presumably continues today. In addition to making it possible for us to construct and inhabit what the authors call “a virtual reality” (15), this co-evolutionary process makes possible the emergence of the self and the possibility of self-awareness and self-reference. Stressing their belief that the nature of this emergent self does not “[set] us apart in some disconnected realm” (15) and that it would be incorrect to conclude that the human mind “somehow [has] the wherewithal to transcend these [our primate] antecedents and operate in a set-apart matrix of human-specific truths” (16), they insist that what language makes possible is the reflexive experience of what is already present in all primate minds rather than the appearance of something not present before. All primates have mental experience of an “intensely social” sort; in the authors' somewhat troublesome language, all primates experience their minds (16). Humans, equipped with symbolic language, experience the same sort of mind, but experience it differently. The process of representing features of our mental experience to ourselves “radically transforms” that mental experience, “augmenting” and “amplifying” it, and permitting “conceptual blending” (16). Presumably this hypothesis could be discussed in terms of any of a wide number of mental experiences, but the authors have a special interest in “moral experience.” Accordingly, they return to the four characteristics of cooperative primate life (hierarchy, reciprocity, nurture, and empathy) in order to show how each, having been altered and extended as it became subject to reflexive self-awareness, provides the natural grounding of one or more moral virtues.

- Natural primate empathy (a pro-social capacity), symbolically “accessed” in reflexive awareness, is simply extended in its reach. Whereas other primates “are disposed to help one another out in the service of group stability, to be tolerant, to offer forgiveness and consolation and forge reconciliation” (12), they practice such behavior only with respect to a limited group of immediately present companions. In an example of amplification or augmentation, this same attitude in humans is remarkably extended beyond “kin or friends or social group,” even to known enemies and even so far as the inclusive community of “the planet Earth” or “life itself” (17).
- Linguistically mediated self-experience also alters strategic reciprocity (kin altruism). In this case, the

mechanism of transformation seems to be conceptual blending or “symbolic synthesis” rather than amplification. The behaviors and attitudes essential to group formation are “fused” with pro-social empathy to produce “a sense of justice” (18).

- Nurture, symbolically experienced, yields the virtue of care which capaciously enfolds “responsibility, commitment and kindness” (18). The “transfiguration” here is once again extension. Instead of confining the activities of nurture/care to the dependent young of one’s own kin system, one is able to turn one’s capacity for care toward the ecosystem and toward future generations.
- Hierarchy, the mental capacity underlying dominance and subordination, seems to give more trouble, and here the mechanism of transformation is not specified. The impulse to dominance disappears (as xenophobia simply disappears from the discussion of empathy or strategic reciprocity), and the impulse to accept one’s (subordinate) place and role in “contexts that are larger and more important than ourselves” (18) is characterized as reverence on the part of everybody, whether dominant or dominated, powerful or subservient.

This discussion (or, more accurately, the discussion of empathy) then becomes the basis for the authors’ discussion of pleasure in the intuitive apprehension of moral beauty as the only authentic form of properly “moral” motivation, and for their treatment of cultural traditions (including religions) as guides and stimulants to this natural “process of moral self-discovery” (19). What emerges, then, is an account of creatures who are determined by tens of thousands of years of evolution to behave in ways that are advantageous to group life. These behaviors are not, however, presented as inevitable instincts; the authors do assume an intuitive and universal grasp of and appreciation of the “beauty” of behaviors that create and enhance social bonds, but whether an individual will behave in ways that enhance social bonds is less predictable. The latter apparently depends on environmental conditions such as the presentation of moral ideals and the absence of stress.

Moral Sense Theories

Does this biologically based account have any distinct advantages over that of the moral sense school? Eighteenth-century thinkers did not have evolutionary theory, nor did they have a very sophisticated theory of language, yet they developed a very cogent theory of the “sentimental” anchor of all moral action and judgment. They worked directly from the person’s desire for pleasure and aversion for pain, the person’s intuitive sympathy and intuitive admiration. What, if anything, is added or changed by invoking primate evolution, “the coevolution of language, culture, and symbolic human minds” (13), and linguistically-mediated self-awareness of the pro-social and a-social capacities of our primate brains?

To begin with, this account does offer a natural mechanism by means of which such “sentiments” as empathy and kin altruism arise in human beings. By the same token, this account explains intuitive appreciation of the good and involuntary revulsion at cruelty and some forms of violence. The authors suggest how and why there might be neural pathways that ensure an organism’s positive response to behaviors conducive to group life, and physiological systems that produce subjective distress in response to the spectacle of pain in others. One of the principal criticisms of the moral sense account has been that its reliance on direct moral perceptions seems to suggest that there is either some extra organ of sense (favorite proposals were “a moral nose” or “a moral ear”) or some separate mental faculty that is the seat of distinctively moral perceptions and distinctively moral responses. A number of the original moral sense theorists proposed that the intuitive appreciation of the good could only be explained as a contrivance of God. The evolutionary account of the survival value, for many

species, of such hard-wired impulses, together with their linguistically mediated extension and interaction, would therefore seem to represent a worthy and helpful contribution to this tradition, rendering it more empirically plausible and much more attractive to those who reject appeals to divine creation.

Curiously, however, the authors seem determined to reinstate the gap between motivation and action that moral sense theory is usually considered to have closed. In the moral sense tradition, the responsive feeling is generally considered to be the motivation that compels the action. If I behold someone who is in pain because she is being humiliated by someone else, I experience, by empathy, her humiliation and pain. This experience of distress compels me to act to remove the source of the distress in a manner hardly different from the involuntary act of dropping a hot cookie sheet if I happen to pick it up without a mitt. There is, so to speak, no logical space for the rationalist's question, "Yes, I know that would be the moral thing to do, but why should I be moral and inconvenience myself to bring it about?" Yet the authors here are quite explicit in insisting that "[t]o have moral experience is, of course, quite a different matter from acting in a moral way, particularly when it is against one's self-interest to do so" (18). Action, they claim, requires motivation that is somehow quite separate from "see[ing] what is right" (18). I take it that the authors feel they must introduce this separation in order to safeguard their claim that people do not "just act on their 'moral instincts'" (17), and in order to acknowledge the appalling degree of moral misbehavior of which human beings are guilty. Nevertheless, their disjunction between moral apprehension (or intuition) and action is puzzling and does not seem consistent with other features of their argument. "Moral experience" had earlier been defined as that which "undergirds and *motivates* the actions of a moral person" (16, my italics), and when the authors go on to specify what it is that does actually provide the motivation for action, they offer, well, a moral experience or intuitive appreciation of what is right—"the heart-warming sense of gladness that we experience when we encounter moral beauty" (19).

This oddity in the argument brings to mind one of the perennial complaints about moral sense accounts of moral judgment and moral agency. Critics have frequently pointed out that if the moral sense theory were true, everyone ought to be good nearly all of the time *and* there ought to be near universal agreement about moral right and moral wrong—neither of which seems actually to obtain. Hutcheson tried to deal with this by saying that the moral sense could be defective, and Hume held that differences in experience and education explained the discrepancies. Neither of these strategies proved convincing to the critics, and, to my mind, this constitutes the gravest weakness of this type of account of morality. I cannot see that Goodenough and Deacon have any convincing answer to this. The strategy of Hutcheson is evident in the summary dismissal of the psychopath as not "fully" human, but this seems like a very strange judgment from authors committed to grounding their account biologically. There seems to me to be a fundamental error involved in excluding from the category of the human certain inconvenient instances when what one is proposing is an account of the moral that is presumed to be based on the primate brain symbolically accessed through command of symbolic language. If one wants, on the other hand, to avoid the problem by pursuing a Humean strategy, then I would think that culture (for what else are experience and education?) would have to play quite a large role in one's account, far larger than the present article admits.

Moral sense or moral experience accounts are also criticized for being inherently relativistic because they base morality in feelings, and, empirically speaking, feelings seem to vary remarkably from one person to another. The people who criticize moral sense theories on this ground are those who take it for granted that if there were universal moral sentiments that all shared, the world would be different from the world that we inhabit. If all have moral sentiments but the sentiments are manifestly not the same, then moral action and judgment will be relative to the sentiments of the agent or groups of agents in question. Action that pleases me, I regard as

virtuous. Action that pleases you, you regard as virtuous. Concerning taste, there can be no disputing. Perhaps what pleases you (that is, what presents itself to you as morally beautiful) is flexible and tolerant whereas what pleases me is principled and demanding. Or perhaps what pleases you is the spectacle of a person sacrificing immediate and local goods for the sake of some future good whereas what pleases me is the spectacle of a person seizing present opportunities with committed abandon and saying “the future be damned!” Or perhaps what pleases you is a well-appointed, comfortable, and experientially rich life whereas what pleases me is the discipline of ascetic self-denial. The authors’ current contribution is too brief, of course, to advance to such a level of specificity, but it is precisely at this level of specificity that the problems always arise, and I do not see any indications that grounding the account in the primate mind now become linguistically self-aware is going to help much with this difficulty. We may all have pro-social capacities, but “on the ground,” in the world we know, these capacities cash out in remarkably different ways, and these differences seem to me to be more obviously indexes of the variability of human sensibility than simple mistakes or psychic underdevelopment.

As I have already indicated, moral sense accounts, which root morality in the capacities, sensibility or responses of individual subjects, tend to be particularly well received in times of notable resistance to traditional moral authorities (clerical or otherwise). Such theories also tend to rise to prominence as a kind of conceptual antidote when second-order moral discourse has been for some time excessively or narrowly preoccupied by deeds or conduct, at the expense of attention to motive and character. The weak side of this strength shows itself in the authors’ attack on rewards and punishments (18), and their claims about “real morality” (17). The idea that there are right and wrong reasons for doing what is right is a fairly reliable feature of most second order discourse about morality. Still, there are some anomalies here that point to the difficulties of accounts that concentrate so heavily on subjective dispositions and motivations to the neglect of deeds. The authors do, after all, purport to be developing an account of desire for and commitment to justice. Unfortunately, as a matter of fact, injustice abounds. Now what does the moral experience of someone who is “really” moral suggest should be done with those whose actions are unjust? Does moral experience prompt us to punish injustice? Or does moral experience prompt us to allow virtue to be its own reward? If moral experience prompts us to punish the unjust and compensate (so far as we can) the victim, how is that to be reconciled with the authors’ rejection of rewards and punishments as destructive commodification—“one of the most dangerous things that we do” (18)? Perhaps the real objection to rewards and punishments has to do with the moral education of the young, but it is not clear to me how the Aristotelian habituation to virtue (or how the education of the as yet unformed moral sensibilities) is to be accomplished without employing prudential concerns. On the other hand, perhaps the underlying concern here is that an expectation of external and social rewards turns moral behavior into a selfish (pro-me) enterprise when the authors, in their emphasis on pro-social empathy, have defined it otherwise, placing morality and self-interest in opposition. Yet the authors build in a natural mental reward: the pleasure in the beauty of the good. While a case can be made that they are holding out for a reward that is intrinsic to the act, rather than allowing the sympathetic or self-sacrificing act to be treated as instrumental to some other, extrinsic (and likely selfish) good, a question can be raised whether they have not been arbitrary in supposing that private sentimental rewards of an internal sort are somehow superior to social and public and evolutionary success. What preoccupation with attitudes, dispositions, sensibilities, and mental capacities tends to overlook is that deeds have consequences. If they don’t, their very meaning as deeds vanishes. That good deeds are at least sometimes received with praise and honor and perhaps even compensated is what sustains the virtuous person through all the moments when good deeds are misunderstood, overlooked, and exploited. To describe this as “commodification” is to miss the social dimension of the moral life.

Gestures Toward A More Comprehensive Account

That moral sense theories persist and persistently find renewing advocates is a testimony to their bearing on reality. The equally persistent criticisms (often said to be fatal to the theories) provides equally impressive testimony to the limits and inadequacies of such accounts when they are made to stand alone. What is needed is an account of moral agency and moral judgment that preserves the insights of moral sense theories but places them within a more comprehensive framework. This analysis by Goodenough and Deacon actually provides some suggestive hints as to how this might be attempted, but in neither case is it clear that they fully grasp the significance of the points they have made. Let me close, then, by identifying what I take to be two missed opportunities.

The interplay of human capacities

Moral sense theories are also often criticized for concentrating on benevolent traits and ignoring or even denying the darker side of human nature. Depth psychology has made it almost impossible for us to carry on with the view of human nature that seemed so congenial to thinkers in the eighteenth century. The picture that emerges from the work of Sigmund Freud, Eric Neumann, and Ernst Becker (to name only a few) is a picture of an exceedingly dangerous creature for whom even morality itself can become a weapon. Fyodor Dostoevski's *The Brothers Karamazov* offers a formidable number of characters who deliberately inflict pain, and there are a number of characters who find a deep aesthetic satisfaction in the spectacle of pain. We are a far cry here from the eighteenth-century confidence that it is human nature to seek pleasure and avoid pain and that the human psyche is intricately formed to find virtue satisfying and goodness beautiful. Goodenough and Deacon go some way toward acknowledging this problem in their final section on "A-Sociality." Here, however, we come upon what I take to be one of the two missed opportunities in their effort to move from biology through consciousness to an account of morality. The authors observe that "[a] full consideration of the *interplay between self-interest and pro-sociality* . . . is well beyond the scope of this essay" (20, my italics). They are right to say that a complete analysis of this sort would be a very demanding task, and I do not fault them for not accomplishing in an essay what could only be done in a book. The missed opportunity seems to me to lie in not having started by setting up the account of moral agency and moral judgment in terms of this interplay. Like moral sense theorists, the authors identify the moral with certain limited features of human sensibility (what they call the "pro-social" features). Realizing that these features of human sensibility are inadequate to account for human behavior, they are left with the "problems" of self-interest, xenophobia, unresponsiveness, aggression, and so on. To preserve their hope for a spontaneously "moral" world and their picture of the mature moral agent inspired by moral beauty, they end up making a utopian proposal that identifies moral behavior with behavior that, it appears, can only occur in the absence of all the known stresses that structure most of human experience. Why not start from the beginning with the proposal that "morality" is a matter of negotiating the "interplay between self-interest and pro-sociality"? Why not mine biology for what it can tell us about this interplay—about, for example, how closely connected altruism and xenophobia actually are in "the primate brain"?

The implications of coevolution

What we might call the field of power of moral sense theories is fairly limited. The more we focus on interpersonal relations, the more adequate they seem; the more we focus on systemic, technological, impersonal, structural, and policy problems, the less they offer in the way of explanatory power or helpful guidance. I cannot

empathize with a statistic, and it is now fairly widely recognized that although a week of media images of large-eyed, impoverished, and emaciated African children will awaken a wave of charitable impulses, a month or a year of such images produces numb indifference. Empathy may lead people to give money to the homeless person begging on the sidewalk (an action which, experts suggest, is rarely good for the homeless person herself), but it does not produce social reform addressing the absence of affordable housing in our cities or the mental health policies that have abandoned thousands of mentally ill patients to haunted lives on lonely streets. Moral sense theories seem remarkably useless in deciding whether and where a government should buy or simply seize land for a light rail line or a highway bypass or a halfway house. It is probably because we have been paying much too much attention to expressions of personal distress that we have not been able to enact the kind of gasoline taxes that are in the best long-term interest of the nation. Neither empathy nor a personal sense of justice nor a capacity for care seem to contribute much to public considerations of the massive problems that afflict the American health-care delivery system, nor do they do much to help address the choices (not the least of which have to do with the use of bio-engineered crops) that confront us as a result of the industrialization of farming.

More deeply still, my forays into the sociology of knowledge have brought me to believe that moral sense and moral experience and moral perception, insofar as we can isolate them at all, are very largely social artifacts. While it is true that all six billion of us have a good deal in common because we have remarkably similar bodies and operate with “primate brains,” from the time we are born, and probably before, we are subject to the shaping powers and the conditions of possibility unique to our social locations and communal frameworks. We are individuals with families, friends, teachers, employers, associates, and so on—the whole range of actual persons with whom we interact—but we are also inhabitants of vast, anonymous, unspecifiably complex structural systems: languages, industries, educational systems, law, professions, cities, power grids, food and health delivery systems, and so on. Some part of our moral responsibility concerns direct familial and interpersonal interaction, but much of it arises in relation to this “world” beyond the faces, the “world” from which these recognizable faces emerge for me as the domain of my particularity, the province of “care” recognized by my “primate brain.” Yet, as the authors point out, our species is utterly different from the other primates because we have made that “world,” that “virtual reality,” in an intricate and strangely miraculous process of coevolution. Our species has built and continually restructures the self-created niches of our various cultures, which would not exist apart from our linguistically-mediated activities. We perpetually reconstruct ourselves by our habitation of the world we have made. Having laid hold of this insight, the authors then let it fade, turning all their moral attention to individual subjects whose biologically-based capacities for constructive interpersonal relations they envision as enlarged and extended—so that the subject comes to care for the ecosystem as she cares for her offspring.

As a useful contrast, let me commend to your attention *Mind, Self, and Society* by George Herbert Mead, a book published in 1934 (from lectures given earlier) but still in print. He comes to mind as a theoretician—a social psychologist or, as he somewhat misleadingly identifies himself, a social behaviorist—whose work has many affinities with the approach of Goodenough and Deacon. He believes that we must begin our account of “mind, self, and society” with attention to evolution; the notion of emergence is central to his analysis of consciousness; he, too, underlines the reciprocal relations of the organism and the environment; and he discusses the emergence of the distinctively human mind in connection with the passage from the “conversation of gestures” common throughout the animal kingdom to the powerful liberation worked by the acquisition of the communicative power of “significant symbols.” He, too, identifies the moral and the “pro-social.” However, there are important and pivotal differences as well. Mead focuses on conduct rather than on dispositions and motivations. In Mead’s view, symbolic language does not just extend and transform pre-existing sociality; it

makes possible the emergence of a new and distinctive kind of sociality, a sociality that rests on linguistic communication. Communication is essential “so that individuals can put themselves into the attitudes of those whom they affect” (328); this changes everything because it is the foundation of the mutual self-adjustment and the source of meaning (76-77). What language gives the organism is not only the awareness that constitutes the self, but unprecedented degrees of social management, directed development, functional cooperation, and complexity in aspiration and achievement. While Mead, like the authors, regards the possibility of “taking the attitude of the other” as a breakthrough of astonishing power, he locates that power neither in the creation or extension of sympathetic bonds nor in the enhancement of fellow feeling or the feeling of “reverence.” It is a breakthrough because it makes possible “the development of [the social] process into much more complex forms of social interactions among the component individuals” than had ever been possible before (226).

Accordingly, Mead gets from biology to ethics much less directly than Goodenough and Deacon do. Between “biology” and “morality,” he puts 250 pages of social science. In his view, the bridge is not consciousness (which he thinks most people misconstrue anyway) but social experience. The connection of biology and morality involves a long analytical study of the nature of the complicated worlds that biologic individuals, equipped with thumbs and language, are able to create and inhabit—and of the relations of biologic individuals to those worlds. Mead believes that our sense of the moral is thoroughly sociological:

The sense which the individual self has of his dependence upon the organized society or social community to which he belongs is the basis and origin, in short, of his sense of duty (and in general of his ethical consciousness); and ethical and unethical behavior can be defined essentially in social terms: the former as behavior which is socially beneficial or conducive to the well-being of [his particular] society, the latter as behavior which is socially harmful or conducive to the disruption of [his particular] society (320-21).

It is his view that what makes behavior pro-social or socially harmful is the structure or order of the social world, not the human capacity out of which the behavior arises. Some empathetic responses might be, in certain social circumstances, quite disruptive. Ethical behavior is a matter of successfully “integrating” oneself “with the pattern of organized social behavior [say, urbanized, industrial, capitalist, Christian representative democracy] which, as reflected or prehended in the structure of his self, makes him a self-conscious personality” (320). The self and the social world cohere because the self “owes its existence” to the social group—a view that takes with utmost seriousness the insight of Goodenough and Deacon concerning the power of linguistically equipped primates to create a fluid, changing “virtual reality” to which they then adapt themselves through successive generations.

Mead makes a telling distinction between moral ideals and moral problems. In any given cultural world, moral ideals or ethical ideas, instantiated in individual ethical consciousness or conscience, express the requirements for or conditions of possibility of “unity, co-operation, and identification” without which that world cannot be sustained. What is moral at any given time and place is what “co-operation and social interdependence” (321) demand. It will vary with culture because social life and the socially-inflected self vary with culture. Ethical problems, on the other hand, arise in social situations in which there is pronounced tension between the “socially-derived” self and “other members of the social group to which it belongs” (321). Such situations usually occur when the person is trying to act simultaneously as a member of multiple social groups “whose respective social purposes or interests are antagonistic or conflicting or widely separated” (322). Ethical problems are distinct from the immoralities constituted by failures on the part of the biologic individual to behave

in ways that support and enhance group life or that establish her as “an organic part of the life of the community” (324). Ethical problems arise because social spheres (capital and labor, producers and consumers, the developed world and the third world, for example) collide, not because biological traits conflict. While ethical ideals represent shared social interests, ethical problems reflect the contradictions, fissures, conflicts, complexity, and variety of the overlapping social relations born of multiple common or group endeavors in which 6 billion human beings engage.

Having begun with an evolutionary analysis very like that of Goodenough and Deacon, Mead probes and unfolds the notions of coevolution, emergence, and cultural construction more fully and, I think, more radically. This changed understanding of culture, consciousness, and the self brings him, at the end of his book, to a treatment of the grounds of morality quite different from that of Goodenough and Deacon and the moral sense theorists who are their predecessors. For him, the true “naturalization” of ethics lies in an appreciation of ethics as a social construction rather than in any account of moral behavior in terms of an intensification or transformation of capabilities or predispositions already present in the primate brain. The understanding of the moral to which his work tends, because it begins with structures and systems and shared experience, is more comprehensive, more adequate to the challenges that cannot be inscribed within the circle of my personal compassion, kindness, commitment, or reverence. Moral conduct, Mead asserts, is the point of intersection where self and social systems “answer to each other” (386).

References

- Goodenough, Ursula, and Terrence W. Deacon. “From Biology to Consciousness to Morality.” *Tradition and Discovery* 39:3 (2003-2004): 6-21.
- Mead, George H[erbert]. *Mind, Self, and Society: From the Standpoint of a Social Behaviorist*. Edited with an introduction by Charles W. Morris. Chicago: University of Chicago Press, 1934 (introduction, 1962).

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WWW Polanyi Resources

The Polanyi Society has a World Wide Web site at <http://www.mwsc.edu/orgs/polanyi/>. In addition to information about Polanyi Society membership and meetings, the site contains the following: (1) the history of Polanyi Society publications, including a listing of issues by date and volume with a table of contents for recent issues of *Tradition and Discovery*; (2) a comprehensive listing of *Tradition and Discovery* authors, reviews and reviewers; (3) information on locating early publications; (4) information on *Appraisal* and *Polanyiana*, two sister journals with special interest in Polanyi's thought; (5) the “Guide to the Papers of Michael Polanyi” which provides an orientation to archival material housed in the Department of Special Collections of the University of Chicago Library; (6) photographs of Michael Polanyi; (7) five essays by Michael Polanyi.

Virtues, Ideals, and the Convivial Community: Further Steps Toward a Polanyian Ethics

Walter B. Gulick

ABSTRACT Key Words: Michael Polanyi, moral point of view, deontological ethics, moral passions, virtue ethics, utilitarianism, satisfactions, ideals.

The other articles in this issue plus other recent articles on Polanyi's ethics have helped clarify Polanyi's distinctive contribution to ethical theory. This article seeks to integrate these insights with Polanyi's somewhat diffuse treatment of ethics by suggesting what features would be included in a distinctively Polanyian moral point of view. Grounded in psychological satisfactions, social dynamics, and values and ideals regarded as real, Polanyian ethics incorporates features of deontological, utilitarian, and virtue ethics and would support a practice of moral discovery.

The goal of this essay is to take a further step toward articulating the contours of a distinctively Polanyian ethics. I am particularly interested in considering how Polanyian ethics can best be formulated so as to facilitate its dissemination, especially in the classroom. The modest and basically programmatic step attempted here relies upon some significant steps taken in recent years. The essays of Charles McCoy, D. M. Yeager, Mark Discher, and Elizabeth Newman published in volume 29:1 of this journal significantly advanced understanding of Polanyi's approach to ethics as a culminating dimension of human responsibility. The essays by Ursula Goodenough and Terrence Deacon, Phil Mullins, and D. M. Yeager published in this issue contribute further insights to the articulation of a Polanyian ethics. I will incorporate some of these insights into this essay, emphasizing the ways in which the articles complement each other.

The essays by McCoy and Yeager in volume 29:1 are particularly successful in offering an overview of Polanyi's unique approach to ethics. McCoy states that Polanyi "sees ethics, not as an isolated specialty of philosophy or theology, but rather as central to the wholeness of human action in achieving knowledge and seeking to act responsibly in every sphere of life. The morality of personal knowing and the commitments involved are not peripheral but pervade the historical, communal nature of human existence."¹ To treat ethics, as is typically done in university courses, as a special discipline with a distinctive methodology is likely to sunder it from its comprehensive role in human existence.

Moral judgments cut much deeper than intellectual valuations. A man may be consumed by an intellectual passion; he may be a man of genius, yet be also sycophantic, vain, envious and spiteful. Though a prince of letters, he would be a despicable person. For men are valued as men according to their moral force; and the outcome of our moral striving is assessed, not as the success or failure of any external performance of ours, but by its effect on our whole person. Accordingly, moral rules control our whole selves rather than the exercise of our faculties, and to comply with a code of morality, custom and law, is to live by it in a far more comprehensive sense than is involved in observing certain scientific and artistic standards. (PK 214-215)

A Polanyian ethics, then, deals with a whole self and, as we shall see, with whole societies.

Those wanting to teach the Polanyian approach to ethics are presented with a sizeable challenge. How can they square the comprehensive Polanyian understanding of ethics with the traditional way that ethical theories are treated as disjunctive alternatives? Typical courses introduce students successively to rule-stressing deontological views of morality, result-calculating utilitarian theories, and character-emphasizing theories of virtue ethics. Fortunately, in the past several decades, ethical theoreticians have creatively set forth various proposals about how to integrate the formerly discrete theories. Consequently, our age seems as if it would be more receptive to Polanyi's synoptic approach to ethics than Polanyi's own era was. The manner in which I will proceed is by showing how Polanyi's comprehensive vision includes and interprets in interesting ways some typical expression(s) of deontology, utilitarianism, virtue ethics, and other influential perspectives taken on moral matters. Then I will proceed to highlight additional features of Polanyi's thought that bear on morality.

Deontology and the Moral Point of View

First, let us examine deontological approaches to ethics. Deontological ethics states that dutiful obedience to some standard of morality is what determines that which is morally right. Kant's *Foundations of the Metaphysics of Morals* is the classical text of deontology; it utilizes reason in combination with respect for the moral law to determine what is morally right. But rather than examining Kant's thought in Polanyian light, I prefer to discuss the notions of a more recent thinker in the deontological tradition (who uses an admixture of social contract theory), a writer who takes obedience to rationally justifiable rules as the key to morality. Nearly half a century ago Kurt Baier argued along essentially Kantian lines for taking up "the moral point of view" as the best way to secure moral agreement and thereby ensure social control. By "the moral point of view," Baier meant "a point of view which furnishes a court of arbitration for conflicts of interest. Hence it cannot (logically) be identical with the point of view of any particular person or group of persons."² There are two related principles incorporated in Baier's formulation. One is the principle that the moral point of view overrides self-interest (or indeed the interests of any particular person or group). The second is that a universal point of view is required that considers impartially the interests of all stakeholders. It can be seen that Baier's formulation is influenced by Kant's categorical imperative: the notion that the subjective maxim guiding any individual's action should be universalizable and reversible, that is, followed as the guiding rule by anyone in similar circumstances and applicable to oneself as recipient as well as agent.

There are many indications that Polanyi would be congenial to speaking of a comprehensive framework such as a moral point of view. His well-known discussion of Azande magic in *Personal Knowledge* is one example of his consideration of an all-encompassing framework of interpretation. Another example, repeated in a number of his writings, is the Marxist, or more specifically, the Communist worldview. In reflecting upon the message of the Hungarian revolution of 1956, Polanyi cites the poem authored by the Bulgarian Communist Dimitar Metodiev that speaks of a worldview as seeing with a pair of glasses. In breaking free of the closed system of thought that was Communism, Metodiev used the image of smashing the glasses as a leitmotiv (*KB* 30). Polanyi, of course, generally used the language of dwelling in and breaking out.

The notion of a moral point of view is unlike a closed system of thought, such as Azande magic or Communism, "that can interpret in its own terms any possible fact" (*KB* 31). For the moral point of view can exist as a selectable alternative to a prudential or self-interested point of view. Situations dictate when assuming the glasses of the moral point of view is called for. When decisions or actions bear on the health, welfare, or basic rights of individuals, the moral point of view ought to be dwelt in to determine what is the most

moral decision. The act of assuming the moral point of view should be regarded as a practice that leads to insight and possible action.

To the best of my knowledge, Polanyi never explicitly speaks about the (or a) moral point of view. Yet because he used frameworks in his discussion of how our thought is organized systematically, it makes sense to see what a moral framework, developed in relation to the Western tradition of ethics, would look like. Therefore, I will consolidate the comprehensive moral considerations that Polanyi discusses into the framework of a Polanyian moral point of view.

Some aspects of Polanyi's moral thought overlap Baier's principles, but they are expressed idiosyncratically by Polanyi. Rather than emphasizing the need to override self-interest, he speaks of the moral significance of responding to moral passions (as a variety of intellectual passions) instead of merely satisfying the appetites.³ Intellectual passions manifest selective, heuristic and persuasive functions, each of which is directed at understanding and extolling features of the world rather than serving selfish interests. "Heuristic passion seeks no personal possession. It sets out not to conquer, but to enrich the world" (*PK* 150). Intellectual passions fund particular systems of thought, like science, art, religion, morality and law, with purpose and force "which try to evoke and impose correct modes of feeling" (*PK* 133). The sense of "rightness" expressed by indwelt morality, as with the other systems mentioned, is directed outward toward understanding of and action in the world. On the other hand, when considerations of self-interest are the dominant motivating factors influencing a person's thought and action, manipulation and deception in the service of the satisfaction of appetites prevail. All too often the language of morality constitutes part of the disguise. Only when one indwells the moral point of view with conviction and commitment is self-interest truly overridden.

The second double-edged principle considered by Baier to constitute the moral point of view is the impartial consideration of the interests of all persons affected by the moral situation. Impartiality and universalization are co-equal in this principle. To what extent does Polanyi honor each of them? Both of these terms conjure up notions of the objectivism that Polanyi fought so valiantly. If all understanding is carried out in the service of passions linked to one's self-set and communal standards, does it make sense to speak of neutral impartiality? A person must *apply* any universal rule to situations by relying on unspecifiable skills. So, strictly speaking, Baier's second component of a moral point of view does not seem congruent with Polanyian thought. Yet it would be contrary to much of what Polanyi argues for to think that because objectivism is bankrupt we are consigned to a relativism of individual experience.

Polanyian moral thought rests upon a version of moral realism that, while honoring the importance of cultural context, stifles from the beginning any relativism. First, in contrast to the empiricist tendencies of Anglo-American thought during the past century, a thought world in which values are regarded as merely subjective or emotive, Polanyi refers to values and ideals as *real* and powerful. "To trust that a thing we know is real is, in this sense, to feel that it has the independence and power for manifesting itself in yet unthought of ways in the future." (*TD* 32). Acting ethically is a skill that involves depending upon and expressing the appropriate real values and ideals, affirmed in some community of interpretation, that are pertinent to a situation. Prior to acting ethically, another skill must be employed, to wit, the skill of understanding both the details of the situation and what values apply to this particular situation. The determination of relevant values in turn depends upon being able to rely upon the "correct modes of feeling" previously alluded to. In the sort of contested situation Baier refers to, where a conflict of interests is involved, the correct modes of feeling would likely link one to such values as justice and care and make one sensitive to the rights of those involved

in the situation.

Second, an assessment of a moral situation is undertaken out of a commitment to moral truth. Acting upon those real values determined to be salient in some moral situation constitutes moral truth. Rather than speaking with Baier and Kant of seeking some universalizable rule, Polanyi attends to the intentionality of the person utilizing moral skill. If the person judges and acts with *universal intent*, this is the mark of the personal knowing required for enacting moral truth. Being committed to moral truth and acting out of that commitment is all that can be asked of a person addressing a moral dilemma. Polanyi expresses these points in the following powerful passage.

It is the act of commitment in its full structure that saves personal knowledge from being merely subjective. Intellectual commitment is a responsible decision, in submission to the compelling claims of what in good conscience I conceive to be true. It is an act of hope, striving to fulfil an obligation within a personal situation for which I am not responsible and which therefore determines my calling. This hope and this obligation are expressed in the universal intent of personal knowledge. (*PK 65*)

So far, the Polanyian moral point of view includes the skillful use of moral passions, the acknowledgement of the powerful reality of values and ideals, and taking the stance of universal intent in seeking moral truth. Before we leave the comparison of Polanyi's moral theory to that of deontology, one additional observation is much needed. Polanyi is sympathetic to the senses of obligation and rightness that are found in deontological theories. Persons are called to attend to the call of conscience and submit to their communally affirmed values and ideals. Rightness, however, is not something imposed by a social authority; rather it is a communally endorsed standard guiding the performance of one seeking to do the good with universal intent. Values like truth, beauty and justice do not exist in some sort of Platonic eternal ideal realm, for they are "things which can be apprehended only in serving them" (*PK 279*). Our obligation to them flows out of our commitment to them, which in turn is based on our assessment of them as real and worthy of respect.

Utilitarianism and Social Contract Theories

Next, let us turn to assay Polanyi's take on utilitarianism, the view that the morally best acts are those that maximize pleasure (hedonistic utilitarianism) or maximize expected preference fulfillment (preference utilitarianism). Polanyi considers utilitarian calculations to be disembodied expressions of materialism rather than passionate commitments to moral ideals engaged with universal intent (*M 11*). Such calculations are cousins to the idea within socialism and communism that the pursuit of scientific knowledge should be tied to anticipated public benefit. In these political systems, a collective entity undermines the freedom of the individual responsibly to pursue her or his passions. But it is free inquiry that has the power to produce on a regular basis that understanding of reality capable of producing real public benefit.

Interestingly, Polanyi criticizes utilitarianism and its "emotional brother" (*PK 211*), romanticism, for their shallow individualism. This view is striking because utilitarianism is generally classified as a theory that, in contrast to ethical egoism, is group-centered rather than individualistic. Maximum utility is that which conveys the greatest amount of good to the *greatest number of people*. Polanyi calls utilitarianism individualistic because it privileges individual desires and in effect regards society as an aggregate of individuals. Utilitarianism presupposes maximizing each individual's freedom from social restraints so that

a summation of subjective ends prevails over substantive social obligations (*M* 201).

Does Polanyi thoroughly reject social contract theories of ethics as well as utilitarianism? Both view moral thought as socially constructed. Certainly Polanyi is no fan of sociological or psychoanalytic construals of morality, which tend to reduce moral injunctions to such things as protections of power or sublimations of sexuality.

Our morally neutral account of all human affairs has caused our youth, and our educated people in general, to regard all moral professions as mere deceptions – or at best as self-deceptions. For once we induce ourselves to regard all established rules of moral conduct as mere conventions, we must come to suspect our own moral motives, and thus our best impulses are silenced and driven underground. (*M* 23)

Yet Polanyi's position is not easily categorized as opposed en toto to social constructivism. For Polanyi is abundantly aware of the active role played by symbolism in the construction of culture. Indeed, the main focus of *Meaning* is upon the different forms such social construction may take. Moreover, as Mullins and McCoy each emphasize, the constructive role of the convivial community and the importance of tradition in establishing an individual's sense of calling are absolutely essential to Polanyi's thought. The important point to bear in mind is this: Polanyi's notion of social constructivism is tied to the realities of — on the subjective side — intellectual passions seeking contact with — on the objective side — a plethora of realities ranging from perceptions of dewdrops and elephants to ideals of beauty and justice. The sociologist and psychoanalyst are critiqued not because of their constructivism but because of their reductionism. Passionate commitment to loving others is not merely the expression of an insecure person seeking reciprocal affirmation. The ideal of love is a reality worthy of honor and reverence even though its reality could not be recognized apart from a symbolization process.

The Polyanian moral point of view consequently contains an acknowledgment of the social character of values that command our respect. When one faces a moral dilemma, one of the sources for inspiration that one should turn to is the tradition that has shaped one's sense of what is worth living for. The symbols just referred to are not just our own. They are part of a social inheritance that roots us in a culture and nurtures our moral vision. Furthermore, as thoroughly social beings, we are called not just to turn to tradition, but also to engage in convivial discourse with others in the communities with which we identify (*PK* 210). One of the keys to being a moral person, as Goodenough and Deacon emphasize (20), is to share our moral experiences with one another. When this sharing is carried out in the context of a free society that respects the integrity of individual consciences, moral existence is most likely to flourish.

The ideal of a free society is in the first place to be a *good* society; a body of men who respect truth, desire justice and love their fellows. It is only because these aspirations coincide with the claims of our own conscience, that the institutions which secure their pursuit are recognized by us as the safeguards of our freedom. It is misleading to describe a society thus constituted, which is an instrument of our consciences, as established for the sake of our individual selves; for it protects our conscience from our own greed, ambition, etc., as much as it protects it against corruption by others. Morally, men live by what they sacrifice to their conscience; therefore the citizen of a free society, much of whose moral life is organized through his civic contacts, largely depends on society for his moral existence. (*LL* 36)

Not only will the Polanyian moral point of view endorse consultation of the traditions and communities that shape a person making moral decisions, it will celebrate the importance of rational discourse in reaching those decisions. Yes, seeking moral truth is a skill, but in relying on moral standards it is not simply a tacit skill. For moral standards are the explicit expression of communal consensus about what sort of considerations and acts are required for individuals and their communities to flourish.⁴ The reaching of consensus is dependent on rational discourse within the community of interpretation. “The awareness of moral truth is founded on the recognition of a valid claim, which can be reasonably argued for and supported by evidence; moral illusion, in contrast, is compulsive, like a sensory illusion” (*KB* 33). Through rational discourse, social consensus can be reached about such things as the nature and extent of rights and responsibilities; how best to characterize distributive, retributive and compensatory justice; and what ideals and obligations pertain in a certain circumstance. The way social consensus is reached in ethics is not different in kind from the way agreement is reached in science about the status of various theories on the cutting edge of research. In each case rational communication and the weight of general agreement lend authority to the decisions reached.

But the role of rationality in Polanyi extends beyond its expression in discourse. Polanyi is impressed at how reflection aided by mathematics has brought into being theories in physics that were accepted by the scientific community long before they were confirmed by empirical evidence. Einstein’s discovery of relativity theory is but one of many such cases he discusses. “Modern physics has demonstrated the power of the human mind to discover and exhibit a rationality which governs nature” (*PK* 15).⁵ Rationality has this power not only in the realm of physics, but with respect to “domains far beyond the exact science” (*PK* 64), including morality. Polanyi would argue strenuously against any postmodern relativization of reason just as he would combat a relativizing of values.

Virtue Ethics, Moral Sense Theories, and the Social Dimension of Morality

To what extent does Polanyi embrace virtue ethics or its cousin, moral sense theories? A virtue is a state of one’s character that inclines one to act in a beneficent way because of one’s conviction that such a way of acting is right. Humans may exhibit many virtuous traits – honesty, courage, generosity, charity, etc. If one has the virtue of honesty, one is motivated to act honestly in all situations and do so cheerfully because one is satisfying a standard of truthfulness one deeply believes in. Polanyi, like virtue ethicists, believes that moral actions arise out of embodied skills and deeply held commitments. He would acknowledge that ethical decision making utilizes a practical reasoning process, consistent with Aristotelian *phronesis*, that wisely applies ideals and values to specific situations. In sum, Polanyi would appreciate how virtue ethics illuminates aspects of the tacit functioning of the moral actor. But it is also the case that Polanyi never devotes attention to the virtues as such.

Similarly, Polanyi does not rely upon moral sense theories. This twofold neglect is of special interest with respect to two of the articles in this issue. For Goodenough and Deacon see their approach as congruent with virtue ethics, and Diane Yeager claims their approach is a version of a moral sense theory. Therefore, it is appropriate to examine the extent to which the article by Goodenough and Deacon (hereafter GD) is consistent with, or indeed illuminates, Polanyi’s thought. Then Yeager’s critique of the article will be assessed.

First, a word of appreciation is due Goodenough and Deacon for the way they update the evolutionary

material in Part IV of *Personal Knowledge*. I particularly have learned from their discussion of biological traits, cell-based versus brain-based awareness, and the role of masking in brain change. The authors and Polanyi share a belief in the importance of evolutionary explanations. Presumably, this belief might extend to an interest in explaining the rise of morality.

Second, I would note with Mullins (23-25) that the role of the active center of life, so important to Polanyi, is not picked up in GD. Polanyi's discussion of the logic of achievement flows from the fact that each individual center has a purpose or purposes apart from the laws of physics and chemistry that form the background out of which life emerges. I believe the three orders of emergence proposed in GD are less illuminating than the three orders that may be extracted from Polanyi's thought.⁶ I do not see how there is any significant difference between the authors' first order ("shape interactions" [6]) and second order of emergence ("shape interactions played out over time" [6-7]). To be interactions, shape interactions must be played out over time. Moreover, as fundamental categories designed to explain different kinds of emergence, the three orders are perspicuous for not articulating any causal mechanisms that might explain how a new order arises. There is no mention of how forces are implicated in each order. While perhaps not successful in his speculations about the principles driving basic evolutionary changes, Polanyi does recognize that some account is needed (see Mullins, 25-28).

Third, any assessment of GD requires clarity about its intended scope of explanation. Here is the authors' basic thesis: "Given that we have evolved from an intensely social lineage, we are uniquely aware of what it feels like to be pro-social, and it is this awareness of what it feels like to be moral – this moral experience – that undergirds and motivates the actions of a moral person" (16). The thesis is presented as a claim about the origins of moral motivation. Strikingly, the thesis is developed in ways that are compatible with deontology as well as virtue ethics. What it feels like to be pro-social functions as an immanent moral standard that must be discovered anew by each individual and secured through symbolization. This fundamental moral experience is not something that can be developed through rational discourse, a social contract, or cultural instruction (17). Thus it appears that the authors are making a quite sweeping case for both the source of moral motivation and a standard by which to judge putative moral actions.

There is some resonance in Polanyi's thought with the sort of claim being made by Goodenough and Deacon. Polanyi claims that new values arise in human experience "subsidiarily, embodied in creative action. Only after this can they be spelled out and professed in abstract terms and this makes them appear then to have been deliberately chosen, which is absurd. The actual grounds of a value, and its very meaning, will ever lie hidden in the commitment which originally bore witness to that value" ("Creative Imagination" in R. T. Allen, ed., *Society, Economics, and Philosophy* [New Brunswick: Transaction Publishers, 1997], p. 263). Presumably, moral values associated with primate sociality might be engaged by a person as subsidiaries to some potential solution to a relationship problem and in the process be captured by symbols and made conscious. Thus perhaps Polanyi can help clarify the process whereby our primate feelings are transmuted into moral sensibility and practice.

The authors' speculations about the rise of the virtues of compassion, fair-mindedness, care, and reverence are provocative and plausible. But their extended discussion of moral motivation is less convincing. They suggest that "the heart-warming sense of gladness that we experience when we encounter moral beauty" (19) serves to stimulate moral action. If the pro-social values attained prominence in primate behavior, they surely must have gained this status through the reinforcing satisfactions they provided. Why wouldn't such

satisfactions continue as motivators on into human experience? Is there any evidence that these satisfactions have an aesthetic quality such as is implied by the discussion of moral beauty? There seems to be no obvious link between moral experience as they describe its status in the primate mind and the moral beauty they suggest is crucial for moral motivation.

More serious to consider are the questions and criticisms Yeager directs toward GD. She wonders why GD reinstates the gap between motivation and action that moral sense theories are often thought to have closed (34). But Goodenough and Deacon seem to be true to human experience in discussing this gap. Surely the difference between knowing the good and doing it is a common experience.

Next, Yeager states that if moral sense theories are true, then persons ought to be good nearly all the time and agree about moral matters (34). GD, she says, does not explain why these two conditions do not pertain. She thinks that the authors fall into trouble because they do not recognize the important role that culture plays not just in expressing morality but in developing and sustaining it. However, it seems to me that GD is not fairly understood if it is interpreted simply as a moral sense theory. The authors clearly recognize that the primate brain is not just wired for empathic actions but also for self-interested and even violent actions. On such an account, it is not surprising that human behavior is a cocktail mix of actions — moral, amoral, and immoral. I tend to see the reference to moral beauty as a perhaps unfortunate appendage to the main thrust of GD, not as crucial to its message.

Yeager then criticizes GD as relativistic because it bases morality in feelings and experiences, each of which are remarkably diverse and ineluctably subjective (34). Again, I do not think this criticism is entirely on target. The issue seems to turn not so much on the fact that GD adverts to experience and feelings, but on what it is that is felt or experienced. In Polanyian perspective, we are embodied beings inevitably relying on felt senses of adequacy, coherence, and other satisfactions (more on these shortly) as we construct meaningful engagements in the world. Goodenough and Deacon claim there are certain pro-social feelings that are basic to a moral rather than a self-interested relationship to other persons. This claim, as I have already suggested, has more of a deontological than a relativistic flavor. Because these basic pro-social feelings are developed in assorted symbol systems, they are expressed in a variety of ways, but there does seem to be some cross-cultural convergence toward agreement about basic values, as the authors note (19). GD seems to me to acknowledge adequately the moral compulsion, basic agreement, and apparent moral confusion that are part of everyday experience.

To this point, Yeager's questions and criticisms do not seem unduly damaging. But in the variety of remarks she makes about the lack of a social dimension in GD (35-37), Yeager seems entirely on target. GD runs into problems when it claims to offer a comprehensive account of the sources of moral motivation and moral standards. The authors collapse ethics into a matter of interpersonal relationships and offer empathy as the sine qua non of morality. "Morality without empathy is by definition oxymoronic" (17). But surely moral deeds may be enacted out of a sense of duty, a regarding of rights, a sense of justice or for other reasons even when empathy is lacking. Surely GD is of little use for ethical analysts trying to decide which of several problematic alternatives is most morally permissible or for interpreting the moral impact of social structures and institutions. It is ironic that an account based on primate social behavior tends to ignore human social behavior. Well, perhaps I've overstated the issue, for the authors complement their bottom-up approach with a top-down recognition that cultures develop moral ideals, rituals, and other features that heighten moral consciousness (19). But in stating that morality is never gained through instruction (17) or that rewards and

punishments commodify morality (18) the authors cut away some of the actual social processes through which morality comes to life in society. Aristotle, invoked on behalf of the authors' understanding of moral experience (17-18), views cultural instruction as essential to the development of moral virtue. He sees virtues as sets of habits gained by originally supervised repetitions of virtuous acts.

Goodenough and Deacon make it clear that human consciousness is an emergent phenomenon qualitatively different in kind from its supportive biological substrate. But do they accord an appropriate emergent status to such transpersonal products of human consciousness as social institutions, technological innovations, or theories? They say that the concepts that are central to human consciousness enable us to "inhabit a virtual reality with a life of its own" (15). But it is not clear in their article what sort of power this "virtual reality" has. Recall that they claim morality is not acquired via cultural instruction. The complexly influential realm of symbolically generated entities and structures tends to be regarded under the undifferentiated rubric of human culture. A richer notion of the emergent qualities of culture is needed.

Yeager offers the social psychology of George Herbert Mead as a helpful way of accessing and interpreting social construction and its dynamics and powers left opaque in GD. Goodenough and Deacon are similar to Mead (and Polanyi) in emphasizing the symbol-mediated, cognitive dimension of self-understanding, but Mead relies on cognition in the construction of morality to a far greater degree than is found in GD, in which emotional response plays a central role. The authors show great finesse in discussing how culture, language, and brain are involved in co-evolution (13, 14). If they wish their account of ethics to underwrite a general theory of ethics, their account would benefit from describing a) how emotion, cognition, and cultural influence are co-involved in the emergence of personal morality, and b) how the competing and shared goals of individuals, groups, and institutions are co-involved in the genealogy of social ethics.

To sum up, the article by Goodenough and Deacon offers an intriguing account of possible second-order (biological) processes that underlie human morality, but as yet they have not built a convincing explanation of how the biology impacts everyday human experience of morality. Diane Yeager writes persuasively about the social dimension of morality. Together the articles advance the cause of a holistic theory of ethics and can be usefully assimilated into the comprehensive ethical theory that is still partly nascent in the corpus of Polanyi's writings.

Satisfactions and Ideals

Finally, I should like to discuss a feature of Polanyi's thought that is not often commented upon, but which I think has profound implications for understanding moral action. This feature is best grasped through considering how to respond to this question: What factors motivate human actions? I will propose both a deep level psychological answer and a high level spiritual answer. There are a variety of possible answers that fall between these extremes, but we will only consider the two responses just alluded to.

The psychological notion of motivation that appears now and again in Polanyi's writing is the seeking of *satisfaction*. Satisfactions are part of our biological heritage. The amoeba following a trail of pheromones to nutritional satisfaction is a primitive example. In human existence, there are many sorts of satisfactions: satisfactions of completion, of triumph, of release, of expression, of fulfillment, of recognition, etc. For Polanyi, the quest to understand and resulting feeling of satisfaction are essential to his notion of personal knowledge. "These feelings of comprehension go deep; we shall see them increasing in profundity all the way

from the 'I-It' relation to the 'I-Thou' relation" (*KB* 149). It should come as no surprise that there are moral satisfactions, many of them linked to moral virtues.

One of the ongoing hobgoblins of ethics is the notion of psychological egoism. This notion claims that all acts, even the seemingly most altruistic, are done out of self-interest. The fireman entering the burning building is not selflessly heroic but acting to satisfy a craving for recognition, seeking to require a nagging sense of duty, angling for promotion, etc. The psychological egoist is a master cynic and reductionist. No counter-examples seem able to budge this person from the view that all action is self-centered.

The notion of satisfaction can be used to counteract the deflation of moral ideals that results from adopting the ideas of the psychological egoist. For it can be said that all action is satisfaction-seeking, although the satisfactions are of different kinds and strengths and sometimes contrary to conventional self-interest. The key point for ethics is that there are moral satisfactions and many other sorts of the higher satisfactions that John Stuart Mill tried to articulate in qualifying Jeremy Bentham's notion of utility. An honest and intimate conversation can be a great source of satisfaction, one that builds up all involved. Satisfactions as a group are not adequately characterized as being "selfish" (see *PK* 174).

As we have seen, Polanyi contrasts intellectual passions with bodily passions, our appetites. The satisfactions endemic to each are different in nature.

By contrast to his bodily passions, which man shares with the animals, the satisfaction of his mental passions does not consume or monopolize the objects which gratify it; on the contrary, the gratification of mental passions creates objects destined to gratify the same passions in others. A discovery, a work of art, or a noble act, enrich the mind of all humanity. Man, hitherto self-centered, enters thereby on a participation in timeless and ubiquitous things. (*SM* 60)

The satisfaction of intellectual passions, then, builds culture and creates community. Great ideas inspire us. We apprentice ourselves to persons we admire. "By recognizing our heroes and masters we accept our particular calling" (*SM* 98). Out of reflection upon that which we admire or revere, we construct guiding ideals and values. A measure of the reality of these ideals and values is their power to inspire us and move us to moral action.

"Seeking moral satisfactions by living up to our models of comportment" – this statement combines the psychological dimension of moral motivation with whatever spiritual ideal we seek. Polanyi discusses at many points different ideals to which we submit. Insofar as these ideals are moral and shared by a community, Polanyian ethics deals not just with moral individuals but also with moral societies. A society manifesting a commitment not only to its own members but also to the members of other societies is a morally admirable society.

To this point, it may sound as if Polanyi thinks that all any society needs for moral improvement is a better theory. But, as suggested, Polanyi understands that in human endeavor a pervasive gap exists between what is envisioned and what is achieved (*PK* 245). Consistent with his commitment to truth as perhaps the highest of all values (*PK* 299), and in accordance with his insight into the role of utopianism in moral inversion, he acknowledges the need in any ethics for compromise and the pragmatic acceptance of the best that can be done. At times, a tragic note enters his reflections about the course of human history in cosmic context.

This cosmic emergence of meaning is inspiring. But its products were mainly plants and animals that could be satisfied with a brief existence. Men need a purpose which bears on eternity. Truth does that; our ideals do it; and this might be enough, if we could ever be satisfied with our manifest moral shortcomings and with a society which has such shortcomings fatally involved in its workings. (*TD* 92)

Perhaps the most complete configuring of Polanyian ethics would include such factors as confession, forgiveness, grace, and eschatology, factors more often associated with religion than with ethics. If such a Kierkegaardian step is called for, it would be a step Polanyi prepares the way for rather than one he ever fully fleshes out.

A Polanyian Moral Point of View

My exposition of Polanyian ethics is now complete except for one thing. I need to make good my promise to potential teachers of Polanyian ethics that I would provide a simple framework on which to hang key Polanyian points. That framework is a Polanyian version of the moral point of view. It obviously will be more complex than Baier's version, but to be useful it must also abstract from the full richness of Polanyi's thought. The Polanyian moral point of view is more than the passive perspective suggested by "point of view." It describes a *practice* that seeks the resolution of moral issues and may lead to action. This practice exhibits many features found in the paradigmatic Polanyian analyses of perception and discovery (*TD* 79-84). A morally responsible person will assume the cognitive framework of the moral point of view whenever a contestable situation arises that deals with important factors in individual and corporate life: matters of life and death, basic rights, health and welfare. Moral discernment employing the Polanyian moral point of view is marked by the following features:

1. With sensitivity to social dynamics, one clarifies the facts of any moral situation presenting itself, identifies all stakeholders, and seeks empathic understanding of what is at stake for each.
2. One consults the moral traditions of the convivial community that one most honors and seeks to discern (with community feedback if feasible) the values, ideals, and moral principles that apply to the situation.
3. One brackets any yearnings of appetite (thereby overriding self-interest) and with moral passion seeks the satisfactions that come from a moral resolution entered into with universal intent.
4. One identifies the moral subsidiaries (avoidance of harm, care, protective of rights, compassion, concern for the common good, fair-mindedness, etc.) that conjointly contribute to the envisioned resolution and either shares the resolution and supporting components or acts upon the insights as is appropriate.

Endnotes

¹ Charles S. McCoy, "Ethics for the Post-Critical Era: Perspectives from the Thought of Michael Polanyi," *Tradition and Discovery: The Polanyi Society Periodical* 29:1 (2002-2003), 18.

² Kurt Baier, *The Moral Point of View: A Rational Basis of Ethics*, Abridged ed. with new preface (New York:

Random House, 1965 [1958]), p. 96.

³ I commend to the reader the instructive chart contrasting the appetites and the mental passions prepared by Diane Yeager – see her “Confronting the Minotaur: Moral Inversion and Polanyi’s Moral Philosophy,” *Tradition and Discovery: The Polanyi Society Periodical* 29:1 (2002-2003), 37.

⁴ In an article closely related to the article in this issue by Goodenough and Deacon, Ursula Goodenough defines morality as “that which allows humans to flourish in community. . . . To flourish is to be well adapted to the particular environmental circumstance in which one finds oneself, to be healthy and resilient and resourceful” (“Religious Naturalism and Naturalizing Morality,” *Zygon: Journal of Religion and Science* 38:1 [March, 2003], 103-104). There is much that is appealing in this definition, but I’d offer two cautions. First, the definition could be interpreted as endorsing the individualist gratifications that Polanyi criticizes utilitarianism for. Second, because it stresses morality as that which enables individuals to relate well to specific environmental circumstances, and since such circumstances are quite varied, the definition seemingly supports a relativistic morality. In her article in this issue, Yeager suggests (34) that such relativism is common to moral theories that, like the one set forth by Goodenough and Deacon in this issue, rely heavily on moral experience. Polanyi’s emphasis on real, shared values is at least a partial counter to such relativism, although it may be open to the sort of Wittgensteinian relativism that would understand different communal values as partially incommensurable because they depend on different language games and resultant forms of life (but see *PK* 113). See Andy F. Sanders, “Science, Religion and Polanyi’s Comprehensive Realism” (*Tradition and Discovery: The Polanyi Society Periodical* 26:3 [1999-2000], 84-93) for a forceful presentation of this view.

⁵ In speaking of rationality in these instances, Polanyi is understanding reason in a broad sense that includes the powers he elsewhere speaks of as imaginative and intuitive and which also incorporates a logos-like sense of the interpenetration of epistemology and ontology. Polanyi himself had the memorable experience of envisioning a theory of adsorption in 1916 that proved to be correct, but his supervising professor pointed out that Polanyi’s derivation was incorrect (*World Authors 1950-1970*, ed. by John Wakeman [New York: H. W. Wilson Co.: 1975], p. 1151). In contrast to the broad understanding of reason, Polanyi was much less appreciative of the formal logic that dominated Anglo-American thought at the time. “Formal processes of inference cannot thrust toward the truth, for they have neither passion nor purpose. All explicit forms of reasoning, whether deductive or inductive, are impotent in themselves; they can operate only as the intellectual tools of man’s tacit powers reaching toward the hidden meaning of things” (“Faith and Reason,” *Journal of Religion* 41 [October, 1961], 243).

⁶ I argue on Polanyian grounds for a rather different set of three orders of emergence in Walter B. Gulick, “Response to Clayton: Taxonomy of the Types and Orders of Emergence,” *Tradition and Discovery: The Polanyi Society Periodical* 29:3 (2002-2003), 43. The deterministic dynamo-physical world constitutes the first order; the laws of physics and chemistry act system-wide. Second-order emergence arises with the advent of life; each living entity, as the active center discussed by Polanyi, has purposes that distinguish its causal impact from the blind determinism of the whole system. The advent of symbols gives humans new causal freedom; the third-order emergence of the human world is best articulated in Polanyian terms, I have argued, through extending Polanyi’s from-to structure of consciousness to a from-via-to structure where the “via” indicates the crucial role of symbols.

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