

Tradition & Discovery

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The Polanyi Society

General Coordinator/Board President

Book Review Editor

Walter Gulick
Montana State University--Billings
Billings, MT 59101
(406)657-2904/WGulick@msubillings.edu

Board Treasurer

John Apczynski
Box 12/Saint Bonaventure University
St. Bonaventure, NY 14778
apczynski@sbu.edu

Annual Meeting Chair/Board Secretary

Martin X. Moleski, S.J.
Canisius College
Buffalo, NY 14208
(716)888-2383/FAX (716)886-6506
moleski@canisius.edu

Board of Directors

David Rutledge
Department of Religion
Furman University
Greenville, SC 29613
David.Rutledge@furman.edu

Board of Directors

Richard Gelwick
12 Prosser Rd.
Harpwell, ME 04079
(207)725-7975/rprogel@juno.com

Board of Directors

Esther Meek
719 Inglestone Ct.
Mancheste,r MO 63021
eek@longingtoknow.com

Board of Directors

Jere Moorman
1020 Partrick Road
Napa, CA 94558
JEREMOOR@aol.com

Representatives At Large

John C. Puddefoot
Wall House/Slough Road
Eton/Windsor
Berks. SL4 6HD UK
j.puddefoot@etoncollege.org.uk

Andy Sanders

Faculty of Theology
Nw. Kijk in 't Jatstraat 104
9712 St. Groningen / Netherlands
a.f.sanders@theol.rug.nl

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General Editor-Tradition & Discovery

Phil Mullins
Missouri Western State College
St. Joseph, MO 64507
(816)271-4386/FAX (816)271-5987
mullins@mwsc.edu

Associate Editor

Paul Lewis
Mercer University
Macon, GA 31207
(478) 301-4166
lewis_pa@mercer.edu

Preface

Please note the 2004 Annual Meeting call for papers (p. 4) as well as the minutes of the Society's business meeting at the 2003 Annual Meeting (p.3). Some changes in the Society's Board as well as other matters are identified here. The Society is much larger than the group that normally attends the business meeting. The notices in TAD are thus the only way of communicating with most of the membership. Members are invited to e-mail the TAD editors or any member of the Board with suggestions or proposals.

Walter Gulick has provided two interesting letters of response (pp. 6-10) to his review of David Cesarani's *Arthur Koestler: The Homeless Mind*. This review which discussed links between the Polanyi family and Koestler was published in *TAD* 29:2 (2002-2003), pp. 50-55. These letters nicely supplement the historical discussion Gulick earlier provided.

"Tacit Knowledge/Knowing and the Problem of Articulation" is the second *TAD* article by YU Zhenhua (his earlier essay was in 28:3 [2001-2002]: 6-19), a scholar who teaches philosophy at East China Normal University, Shanghai, China. This essay explores some connections between accounts of tacit knowledge in the Wittgensteinian and Polanyian traditions.

Percy Hammond is a retired professor of engineering who has long been interested in Polanyi's ideas. His essay "Personal Knowledge and Human Creativity" is the culmination of a long struggle to articulate his criticisms of Polanyi's account of human creativity, an account which Hammond believes reflects Polanyi's preoccupation with scientific discovery.

The review article by Richard Gelwick treats a fascinating book by Patton Howell and James Hall, a Jungian psychiatrist and Polanyi Society member whose interest in Polanyi dates back to the sixties. The book describes Hall's survival of a pontine stroke which occurred in 1991 as he traveled to the Kent State Polanyi Conference. Also note the reviews of Engle's *Truth* and Jha's 2002 book *Reconsidering Michael Polanyi's Philosophy*.

Phil Mullins

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*.

NEWS AND NOTES

The world wide web is an ever- changing and often strange labyrinth. It does appear that there are more things on the web about Polanyi these days. For example, take a look at the following:

Recently, a short essay on Michael Polanyi has been posted on the web site of The *Encyclopedia of Informal Education*: Smith, M. K. (2003) "Michael Polanyi and Tacit knowledge," *The Encyclopedia of Informal Education*, www.infed.org/thinkers/polanyi.htm.

Several web-posted articles, including the two following, treat Polanyi; these are part of the Paideia Project On-Line which is 903 papers from the 20th World Congress of Philosophy in 1998:

Angela Botez, "Michael Polanyi and Lucian Blaga as Philosophers of Knowledge," <http://www.bu.edu/wcp/Papers/Comp/CompBote.htm>

Sheldon Richmond "The Two Cultures Problem," <http://www.bu.edu/wcp/Papers/Scie/ScieRich.htm>

The Polanyi Society web site (<http://www.mwsc.edu/orgs/polanyi/essays.htm>) has for several years included the following 5 Polanyi essays:

- (1) "The Stability of Beliefs" *The British Journal for the Philosophy of Science*, Volume 3, Issue 11 Nov. 1952, 217-232.
- (2) "The Republic of Science: Its Political and Economic Theory," *Minerva* Volume 1: 1962 54-74.
- (3) "The Structure of Consciousness," *Brain* Vol. LXXXVIII, 1965, pp. 799-810.
- (4) "On Body and Mind," *The New Scholasticism* 43:2 Spring 1969, 195-204.
- (5) "Transcendence And Self-Transcendence," *Soundings* 53: 1, Spring 1970 88-94.

All five of these essays now have been re-posted on the web at the following address: <http://members.shaw.ca/>

www.mwsc.edu/orgs/polanyi/essays.htm . Scroll down to the "knowledge and methodology" section and look for "Polanyi, M" in this extensive bibliography and you will find the link. Except for the first of these essays, all have been adapted from the Polanyi Society web site. "The Stability of Beliefs" is, however, a posting that preserves the original pagination in *The British Journal for the Philosophy of Science*. In addition to the above five essays, the following Polanyi texts are also posted on this site:

- (1) "Science: Academic and Industrial," *Journal of the Institute of Metals* Vol. 89, 1960-61, pp.401-406.
- (2) "Science and Technology" which is a section of *Personal Knowledge: Towards a Post-Critical Philosophy* Harper Torchbooks, NYC 1962, 174-184

Betsy Sargent has long been interested in the influence of Polanyi on writing theorist Peter Elbow. In 1987, she organized a session on Polanyi at the Modern Language Association that included Elbow. Recently, she has published the following essay:

Sargent, M. Elizabeth. "Believing is Not a Game: Peter Elbow's Uneasy Debt to Michael Polanyi." *Writing With Elbow*. Ed. Pat Belanoff, Marcia Dickson, Sheryl I. Fontaine, Charles Moran. Logan, Utah: University of Utah Press, 2002. 95-113.

Appraisal will sponsor an April 2nd and 3rd, 2004, conference. As with past Appraisal conferences, papers related to Polanyi are welcomed but other topics may also be treated. For more information, contact Richard Allen (rt.allen@ntlworld.com)

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

Annual Meeting of the Polanyi Society

November 22, 2003

The meeting took place in conjunction with the annual meeting of the American Academy of Religion in Atlanta, Georgia. Walt Gulick called the meeting to order at 11:00 AM.

1. The members unanimously approved the election of Phil Mullins and Paul Lewis to the Board of Directors..
2. The members gave Richard Gelwick a warm round of applause in recognition of all he has done on behalf of the Polanyi Society and wishing him all happiness as he retires as Treasurer.
3. The members unanimously approved the election of Esther Meek and Jere Moorman to the Board of Directors.
4. Mullins reported the Board has approved a plan for 2004-2005 to experiment with a web-based publication of *Tradition and Discovery*. Paper publication will continue and paper issues will be available to anyone anywhere in the world who wants one. However, a reduced subscription rate will be offered to any members outside North American who are willing to print off a web issue of TAD. Access to web issues will be through a password protected section of the Polanyi Society web site. Moleski suggested that a trust fund of \$20,000 would be required to fund \$1000 per year toward the cost of postage outside North America. There was no consensus about whether such a collection would be feasible or desirable at this time.. The overall budget for the journal is about \$3000 per year (including about \$1000 non domestic postage). Some ideas were suggested about increasing circulation, but no consensus was reached.
5. Gulick reported the election of Paul Lewis as Vice-President and John Apczynski as Treasurer.
6. The group discussed possible topics and format for next year's Annual Meeting. See the "Call for Papers" for details.
7. Moleski suggested that we might organize a conference in 2008 to celebrate the fiftieth anniversary of the publication of *Personal Knowledge*. We might try Loyola, Chicago or a University of Chicago seminary. Dale Cannon discussed the possibility of obtaining funding from NEH or the Templeton Foundation for special seminars on pedagogy.
8. Moleski reported that Oxford University Press has agreed to publish the biography of Michael Polanyi. The book should appear in 2005 with Scott and Moleski as co-authors.
9. The meeting adjourned at 11:40 AM.

Martin X. Moleski, SJ, Secretary

2004 Polanyi Society Annual Meeting—Call for Papers

This year's annual meeting of the Polanyi Society will be held in San Antonio, Texas, November 19 and 20, 2004. Our meeting will be held as an "Additional Meeting" in conjunction with the annual meetings of the American Academy of Religion and the Society of Biblical Literature. The request to the AAR/SBL for space is pending but again this year we anticipate having both a Friday night session from 9:00-11:00 p.m. and a Saturday morning session from 9:00-11:30 a.m.

There was considerable discussion at the 2003 annual meeting about possible topics for the 2004 meeting. For instance, Richard Gelwick raised the question of how Polanyi would apply his understanding of freedom to the current world situation. "Polanyi's belief in the process of free inquiry and the search for truth seems to be in jeopardy in American democracy. The rule of propaganda and of political power seems stronger, and the exercise of free inquiry and search for truthful positions seems less effective in our new economy. If this trend persists does it question the relevance of Polanyi's philosophy to practical affairs?" In the end, however, two basic topics were agreed upon as having priority, although this does not preclude persons from submitting other proposals should they feel so inclined.

The Friday evening session will be devoted to a discussion of Esther Meek's book, *Longing to Know* (Brazos, 2003). Meek uses Polanyian thought as a vehicle for explaining to "ordinary people" how we come to believe and to know. Paper proposals are invited to respond to some aspect of Meek's book or perhaps to compare the approach of Meek with that of Stefania Jha in her book *Reconsidering Michael Polanyi's Philosophy* (U Pittsburgh Press, 2002). We anticipate Esther Meek would be available to reply.

The Saturday morning session will be devoted to a comparison of Polanyi's and Whitehead's thought. The neo-Whiteheadian theologian Joseph Bracken has agreed to be our featured speaker, focusing on the resources Whitehead and Polanyi provide for a consideration of a doctrine of the Trinity. In Bracken's book, *The One in the Many* (as in his recent *Zygon* articles), he speaks of the internal relationships within God on the model of intersubjectivity. An additional paper proposal is sought for this session to either respond to Bracken's work or offer another account of the relationship between Polanyi's and Whitehead's thought.

Proposals of up to 500 words in length or inquiries should be sent (e-mailed preferred) to the address below.

Martin X. Moleski, SJ
Department of Religious Studies
Canisius College
Buffalo, New York 14208

moleski@canisius.edu
Telephone: (716) 888-2383
FAX: (716) 886-6506

Letters about Polanyi, Koestler, and Eva Zeisel

Walter Gulick

ABSTRACT Key Words: Michael Polanyi, Arthur Koestler, Eva Striker Zeisel, Polanyi family, Gyula Hevesi, Alex Weissberg, David Cesarani, Soviet imprisonment.

*Illuminating letters by Barbara Striker and Bela Hidegkuti respond to Walter Gulick's review of David Cesarani's book, **Arthur Koestler: The Homeless Mind in Tradition and Discovery** 29:2 (2002-2003), 50-55. The letters and accompanying commentary shed light on the details of Eva Striker Zeisel's USSR imprisonment and release, her relationship to Arthur Koestler, the lives of George and Barbara Striker (Polanyi's nephew and wife), and the circumstances and sources of Cesarani's biography.*

The following two letters were sent in response to my review of David Cesarani, *Arthur Koestler: The Homeless Mind*, published in *TAD* 29:2 (2002-2003), pp. 50-55.

The first letter is written by Barbara Striker (1913-), widow of Gyorgy (George) Striker (1913-1992). George is the son of Michael Polanyi's sister Laura (Mausi) and younger brother of Eva Striker Zeisel, prominently mentioned in the review. In many respects the letter supplements and corroborates my review, but it also contains valuable firsthand information about Eva Striker Zeisel's imprisonment that, to the best of my knowledge, has not been published previously. The letter corrects my imprecise comment that "the Polanyis spoke German at home" to the more accurate statement that the Polanyis spoke German with Mama Cecile Polanyi, who never learned to speak Hungarian, although she could understand it well. Hungarian was the usual language of her salon.

On August 7, 2003, I was privileged to visit Barbara Striker in the Budapest apartment where she has lived the past 55 years. Mrs. Striker was a most gracious hostess and provided the information summarized in these several paragraphs. She showed me a bookcase containing two shelves of books written by members of the greater Polanyi family. A third shelf was filled with volumes edited by her late husband for IMEKO, an international society of applied physics concerned with measurement. She shared family photos as she sat under the painting of the sixteen year old Laura Polanyi, her mother-in-law. The walls also displayed pictures of many other family members and several paintings by Eva Striker Zeisel.

Mrs. Striker spoke of her emigration to the United States in 1938. She and George struggled at first to find suitable work (for a short while she ironed shirts for famed physicist Leo Szilard), but soon in Chicago she found a position in chemistry and George was employed as a research physicist in radio. In 1948 George decided to return to Hungary because he felt he could be of greater use in a small rather than in a large country. Mrs. Striker mentioned that George had strong socialist beliefs, quite at odds with the views of Michael Polanyi, but that their political differences were never a source of friction between them. At any rate, George's political views and some feeling of guilt about coming from a wealthy family contributed to his decision to return to Hungary, and Barbara went along as a devoted wife. The years of harsh communist rule soon beset them. The Hungarian authorities were suspicious of anyone who would voluntarily move from the United States to Hungary, so George was kept under constant surveillance, the Strikers later learned.

Barbara Striker worked in Hungary for a non-governmental society that facilitated international sharing of scientific and technical information. After helping it grow substantially, she retired in 1976. Now she and Eva Striker Zeisel are the last living members of their generation. Mrs. Striker confirmed my suggestion that Koestler had long lasting and deep feelings for Eva, and indeed supported the review's general portrayal of Koestler.

As I readied to depart, she entrusted me with her only copy (the only copy?) of the most detailed Polanyi family tree of which I am aware. As I made photocopies of the document, I recalled with gratitude a very special evening visit.

The second letter is from Bela Hidegkuti, a Hungarian living in Australia since 1956. It is largely self-explanatory. Hidegkuti's 1995 article on the Koestler-Polanyi relationship appeared in volume 4:4 of *Polanyiana* (pp. 8-31) and includes extensive excerpts for the letters of each man. I appreciate receiving Mr. Hidegkuti's permission to print his interesting observations.

April, 2003

To the Editors of *Tradition and Discovery*:

The following are remarks and corrections to the review by Walter Gulick of David Cesarani's *Arthur Koestler: The Homeless Mind*.

Page 51, paragraph beginning with "The coup de grace"

Eva Striker, the daughter of Laura Polanyi Striker, related her "experiences" in Soviet prisons to Koestler—but not as it is stated in this chapter. Eva Striker became the Arts Director of the Dulevo Porcelain Factory near Moscow, where she designed several beautiful sets. She was arrested in May, 1936—taken into prison from the home of her brother, who was a specialist in charge of the Patent Department of the Invention Office headed by Gyula Hevesi, a former official of the 1919 Hungarian Council Republic, in whose apartment Eva sublet a room before moving to her brother's place. Eva was not charged with spying and sabotage but with belonging to a subversive group whose aim was to kill Stalin. According to the testimony of the group's leader, she was assigned to commit the killing. At the search of her former room at the Hevesi place, they found the revolver with which "she intended to do the killing." She surmised that what they "found" was planted evidence.

Of course she denied without results all these charges she was confronted with by her investigator or by her denouncer. She stated she was an artist solely interested to prove that one can produce beautiful articles in a socialist country.

At times she was in cells with common criminals, but most of the time she was held in solitary cells. At one time her investigator pressured her to sign an untrue statement by threatening her if she does not sign it, she will rot in the prison all her life without trial.

The night after the signing she slashed her wrists with a razor hidden in her shoe heel, which she got from one of her former inmates. The woman warden saved her life and Eva related to her the reason why she

wanted to commit suicide. The warden told her she should address a letter of complaint to Stalin against her investigator, and as a matter of fact he was recalled (a usual procedure, of course). After that she was never forced to sign any falsehood.

She was not “freed from the USSR,” nor was she released from prison with the help of her separated husband (Alex Weissberg) and the Austrian consul, but with the very brave help of her mother, who collected affidavits from famous scientists—among them the world known physicist Kapitca. She was released from prison and directly from there expelled and put on a train to Vienna, where her brother—my husband—and I met her. The very first night she related to us all the above.

Moreover, Weissberg, who was also arrested in Charkow (Kharkov), was not freed with the help of Koestler and Polanyi but in 1939, after the Nazi-Soviet pact signed by Ribbentrop and Molotov during the occupation of Poland. He was taken to the Soviet-German border of Poland and was delivered by the Soviets to the hands of the Gestapo. An Austrian Communist scientist, Weissberg escaped with the help of the Polish underground to Sweden before Germany invaded the USSR.

Page 51, paragraphs 3-4, “Who is Vera?”

Vera is Adolf Polanyi’s eldest offspring—she was born in 1908 and not in 1909—and certainly could be around Laura Polanyi-Striker’s school—but she was not the person whom Koestler as a grown-up met at several places and times in his life.

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Eva Striker Zeisel was not only teaching porcelain design in the Pratt Institute in New York, but she was a very sought art designer of porcelain and ceramic articles and sets in many famous manufacturing plants in the USA and Europe. And, by the way, while she truly did not identify herself with the extreme views of Koestler, they met often until his death.

Eva Striker Zeisel visited Hungary in the 1960s. At that time she met Gyula Hevesi again (who, by the way, spent the years between 1938-46 in Soviet prisons and gulags in Siberia) and from him she received the fact that at the time of search in his apartment in 1936, the NKWD found in Eva’s former room Hevesi’s 1919 revolver, which he forgot to declare and hid in Eva’s room...

Page 53, from line 7

There is no reference to the status of “Mama Cecil who also never learned good Hungarian.” Mama Cecil was born in Vilna, was sent to her father in Vienna, worked there, and met and married P. Michael.

Further it is stated that the Polanyis spoke German at home. Was the author present in their home? All their offspring graduated at Hungarian universities. Laura studied history and English language and literature, and wrote her doctorate work in Hungarian history. They spoke to their mother in German, but otherwise all that time and even later they spoke a beautiful Hungarian.

In Mama Cecil’s famous literary salon over many decades the most forward-looking writers and poets, among them Frigyes Karinthy, Gyula Illyés and Attila József, discussed certainly not only “intellectual issues of the world,” but actual Hungarian issues too.

There are therefore many superficial statements and opinions in this review. That is the reason why I as one of the last survivors of those times felt it necessary to comment on them.

Mrs. Barbara Striker
Daughter-in-law of Laura Polanyi Striker
Honorary Member of the Michael Polanyi Liberal Philosophical Association

April 4, 2003

Dear Professor Gulick,

The Michael Polanyi Liberal Philosophical Association has sent me a xerox copy of your review of Cesarani's book in *Tradition and Discovery* since I have some interest in Koestler and – to a lesser extent – in Michael Polanyi and his family. I edited a Hungarian language Koestler Festschrift (published in 1985 outside Hungary and re-published in 1992 in Hungary in an extended version). I think I put Koestler “on the map” for Hungarians by this Festschrift, for he was a taboo subject before the collapse of the Berlin Wall and similar other collapses elsewhere. I also wrote a study on the connections between Arthur Koestler and Michael Polanyi for *Polanyiana* which you know since you referred to it in your *Tradition and Discovery* article.

It is indeed intriguing who may have been the little girl with the vaccination scar who attended kindergarten together with Koestler. It was a very long time ago when I read *Arrow in the Blue*, before I started seriously to think about Koestler. To tell the truth I did not even keep the little girl's name in my mind. Many years later when I did further reading on Koestler I came across Eva Zeisel's name and I tacitly established in my head that she must have been the girl with the vaccination mark. Since I did not remember what name was given to this girl in *Arrow in the Blue* and I did not bother to look the book up again, it did not occur to me that there are two different names (Eva and Vera). What did cross my mind slightly was that Koestler's version of meeting again, viz. bumping into each other on the street in New York, was probably not exactly how it happened since they would not have recognised each other. My hunch was that Eva-Vera heard (probably from a newspaper article) that Koestler was in town and she sought him out or went to talk to him after a talk given by Koestler.

Indeed, as you point out, Koestler changed bits and pieces in his autobiographical works, mainly about people who were still alive. In my 1993 talk in Budapest at a booklaunch of the Hungarian publication of my Koestler Festschrift, I mentioned that Koestler probably deliberately omitted many events and persons from his autobiographical works because it was reasonable to suspect that several of these persons were still alive in Eastern Germany, Czechoslovakia, Hungary, Poland and the Soviet Union. A mere mention by Koestler of these persons would have meant dire consequences to them. (I also mentioned that I wished that a full version of his autobiography would turn up from some archives.)

As far as Cesarani's book is concerned, I am not enthusiastic about it. The author of this book (Cesarani) seems to have collected and amassed, with the diligence of a little ant, virtually what Koestler had for breakfast, lunch and dinner in every day of his life. Cesarani seems to have a thinly disguised antagonism for Koestler. Indeed, he dines out on every adverse episode he finds in Koestler's life. He tries to explain everything about Koestler in terms of how Koestler accepted or did not accept his Jewishness. This reminds me

of Marxists who explain everything in terms of the class struggle or orthodox Freudians who have an explanation for everything in terms of sex. I had a malign satisfaction when I read an adverse review on Cesarani's book by the distinguished writer Julian Barnes.

Cesarani committed something unethical when he went ahead to publish his book and quoted in it bits he found in Koestler's papers but without asking consent from the Koestler Archives at Edinburgh University. (I know this from the the Curator of the Archives. It was also made clear in his letter that the curators of the Koestler Archive certainly would not have given permission to publish material gathered by David Cesarani would he have submitted the book's manuscript prior to its publication.) Koestler had an affair with a married woman and a child was born out of this liaison. The woman's husband accepted the child as his own and the child was raised as the husband's offspring. Cesarani committed an indiscretion when he blurted out the names of people involved, thus causing, presumably, discomfiture for a number of people. What "noble" purpose does it serve?

When I went through the Koestler-Polanyi correspondence, I also saw the letter from Michael Polanyi's widow to Koestler that Cesarani included in his book and you also mention in your review article. At that time I decided that I would not waste paper and pen, so to speak, to deal with the carping of an unhappy octogenarian lady. Besides, I did not see any evidence in Michael Polanyi's correspondence that he believed that Koestler plagiarized from him. He certainly would have known.

I hope I did not take up too much of your time with my musings about who may have been Vera-Eva and my opinion of Cesarani's book.

Yours sincerely,

Béla Hidegkuti

WWW Polanyi Resources

The Polanyi Society has a World Wide Web site at <http://www.mwsc.edu/~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.

Tacit Knowledge/Knowing and the Problem of Articulation

Yu Zhenhua

ABSTRACT Key words: strong thesis of tacit knowledge, weak theses of tacit knowledge, Wittgensteinian tradition, Polanyian tradition, Chinese philosophy

In this paper, I attempt to create a dialogue between the Wittgensteinian tradition and the Polanyian tradition concerning the understanding of the concept of tacit knowledge/knowing from the perspective of the problem of articulation. Norwegian philosopher Harald Grimen argues for a distinction between the strong thesis of tacit knowledge and the weaker theses of tacit knowledge. The former highlights the logical gap between our knowledge and our capacity for verbal articulation, which is not the case for the weaker theses. Inspired by this important distinction, I claim that there are actually two meanings of Polanyi's concept of tacit knowledge/knowing. Finally, I try to bring out the relevance of the ongoing discussion on tacit knowledge/knowing to contemporary Chinese philosophy.

The term “tacit knowing” or “tacit knowledge” was first introduced into philosophy by Michael Polanyi in 1958 in his *magnum opus Personal Knowledge*. Since then, different philosophical traditions—among them are the phenomenological, the hermeneutical, the Wittgensteinian and the Polanyian traditions—have carried on a discussion about this notion and related issues, producing along the way a great deal of literature. It is no exaggeration to talk about an ongoing discourse on tacit knowledge. The notion of “tacit knowledge” or “tacit knowing” is rich in its philosophical implications and has many theoretical dimensions. As indicated by the word “tacit,” the *prima facie* approach to this multifaceted discourse is that of the philosophy of language. Therefore, it is my goal in this paper to analyze “the problem of articulation,” and by means of discussion, I hope to clarify the meaning of the term “tacit knowledge/knowing.”

1. Tacit knowledge: the strong and the weak interpretations

By the problem of articulation, I mean the problem of the articulation of knowledge. According to Michael Polanyi, the theory of tacit knowledge stands in opposition to the “ideal of wholly explicit knowledge” which took shape from the scientific revolution of the seventeenth century. From Galileo’s famous saying “The book of Nature is written in mathematical language,” to Leibniz’s dream of universal language, to the logical positivists’ view of knowledge, we can see clearly the development of this ideal. Among them, logical positivism serves as a paradigm case. Kjell S. Johannessen, a Norwegian philosopher who works in the Wittgensteinian tradition, points out that, within the framework of logical positivism,

[K]nowledge and language are woven together in an indissoluble bond. The requirement that knowledge should have a linguistic articulation becomes an unconditional demand. The possibility of possessing knowledge that cannot be wholly articulated by linguistic means emerges, against such a background, as completely unintelligible.²

However, this doctrine of logical positivism has been called into question by philosophers from different traditions since the World War II.

It has in fact been recognized in various camps that *propositional* knowledge, i.e., knowledge expressible by some kind of linguistic means in a propositional form, is not the only type of knowledge that is scientifically relevant. Some have, therefore, even if somewhat reluctantly, accepted that it might be legitimate to talk about knowledge also in cases where it is not possible to articulate it in full measure by proper linguistic means.³

Johannessen, using Polanyi's terminology, calls the kind of knowledge that can not be fully articulated by verbal means, "tacit knowledge."⁴

As mentioned above, plenty of literature has been produced around the term, "tacit knowledge." Consequently, it is quite natural that people have different understandings of this notion. Harald Grimen, another Norwegian Wittgensteinian, claims that there are at least four possible interpretations of what "tacit knowledge" is.⁵

The first interpretation can be called the thesis of conscious under-articulation. In this view, tacit knowledge is something that we consciously attempt to conceal, to avoid articulating or to under-articulate. For instance, in marriage or political compromise, it is wise for the partners not to tell all they know about each other. This conscious under-articulation helps maintain a good relationship in marriage or political compromise, which might collapse because of over articulation. In a sense, this un-articulation or under-articulation of what one knows is tacit, because nobody talks about it. This interpretation of tacit knowledge might be interesting sociologically, but is not quite relevant epistemologically.

The second is the Gestalt thesis of tacit knowledge. When one is engaged in a certain activity, like playing piano, riding a bicycle, swimming, etc., one has to rely on a certain unproblematic background; otherwise the activity cannot be fluently carried on. If a person focuses on the background and tries to articulate it by linguistic means, the person will obstruct the performance of the activity. That is to say, the unarticulated background that is necessary for the performance of a certain activity cannot be articulated by the agent himself in the process of performance. The knowledge that the agent has about this unproblematic background is a kind of tacit knowledge. It is worth mentioning that this interpretation of tacit knowledge only claims that for the sake of not obstructing the performance of an activity, the agent cannot articulate verbally the background on which he relies. It does not assert that this kind of knowledge is unarticulatable in principle. What the agent can not articulate linguistically in the process of performance of the activity, can, Grimen thinks, be articulated by others or by himself after the performance. In Grimen's view, this interpretation of tacit knowledge is clearly influenced by Gestalt psychology, so he calls it the "Gestalt thesis of tacit knowledge." He claims that Polanyi's thinking is close to the Gestalt thesis.

The third interpretation can be characterized as "the thesis of epistemic regionalism." All the knowledge that one has, constitutes a vast, loosely knit and non-perspicuous system. At any given moment, one can only reflect on small parts of this knowledge system and verbally articulate them. No one can articulate the whole system simultaneously. In the sense of having a perspicuous overview and articulating by verbal means the knowledge that we have, we are all regionalists. To put it in another way, at any given time, we always have certain verbally unarticulated knowledge in our thinking and action, i.e., tacit knowledge. Grimen calls this interpretation of tacit knowledge "the thesis of epistemic regionalism." According to this interpretation, no specific elements of knowledge are in principle unarticulatable, but at a given moment, the knowledge that we can verbally articulate is limited. We cannot verbally articulate all that we know. There is no unifying perspective

from which we can verbally articulate at the same time all the knowledge that we possess.

The fourth interpretation is the strongest, and Grimen calls it “the strong thesis of tacit knowledge.” From this perspective, there are specific kinds of knowledge that are in principle verbally unarticulatable, which means that there exists a logical gap between our capacity of cognition, experience and action, on the one hand, and our capacity for verbal articulation, on the other. This knowledge that is in principle unarticulatable is tacit knowledge. Grimen claims that this interpretation of tacit knowledge is more radical than the Gestalt thesis of tacit knowledge and the thesis of epistemic regionalism because neither claims that there are specific kinds of knowledge that are in principle unarticulatable. This is the reason Grimen names this interpretation “the strong thesis of tacit knowledge,” on the one hand, while “the thesis of conscious under-articulation,” “the Gestalt thesis of tacit knowledge,” and “the thesis of epistemic regionalism” are the weaker theses, on the other hand. Grimen believes that tacit knowledge in the strong sense does exist. For example, the knowledge of sense qualities, the knowledge of the identity of a gestalt, and the knowledge of the choreography of an action are all difficult to articulate adequately by verbal means. To talk about tacit knowledge under these circumstances, doesn’t mean that language is unnecessary in these cases, but that language is not sufficient for obtaining and transferring such knowledge. Grimen maintains that for the aforementioned three cases, if the knower is short of first hand experiences and relies solely on verbal descriptions, he cannot acquire the knowledge in question. In a word, this interpretation of tacit knowledge brings out the logical gap between knowledge and language and affirms the existence of certain kinds of knowledge that cannot be articulated adequately by verbal means. Grimen claims that the strong thesis of tacit knowledge is more connected to the Wittgensteinian tradition and he doubts whether Polanyi supports this position. He prefers to discuss tacit knowledge from the perspective of the strong thesis. Similarly, Johannessen also emphasizes that when we say that tacit knowledge is something that is not possible to articulate adequately by linguistic means, we mean this “not possible” in a logical sense.

Influenced by the ideal of wholly explicit knowledge, people might say that the experience that can hardly be fully articulated by verbal means should not be called “knowledge,” but it should be called “intuition.” However, Grimen refuses to adopt this ambiguous and mysterious term to describe this kind of epistemic phenomenon. He thinks that we have good reasons to call it “knowledge.” First, the strong thesis of tacit knowledge doesn’t claim that tacit knowledge is completely unarticulatable. What is absolutely unarticulatable doesn’t make much sense in epistemology. All knowledge can be articulated, but not all knowledge can be articulated verbally. According to Grimen’s terminology, the concept of articulation covers more than the concept of language. Besides verbal articulation, we have other modes of articulation, such as, for instance, action. Grimen holds that as far as the articulation of knowledge is concerned, action as a mode of articulation is as fundamental as language. Tacit knowledge cannot be fully articulated by verbal means, but can be articulated in action. The theory of tacit knowledge will enhance our theoretical sensitivity to non-verbal modes of articulation. Thus, the strong thesis of tacit knowledge is not concerned with the distinction between what is articulatable and what is unarticulatable, but with the distinction between verbal articulation and non-verbal articulation. Mystical intuition is normally deemed unarticulatable in principle, and therefore has to do with the first distinction. In contrast to mystical intuition, tacit knowledge is articulatable, for Grimen, but it cannot be articulated by verbal means. Instead, it is open to non-verbal modes of articulation.

Further, Grimen points out that tacit knowledge can also be learned, transferred, accumulated and criticized. Of course, the modes of learning, transferring, accumulating and criticizing tacit knowledge are different from those of verbally articulated knowledge. For example, we can simply resort to words and statements so as to transfer verbally articulated knowledge. The transference of tacit knowledge relies more on

first-hand experiences and guided instructions of a master. Again, to criticize verbally articulated knowledge, we can examine the statements of knowledge, but in order to criticize tacit knowledge, we must appeal to action or practice.

To summarize, although the modes of articulating, learning, accumulating and criticizing tacit knowledge are different from those of verbally articulated knowledge, tacit knowledge and verbally articulated knowledge share many features: they are both able to be articulated, learned, transferred and criticized. Thus, although knowledge may be tacit in the sense that it cannot be adequately articulated by verbal means, it still is a member of the family of knowledge, and not something else. We can legitimately call it tacit knowledge.

2. The tacit root of human knowledge

Grimen's clarification of the meaning of the term tacit knowledge is clear and insightful. However, his characterization of Polanyi's position is arguable. As mentioned above, Grimen thinks that Polanyi's understanding of tacit knowledge is close to the Gestalt thesis and Grimen is skeptical about whether Polanyi will support the strong thesis of tacit knowledge. In my view, this characterization does not accurately represent Polanyi's real position. The term tacit knowledge has two different but closely related meanings to Polanyi, which correspond respectively to the Gestalt thesis and the strong thesis of tacit knowledge. In other words, the Gestalt thesis of tacit knowledge and the strong thesis of tacit knowledge co-exist in Polanyi's philosophy. Moreover, it is worth noting that Polanyi's version of the strong thesis is much stronger and more radical than that of Grimen and Johannessen. According to Polanyi, not only is there knowledge that cannot be adequately articulated by verbal means, but also all knowledge is rooted in tacit knowledge in the strong sense of that term.

It might be helpful to take a look at the terminologies of Grimen and Polanyi before we go into the substance of the issue. Although Polanyi thinks that his understanding of words like "articulate" and "articulation" is wider than their common usage, his usage is still narrow compared to that of Grimen. In common usage, these terms refer to the actual enunciation of the sounds of language. In Polanyi, these terms are almost equivalent to the concept of language. Moreover, he proposes a wide understanding of language, which includes various symbolic forms such as written words, mathematical formulae, maps and diagrams. In other words, to Polanyi, articulation means verbal articulation, while to Grimen, articulation covers not only verbal articulation but also non-verbal modes of articulation. Grimen's understanding of articulation is wider than Polanyi's.

Polanyi says: "[H]uman knowledge is of two kinds. What is usually described as knowledge, as set out in written words or maps, or mathematical formulae, is only one kind of knowledge; while unformulated knowledge, such as we have of something we are in the act of doing, is another form of knowledge."⁶ The first kind of knowledge is called explicit knowledge, also articulate knowledge, and the second is called tacit knowledge, also inarticulate knowledge. In a world where the ideal of wholly explicit knowledge prevails, knowledge is normally understood as something articulated by verbal symbols. However, tacit knowledge does not take verbal forms; it is a kind of knowledge that we have when we are in the act of doing something. To use the Wittgensteinians' terminology, it is a kind of action-inherent knowledge or action-constitutive knowledge. It is not difficult to detect that Polanyi's distinction between tacit knowledge and explicit knowledge is similar to Gilbert Ryle's distinction between "knowing how" to do something and "knowing that" something is the case.⁷ As a kind of action-inherent knowledge or action-constitutive knowledge, tacit knowledge is tantamount to Ryle's "know how." It refers to a person's ability, capacity, competence and faculty in knowing and action. Therefore, on many occasions, it seems quite natural for Polanyi to substitute tacit powers for tacit knowledge.

Tacit powers have many manifestations. Some of them are more intellectual, such as knowing how to recognize somebody's physiognomy; some are more practical, such as knowing how to ride a bicycle. The former belongs to what Grimen regards as the tacit knowledge of gestalt identity while the latter belongs to the tacit knowledge of the choreography of an action. The developed form of the former is connoisseurship while that of the latter is skill. Theoretically, these two forms of tacit knowledge can be differentiated, but they are interwoven in real, concrete knowing processes: "The facts of biology and medicine, for example, can be recognized as a rule only by experts possessing both special skill for examining the objects in question and a special connoisseurship for identifying particular specimens" (*SM*, 23). Connoisseurship and skill are the indispensable elements of the art of knowing. Great scientific discoveries are the result of the performance of great scientists' art of knowing.

An important issue is whether it is the case that tacit knowledge in this sense cannot in principle be articulated by verbal means. Both psychological experiments about the development of human intelligence and the history of evolution show, Polanyi implies, that human intelligence is not markedly different from that of animals before human beings grasp language. However, after a person grasps language, human intelligence develops rapidly and leaves animals far behind. The watershed, as it were, between human intelligence and that of animals lies in the acquisition of language. The human intellectual superiority over animals depends on the use of language. To some, this fact favors the ideal of wholly explicit knowledge, but Polanyi does not think so. He argues that the human ability to know has a biological origin and is continuous with animals' inarticulate intelligence. He further traces tacit powers back to the activities of protozoa or even ultramicroscopic, virus-like specks of living matter. The emergence of language boosts human tacit powers, but it does not change their tacit character.

While language expands human intelligence immensely beyond the purely tacit domain, the logic of language itself—the way language is used—remains tacit.⁸

Maps, graphs, books, formulae, etc., offer wonderful opportunities for reorganizing our knowledge from ever new points of view. And this reorganization is itself, as a rule, a tacit performance, similar to that by which we gain intellectual control over our surroundings at the pre-verbal level, and akin therefore also to the process of creative reorganization by which new discoveries are made (*SM*, 24-25).

Polanyi claims that linguistic symbols serve human beings as a tool to know the world: "Our whole articulate equipment turns out to be merely a tool-box, a supremely effective instrument for deploying our inarticulate faculties" (*SM*, 25). In line with this instrumental understanding of language, tacit powers necessarily lie outside of the articulate framework.

Even if we admitted that an exact knowledge of the universe is our supreme mental possession, it would still follow that man's most distinguished act of thought consists in *producing* such knowledge; the human mind is at its greatest when it brings hitherto uncharted domains under its control. Such operations renew the existing articulate framework. Hence they cannot be performed within this framework but have to rely (to this extent) on the kind of plunging reorientation which we share with the animals. Fundamental novelty can be discovered only by the same tacit powers which rats use in learning a maze (*SM*, 18).

Therefore, although human intellectual superiority over animals lies in human use of linguistic symbols, this

utilization itself is a tacit process and “can be done only in our heads and not by operating with signs on paper”(SM, 25). The ability to renew an articulate framework lies beyond the articulate framework; the use of linguistic symbols cannot be exhausted by linguistic symbols. Thus, to fully grasp human cognitive powers, “articulation always remains incomplete” (PK, 70).

In a word, by emphasizing the biological origin of man’s cognitive faculty and the instrumental value of language, Polanyi shows that human beings have certain cognitive powers, which, in principle, can not be exhausted by linguistic means, and he calls them tacit powers. This is the first meaning of Polanyi’s concept of tacit knowledge. With this, we have good reason to say that, in Polanyi, there is a strong thesis of tacit knowledge in Grimen and Johannessen’s sense.

Furthermore, in contrast to Grimen and Johannessen, who argue for the importance of tacit knowledge by juxtaposing tacit knowledge with verbally articulated knowledge, Polanyi makes a stronger claim. He argues that tacit knowledge in this strong sense is the foundation of all explicit knowledge. All explicit knowledge has a tacit root. Tacit powers are the ultimate faculty through which humans acquire and hold knowledge. As mentioned above, the utilization of linguistic symbols itself is a tacit performance. Specifically, this utilization has at least two processes, namely, giving meaning to and understanding the linguistic symbols, without which, explicit knowledge cannot be realized. Polanyi holds that these two processes are all tacit. On the one hand, “nothing that is said, written or printed, can ever mean anything in itself: for it is only a *person* who utters something—or who listens to it or reads it—who can mean something *by* it. All these semantic functions are the tacit operations of a person.” (SM, 22). The meanings of all symbols are given by the tacit performance of the knower. If their tacit coefficients are abolished, all written words, formulae, and graphs will be meaningless. On the other hand, the realization of explicit knowledge depends on our understanding of linguistic symbols, and “the understanding of words and other symbols is also a tacit process.” (SM, 21) Mathematical formulae, written words and graphs can convey various kinds of information, but they cannot convey the understanding of this information: “Only by virtue of this act of comprehension, of this tacit contribution of his own, can the receiving person be said to acquire knowledge when he is presented with a statement” (SM, 22).

Polanyi concludes: “While tacit knowledge can be possessed by itself, explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is *either tacit or rooted in tacit knowledge*. A *wholly* explicit knowledge is unthinkable”(KB, 144). These words can be regarded as a paradigmatic expression of the primordially of the tacit dimension and as a rebuke of the absurdity of the ideal of wholly explicit knowledge. Considering the fact that the understanding of knowledge has been dominated by the ideal of wholly explicit knowledge since the seventeenth century, one can imagine how difficult it is to argue for the priority of the tacit dimension. As Professor Marjore Grene recalls, Polanyi spent an entire year on preparing for the manuscript of his chapter “Articulation” for *Personal Knowledge*, the theme of which is “ the grounding of articulation in the inarticulate.”⁹

Man’s tacit powers are not static. They are embodied in the dynamic process of knowing. In order to stress on the dynamic character of tacit knowledge, Polanyi tends to use the expression “tacit knowing”: “Knowledge is an activity which would be better described as a process of knowing.”(KB, 132) Inspired by Gestalt psychology, Polanyi describes the structure of tacit knowing. In this connection, we will try to clarify the second meaning of Polanyi’s concept of “tacit knowledge,” which is close to what Grimen calls the Gestalt thesis of tacit knowledge.

In order to describe the structure of tacit knowing, Polanyi developed a theory of two kinds of awareness, i.e., focal awareness and subsidiary awareness. For instance, in driving a nail with a hammer, we are both aware of the nail and aware of the hammer and the feelings in the palm, but in different manners. The object of attention is the nail, not the hammer and the feelings in the palm. Our awareness of the latter is not for itself, but for the former. Polanyi claims that our awareness of the nail is focal, while our awareness of the hammer and the feelings in the palm are subsidiary. Tacit knowledge is built on the dynamic relation between subsidiary awareness and focal awareness. In order to grasp an object, we must integrate all the relevant clues and particulars into a comprehensive entity. Here, the subsidiary awareness of various clues or particulars constitutes the first term of tacit knowing, while the focal awareness of the comprehensive entity is the second term. In order to know the latter, we have to rely on the former. The former is what we rely on, while the latter is what we attend to. Tacit knowing realizes itself in the dynamic process moving from the first term to the second term: “Tacit knowing is from-to knowing.”¹⁰ The knower integrates the particulars into a focal object, and establishes a from-to dynamic relation between subsidiary awareness and focal awareness. This is the basic structure of tacit knowing.

In *The Tacit Dimension*, Polanyi discusses a psychological experiment on subception. In the experiment, a person was presented with a large number of nonsense syllables. After showing him some of these syllables, the experimenter administered an electric shock. Very soon, the person showed signs of anticipating the shock when he saw those “shock syllables.” Obviously, he knew how to anticipate the electric shock. However, when questioned, he could not specify what made him expect it. Polanyi thinks that the experiment on subception well illustrates the basic epistemological fact that “We know more than we can tell.” Polanyi points out that, in the experiment,

We know the electric shock, forming the second term, by attending to it, and hence the subject is *specifiably* known. But we know the shock-producing particulars only by relying on our own awareness of them for attending to something else, namely the electric shock, and hence our knowledge of them remains *tacit*.¹¹

Here, Polanyi takes our knowing of the subsidiary term as tacit knowledge. In *PK*, he calls the knowledge of the particulars of the subsidiary term ineffable knowledge: “The knowledge of such particulars is therefore ineffable, and the pondering of a judgment in terms of such particulars is an ineffable process of thought” (*PK*, 88). Since in many cases the first term of tacit knowing is near to us while the second term is far from us, Polanyi, using the language of anatomy, calls the first term the proximal term and the second term the distal term. He says, “It is the proximal term, then, of which we have a knowledge that we may not be able to tell” (*TD*, 10). Here, we can detect a slight change in the meaning of Polanyi’s use of the term “tacit knowledge.” As mentioned above, the first meaning of Polanyi’s concept of tacit knowledge points to man’s ability, capacity, competence or faculty in knowing and action, which originated in animals’ inarticulate intelligence. But now, tacit knowledge refers to our knowledge of the particulars that constitute the comprehensive entity. This kind of knowledge is tacit in the sense that it is not specifiable. When he talks about tacit knowledge in this sense, Polanyi defines tacit knowledge in terms of the unspecifiability of subsidiaries.

Polanyi claims that there are two ways in which subsidiaries are unspecifiable: “We must distinguish, then, two types of unspecifiability of subsidiaries. One type is due to the difficulty of tracing the subsidiaries—a condition that is widespread but not universal; the other type is due to a sense deprivation which is *logically* necessary and in principle absolute” (*M*, 39).

The first type of unspecifiability of subsidiaries indicates that we are focally ignorant of the particulars of a comprehensive entity. Polanyi says:

It is not surprising, therefore, that we may often apprehend wholes without ever having focally attended to their particulars. In such cases we are actually ignorant, or perhaps more precisely speaking, *focally ignorant* of these particulars; we know them only subsidiarily in terms of what they jointly mean, but cannot tell what they are in themselves. Practical skills and practical experience contain much more information than people possessing this expert knowledge can ever tell. Particulars that are not known focally are unspecifiable, and there are vast domains of knowledge, relating to living things, the particulars of which are largely unspecifiable. The human physiognomy is one such thing (SM, 32-33).

In recognizing somebody's face, in riding a bicycle or in swimming, etc., we are only subsidiarily or instrumentally aware of the particulars, but focally ignorant of them. Thus, although we can quickly recognize somebody's face from a group of people and we can ride a bicycle and swim skillfully, we normally cannot identify the particulars of these comprehensive achievements (or entities). In this sense, these particulars are unspecifiable. About this type of unspecifiability, it is worth mentioning that although there are cases in everyday life and in scientific research where we cannot tell the particulars but know the comprehensive entity, such cases are widespread but not universal, according to Polanyi. For instance, in some cases, such as in topographic anatomy, even though we know quite well the particulars, but we find it difficult to grasp the relationship between them (PK, 88-89).

Polanyi names the second type of unspecifiability "logical unspecifiability." This has to do with the mutual exclusiveness of the two kinds of awareness: "Subsidiary awareness and focal awareness are mutually exclusive" (PK, 56). For instance, in playing the piano, the pianist focuses his attention on the piece of music that he is playing, and he is therefore only subsidiarily aware of the movements of his fingers. If he shifts his attention to his fingers, he gets interrupted and cannot go on with the music. Relying on his subsidiary awareness of his fingers, the pianist fluently plays the piece of music, but when he has a focal awareness of the fingers, his playing may well be interrupted (TD, 18ff). Polanyi thinks that in this case we also face the problem of unspecifiability of particulars, but not in the sense of being ignorant of the particulars. In this case, we can know clearly the particulars of the performance. Here, the unspecifiability of particulars lies in the fact that once we focus our attention on the particulars, our action will be obstructed or even destroyed. Thus, logical unspecifiability is a description of the function of subsidiaries: the function of particulars is to play the role of subsidiaries; once they become the object of focal awareness, the performance of the original activity cannot be carried on. Moreover, this type of unspecifiability holds only for the agent who is performing the action. It is not necessarily unspecifiable for an onlooker. Now it is clear that what Grimen means by the Gestalt thesis of tacit knowledge is exactly what Polanyi calls the logical unspecifiability of the particulars as subsidiaries. As mentioned in the last section, it is not the case that tacit knowledge in this sense cannot in principle be articulated by verbal means.

In a word, the second meaning of Polanyi's concept of tacit knowledge is the unspecifiability of subsidiaries. Polanyi considers the first type of unspecifiability the stronger one and the second type the weaker one: "the stronger one, due to our ignorance of the subsidiary particulars, and the weaker one, due to the purely functional meaning of such particulars" (SM, 45-46). We have seen that the weaker unspecifiability (logical

unspecifiability) applies only to the performing agent, but not necessarily to the observer. The stronger unspecifiability has to do with the difficulty of identifying the subsidiaries, but this difficulty is only a factual one, not a logical one. By switching the focus on those particulars, most of them become specifiable. Subliminal subsidiaries which seem impossible to be focused on by oneself can be rendered specifiable by somebody else, like a neurologist. Thus, both types of unspecifiabilities are not in principle unspecifiable; in other words, tacit knowledge in this sense, is not logically unarticulatable by verbal means.

So, there are two different meanings of the term “tacit knowledge” in Polanyi: one refers to man’s powers in knowing and action which originated from animals’ inarticulate intelligence, the other refers to man’s knowledge of subsidiary particulars in our from-to knowing. The former is in principle not possible to be exhausted by verbal means, but this is not case for the latter. Thus, Polanyi affirms both the strong thesis of tacit knowledge and the Gestalt thesis of tacit knowledge.

3. Conclusions and Comments

I conclude this paper with the following three points:

First, it is important for different philosophical traditions to communicate with each other on the problem of tacit knowledge. As mentioned above, there are basically four traditions involved in the present discourse about tacit knowledge. However, as far as I know, philosophers from these traditions don’t have a sufficient exchange of ideas. In this paper, my discussion touches upon two traditions, the Polanyian tradition and the Wittgensteinian tradition. On the one hand, Grimen, who works in the Wittgensteinian tradition, does not have a full and rich picture of Polanyi’s thinking. He sees the Gestalt thesis of tacit knowledge in Polanyi but loses sight of his strong thesis of tacit knowledge. On the other hand, because he does not sharply differentiate the strong thesis of tacit knowledge and the weaker theses, Polanyi himself does not thematize the difference between tacit knowledge in the sense of a kind of cognitive faculty originated from animals’ inarticulate intelligence and tacit knowledge in the sense of the unspecifiability of subsidiaries. Later Polanyians don’t consciously distinguish the two meanings of tacit knowledge either. A review of several important books on Polanyi in the English speaking world since the seventies¹² reveals that the authors basically understand Polanyi’s tacit knowledge in terms of its second meaning, that is, the unspecifiability of the subsidiaries. One possible exception is Drusilla Scott, in her *Everyman Revived: The Common Sense of Michael Polanyi*. She touches upon the first meaning of Polanyi’s concept of tacit knowledge.¹³ However, she doesn’t make a clear distinction between the two meanings of Polanyi’s concept of tacit knowledge. Inspired by philosophers in the Wittgensteinian tradition who argue strongly for a distinction between the strong thesis of tacit knowledge and the weaker ones, I find that there are actually two meanings of Polanyi’s concept of tacit knowledge. In my view, the dialogue that I try to create in this paper is helpful both for overcoming the inaccuracy of Grimen’s reading of Polanyi, on the one hand, and for the clarification of the self-understanding of tacit knowledge in Polanyian tradition, on the other hand. In a word, for the sake of deepening the study of the theory of tacit knowledge, the communication between different traditions is absolutely necessary.

Second, the philosophical discourse about tacit knowledge is quite relevant to the development of contemporary Chinese philosophy. As a continuation and further development of the traditional philosophical debate on whether it is possible to grasp Tao¹⁴(metaphysical wisdom/Truth) by verbal means, an important aspect of modern Chinese philosophy, is the discussion of the problem of the relation between the expressible and the inexpressible.¹⁵ The discussion presupposes the dichotomy between knowledge and metaphysical

wisdom/Truth. Modern Chinese philosophers tend to think that metaphysical wisdom/Truth cannot be said, while scientific knowledge or common sense can be said. Different from the modern Chinese discourse on the possibility of metaphysical wisdom/Truth, which tends to deal with the problem of the relationship between the expressible and the inexpressible on a metaphysical level, the theory of tacit knowledge examines knowledge on a non-metaphysical level. It attempts to show that there are tacit elements that can hardly be articulated by verbal means in our daily knowing activities and in scientific researches. Furthermore, it is worth noting that the modern Chinese discourse on the possibility of metaphysical wisdom/Truth is built on an ingrained doctrine, that is to say, philosophers are trapped by the ideal of wholly explicit knowledge and maintain that knowledge, in science and in daily life, can be exhausted by propositions. This doctrine is undermined by the theory of tacit knowledge, which claims that there are tacit coefficients, which cannot be exhausted by verbal means in daily knowing activities and in scientific researches. Thus the theory of tacit knowing/knowledge constitutes an inner critique of modern Chinese philosophy. In my view, by integrating the insights of the theory of tacit knowledge, we will overcome the unfounded and rigid dichotomy between knowledge and metaphysical wisdom/Truth, and will see clearly the continuity between them: not just metaphysical wisdom/Truth cannot be said; even in daily knowing activities and scientific researches, there are also unavoidable tacit elements. I am confident that the combination of the metaphysical approach and the non-metaphysical approach will enhance our understanding of the problem of articulation.

Finally, this discussion of the theory of tacit knowledge helps sensitize us to several distinctions concerning the problem of articulation of knowledge. In the first place, there is the distinction between what is articulatable and what is unarticulatable. As Grimen rightly points out, the theory of tacit knowledge has no interest in anything which is completely unarticulatable. The object domain of the theory of tacit knowledge is knowledge, and knowledge can always find a mode of articulation, though it may not be the mode of verbal articulation. Secondly, there is a distinction between what can in principle be articulated by verbal means and what cannot. This distinction is a bit complicated. It covers two finer sub-distinctions into which we might look carefully.

As mentioned above, modern Chinese philosophers hold that metaphysical wisdom/Truth cannot be said. This view has a long history in China and we can find its origin as early as in Laozi's *Dao De Jing* (approximately 571 B.C.—480 B.C.). The issue has been addressed again and again by later philosophers. The new contribution that modern Chinese philosophers make to the discussion lies in the fact that they, on the basis of rigorous logical analysis which they learn from their Western colleagues, define more clearly and accurately than ancient Chinese philosophers what they mean by “saying,” “language,” etc. They make it clear that the meaning of the claim that metaphysical wisdom/Truth cannot be said is that it cannot be articulated in propositions, which are mainly defined as descriptions of facts as with early Wittgenstein. In this sense, it is not the case that metaphysical wisdom/Truth cannot be said at all. For language cannot be reduced to a sum of propositions. There are other ways of saying besides descriptive propositions. For instance, poetic expressions (cf. Feng Youlan, 1894-1990) and metaphysical statements (cf. Jin Yuelin, 1895-1984) are two modes of non-propositional or even trans-propositional expressions that are recommended by modern Chinese philosophers to capture metaphysical wisdom/Truth. However, it is worth noting that, poetic expressions and metaphysical statements are trans-propositional expressions, although, they are not trans-verbal expressions. They are still two kinds of verbal expressions. They are within the limit of verbal articulation. It is exactly this limit that the theory of tacit knowledge attempts to transgress. Tacit knowledge in the strong sense is something that not only cannot be exhausted by propositions, but also cannot be exhausted by verbal means. It can only be articulated non-verbally, like an action. In other words, the modern Chinese discussion about the problem of the relationship

between the expressible and the inexpressible is carried out within the domain of verbal articulation, in which the distinction between propositional expression and non-propositional expression plays a central role. The theory of tacit knowledge, especially the strong thesis of tacit knowledge, however, is concerned about the distinction between verbal articulation and non-verbal articulation.

In the first section, we have the distinction between the strong thesis of tacit knowledge and the weaker ones. The strong thesis emphasizes the logical gap between our knowledge and verbal articulation. That is, tacit knowledge is a kind of knowledge that cannot be adequately articulated verbally. The weaker theses of tacit knowledge, including the thesis of conscious under-articulation, the Gestalt thesis of tacit knowledge, and the thesis of epistemic regionalism, do not affirm anything like a logical gap between our knowledge and verbal articulation. Tacit knowledge in the weaker sense is only knowledge that is not articulated by verbal means. It is not knowledge that in principle cannot be verbally articulated.

In other words, the strong thesis of tacit knowledge is concerned about the distinction between what is in principle verbally articulatable and what is not, while the weaker theses are concerned about what is verbally articulated and what is not in the domain of knowledge which is in principle verbally articulatable. In summary, the theory of tacit knowledge has no interest in the distinction between the articulatable and the unarticulatable. The strong thesis of tacit knowledge is concerned about the distinction between what is in principle verbally articulatable and what is not. The weaker theses are concerned about the distinction between what is verbally articulated and what is not, in the domain of knowledge which is in principle verbally articulatable. The Chinese discourse about metaphysical wisdom/Truth is concerned about the distinction between the propositional and the non-propositional within verbal articulation. In a word, on the problem of articulation, at least the aforementioned four distinctions should be taken into consideration. The theory of tacit knowledge strongly enhances our theoretical sensitivity towards these distinctions.

Endnotes

¹ Michael Polanyi: *Personal Knowledge—Towards a Post-Critical Philosophy* (London: Routledge, 1958): 264. Citations hereafter are in parentheses by title abbreviation (*PK*) and page number.

² Kjell S. Jonhassen: “Rule Following, Intransitive Understanding, and Tacit Knowledge”, in *Essays in Pragmatic Philosophy*, II, Norwegian University Press, 1990, pp. 104-5.

³ *Ibid.*, p.105.

⁴ *Ibid.*, p.105.

⁵ Harald Grimen “Taus Kunnskap og organisasjonsstudier” (“Tacit Knowledge and the Study of Organization,” LOS-Center, working paper, Bergen, 1991. This text is in Norwegian in the original. The English translation was first prepared by Bjoern Wikner, then improved by Judith Lasen and finally approved by Harald Grimen. This working paper is available from the author of this essay (email: Harald.Grimen@adm.hio.no). My discussion below uses some quotations from Grimen’s paper; when this is the case, the context identifies Grimen as the author.

⁶ Michael Polanyi: *The Study of Man*, (Chicago: University of Chicago Press. 1959), p.12. Citations hereafter are in parentheses by title abbreviation (*SM*) and page number.

⁷ Gilbert Ryle, “Knowing How and Knowing That”, in *Proceedings of the Aristotelian Society*, Vol.46. 1946, pp.1-16.

⁸ Michael Polanyi: *Knowing and Being, Essays by Michael Polanyi* (London: Routledge. 1969), p. 145. Citations hereafter are in parentheses by title abbreviation (*KB*) and page number.

⁹ Marjorie Grene: “Tacit knowing: Grounds for a revolution in philosophy”, *Journal of the British Society for Phenomenology*, Vol. 8, No. 3, October 1977, p.168.

¹⁰Michael Poalnyi and Harry Prosch, *Meaning*, The University of Chicago Press, 1975, p.34. Citations hereafter are in parentheses by title abbreviation (*M*) and page number.

¹¹ Michael Polanyi: *The Tacit Dimension*, (Garden City, NY: Doubleday: 1966) pp. 9-10. Citations hereafter are in parentheses by title abbreviation (*TD*) and page number.

¹² Cf. Recharad Gelwick: *The Way of Discovery—An Introduction to the Thought of Michael Polanyi*, Oxford University Press, 1977; Harry Prosch: *Michael Polanyi—A Critical Exposition*, State University of New York Press, 1986; Richard Allen: *Polanyi*, The Claridge Press, 1990; Jerry H. Gill: *The Tacit Mode: Michael Polanyi’s Postmodern Philosophy*, State University of New York Press, 2000; Tchafu Mwamba: *Michael Polanyi’s Philosophy of Science*, The Edwin Mellen Press, 2001. Stepania Ruzsits Jha: *Reconsidering Michael Polanyi’s Philosophy*. University of Pittsburgh Press, 2002.

¹³ Cf. Drusilla Scott: *Everyman Revived: The Common Sense of Michael Polanyi*, William B. Eerdmans Pulibshing Companyi, 1995, pp.45-61 . The first edition of this book was published by The Book Guild Limited in 1985.

¹⁴ The notion of “Tao” is not limited to Taoism. It was shared by different schools of thought in ancient China. It is rich in its connotations; here I focus on one of them, that is, metaphysical wisdom/truth.

¹⁵ Cf. YU Zhenhua: *How is Metaphysical Truth Possible?*. East China Normal University Press, 2000. Also, “How to say what can not be said?”, working paper, SVT (The Center for the Study of the Natural Sciences and the Humanities, University of Bergen), 1996, and its Chinese version in *Philosophical Researches*, no. 6, 1996; “A Critique of Modern Chinese Metaphyscis”, *Academic Monthly*, No. 9, 2002.

Works Cited

Jonhannessen, Kjell S. 1990. “Rule Following, Intransitive Understanding and Tacit Knowledge—An Investigation of the Wittgensteinian Concept of Practice as Regards Tacit Knowledge”, in *Essays in Pragmatic Philosophy*, II, Norwegian University Press.

Grene, Majorie. 1977. “Tacit Knowing: Grounds for a Revolution in Philosophy”, in *Journal of the British Society for Phenomenology*, Vol. 8, No. 3.

Grimen, Harald. 1991. “Tacit Knowledge and the Study of Organization”, LOS-Center, Bergen, 1991.

Polanyi, Michael. 1958. *Personal Knowledge*, Routledge.

_____. 1959. *The Study of Man*, The University of Chicago Press.

_____. 1969. *Knowing and Being*, Routledge.

_____. 1983. *Tacit Dimension*, Peter Smith.

Polanyi, Michael and Harry Prosch. 1975, *Meaning*, The University of Chicago Press.

Ryle, Gilbert. 1946. “Knowing How and Knowing That”, in *Proceedings of the Aristotelian*

Society, Vol.46.

Scott, Drusilla. 1995. *Everyman Revived: The Common Sense of Michael Polanyi*, William B. Eerdmans Publishing Company.

YU Zhenhua. 2000. *How is Metaphysical Truth Possible?* East China Normal University Press.
_____. 1996. "How to say what can not be said?", SVT Working Paper, Chinese version was published in *Philosophical Researches*, No. 6.
_____. 1998. "Reflection on the Controversy of Science vs. Metaphysics in Modern China", SVT, Working Paper.
_____. 2002. "A Critique of Modern Chinese Metaphysics"(in Chinese), *Academic Monthly*, No. 9.

Submissions for Publication

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Phil Mullins
Missouri Western State College
St. Joseph, Missouri 64507
Fax (816) 271-5680
Phone: (816)271-4386
E-mail: mullins@mWSC.edu

Walter Gulick
Montana State University, Billings
Billings, Montana 59101
Fax (406) 657-2187
Phone: (406) 657-2904
E-mail: WGulick@mSubillings.edu

Personal Knowledge and Human Creativity

Percy Hammond

ABSTRACT Key Words: Michael Polanyi, personal knowledge, tacit knowing, levels and hierarchies of knowledge, emergence, creativity.

The keystone of Polanyi's epistemology is his idea that tacit knowing integrates subsidiary knowledge and creates personal meaning. However, Polanyi's preoccupation with scientific discovery seems to have prevented him from developing the idea of tacit knowing in the context of human creativity. This omission leaves Polanyi with a static universe in which personal knowledge is subsumed under impersonal fields. This calls for further work.

1. Anthropocentric Knowledge

In the opening pages of his great work *Personal Knowledge*.¹ Michael Polanyi throws down his gauntlet to challenge the positivist philosophers who want to separate objective knowledge from human persons holding that knowledge. For this purpose he uses the example of the Copernican revolution, which replaced the geocentric by the heliocentric model of the earth and the planets. That change displaced the earth from its primary position at the centre of the universe and, in the minds of many therefore displaced humankind from its assumed role of special importance in our world. Polanyi believes that this is a mistaken conclusion.

He asks, 'What is the true lesson of the Copernican revolution?' and then answers that question in two stages. First, he accepts that the Copernican theory has greater objectivity than the Ptolemaic theory that preceded it. Secondly, however, he denies that this objectivity arises from replacing the egocentric view of the Ptolemaic system by objectively detached knowledge. He asserts that the reason why the Copernican view is more objective is because it is intellectually more satisfying. With great daring he writes, 'We abandon the cruder anthropocentrism of our senses-but only in favour of a more ambitious anthropocentrism of our reason.'²

No doubt Polanyi chose the word 'anthropocentrism' deliberately and provocatively. He was not an academic philosopher writing with scholarly detachment. Although *Personal Knowledge* is a work that has made a profound contribution to the study of epistemology, Polanyi had a wider purpose in writing it. He was engaged in the defence of human freedom, the freedom of science in particular and the freedom of thought in general. Nazi persecution had driven him and many of his colleagues out of Germany. He had studied Soviet Communism at first hand and had been appalled by its betrayal of freedom. Even while he was writing his book in England, he was fearful of the growing support for Marxist ideas in the universities of Britain and America and was afraid that central planning would destroy scientific freedom.

Beyond Polanyi's passionate desire to defend freedom lay the need to defend human values and meaning itself. Polanyi's last book is *Meaning* and it starts with the words, 'In a sense this book could be said to be about intellectual freedom. Yet its title, *Meaning*, is not really misleading, since, as we shall see, the achievement of meaning cannot properly be divorced from intellectual freedom.'³ However, even meaning in its various forms, as analysed in that book, is not Polanyi's primary concern. That concern is with what it means to be human.

This basic interest is very perceptively captured in Drusilla Scott's book *Everyman Revived*.⁴ Lady Scott takes as the framework for her discussion of Polanyi's ideas the mediaeval 'mystery play' *Everyman*, whose main character is summoned by death to give an account of his life to God. One by one, Everyman's friends, who are personifications of his qualities and possessions, desert him. These are Fellowship, Family, Goods, Discretion, Strength, Beauty and Five Wits. Only Good Deeds and Knowledge go with him to the end. In the play, these two represent the authority of the Church. In Polanyi's view, that authority has been replaced in our time by the tyranny of a misguided 'scientism', which 'fetters thought as cruelly as ever the churches had done'. Polanyi saw it as his task to 're-equip men with the faculties which centuries of critical thought have taught them to distrust'.⁵ Everyman's friends are to be re-instated because they are all essential to human knowledge. That is why Polanyi describes human knowledge as anthropocentric as well as personal.

2. Objective Knowledge

It was the contention of the positivists that the subjective component of human knowledge could be eliminated, or at least reduced, by relying entirely on direct observation of the external world. Polanyi uses the term 'anthropocentrism of the senses' to point out that such sense experience is always conditioned by the human observer and has no claim to be regarded as totally objective. Knowledge is inevitably personal knowledge. Moreover the 'anthropocentrism of our reason' has a greater claim to be regarded as providing truly objective information about the world.

Polanyi shows that this is so because the change is validated by subsequent developments. Thus in his example of the Copernican revolution, the heliocentric theory led Kepler to the laws of planetary motion and these led Newton to the discovery of universal gravitation. Newton's theory was found to be consistent with countless observations and was embodied in countless human devices and systems. Polanyi writes, 'a theory which we acclaim as rational in itself is thereby accredited with prophetic powers... In this wholly indeterminate scope of its true implications lies the deepest sense in which objectivity is attributed to a scientific theory'.⁶ The new features revealed by a theory confirm that this theory relates to the external world. Nevertheless such objective theories are human discoveries and achievements. They cannot be detached from human persons.

Polanyi reinforces his choice of the term 'anthropocentrism' by his insistence that he has in mind individual human beings rather than populations. In a lecture on emergence,⁷ he distinguishes between ideogenesis and phylogenesis and criticises the theory of adaptive evolution by natural selection as unable to account for the evolution of individuals. His concern is with individual human consciousness and with human beings as active centres of personal knowledge. He speaks of this knowledge as a personal achievement.

He is well aware that, taken out of context, his anthropocentrism can easily be misunderstood. His stress on human achievement might suggest subjective rather than objective knowledge. Such knowledge could be useful for the purposes of calculation without having to be accepted as having any deeper significance. That was the view urged on Copernicus by Osiander, who hoped thereby to avoid a conflict with the then prevailing Aristotelian ideas.⁸ Or it might imply agreement with Kant's notion that human knowledge of the external world is shaped by the structure of our minds and is therefore knowledge of appearances only, so that it cannot penetrate into the nature of 'things in themselves'. Polanyi dismisses this view and also the other Kantian idea that scientific theories should be treated as no more than working hypotheses.⁹

Anthropocentrism might also be mistaken for introspection or even narcissism, with the implication that personal knowledge consists entirely in the enjoyment of patterns in the mind, but these ideas are foreign to Polanyi's advocacy of personal knowledge. His contention is that true personal knowledge is objective knowledge of the external world, because it is validated by the implications of that knowledge. Moreover personal knowledge is no private possession. Polanyi describes the scientific community as a 'society of explorers'.¹⁰ This community accredits the discoveries of individual scientists.¹¹ Scientific knowledge is shared objective knowledge and it cannot be detached from human persons. For example, it is relatively easy to build and equip scientific laboratories, but without scientists brought up in the pursuit and the traditions of scientific research, such institutions will produce nothing of value.¹²

3. Tacit Knowledge

Scientism, in Polanyi's view, is not only destructive of human values but also thoroughly mistaken in its understanding of the nature of knowledge. Human knowledge does not consist of isolated facts available for inspection in the external world, because an act of observation is always a skilful performance. This idea leads Polanyi to what is perhaps his most valuable insight, which is that observation always has a tacit component. The concept of tacit knowing is the keystone of Polanyi's epistemology and the description and explication of tacit knowledge play a crucial role in all his philosophical papers and books.¹³ (He uses many metaphors and analogies and in this section they will be printed in italics.)

The paradigm for tacit knowing is the conscious act of visual perception. Perception is something that has to be learned and the learning process can be observed in the development of perceptive vision in infants. All perception involves bodily effort, as for example in stereoscopic vision, which requires the co-ordinated control of the eye muscles. It also involves mental effort, as for example in the recollection of a person's face. The successful combination of bodily and mental effort requires skill and is a personal *achievement*. That achievement depends on the operation of tacit knowledge, which is used with conscious *intent* and, although this is a logical procedure, the use of such knowledge is tacit because it cannot be formalised or stated explicitly.

The reason why such knowledge is essentially tacit is that it is *subsidiary* to the focal perception of the object that is being perceived. The act of knowing has a *from-to* structure, being directed *from* the subsidiary *to* the focal perception. The tacit component enables the person to *integrate* the *clues* leading to the *meaning* of the focal knowledge.

The chief instruments that we use in perception are our bodies. We do not (in general) focus our attention on our bodies, because we *indwell* them and use them to focus on the external world. We look *from* our bodies *to* the external world. To facilitate the *exploration* of the external world we use *tools* and *probes*, which we *interiorise* so that they become extensions of our bodies. The most important tool is the use of language, which distinguishes human beings from animals.

The interiorisation of tools requires effort and skill. One of Polanyi's favourite examples is the skill of interpreting X-ray photographs of human organs. Medical students have to learn the meaning of the shadowy outlines by listening to the explanations of experts. They have to use their *imaginative powers* to indwell the photographs in order to grasp the *meaning* of what they see. The use of the imagination requires *commitment*

to the belief that the experts are to be trusted and that there is meaning to be *discovered*. Commitment starts with the appreciation that there is a problem capable of *solution*. Commitment to a problem acts as a *heuristic field*, which draws the explorer to a solution of the problem.

The concept of tacit knowledge resolves several long-standing philosophical difficulties, such as the question how it is possible to search for an unknown object or how one can define a class of objects apart from a specific object. The answers lie in the unspecifiable components of commitment to standards of health and normality and to values. These components of tacit knowledge draw attention to the personal pole of knowledge. That personal aspect carries with it the possibility of a mistaken commitment. Polanyi illustrates this with reference to erroneous belief systems like the Zande belief in poison-oracles or the commitment to so-called scientific materialism. He does not regard the possibility of error as a weakness, but glories in it as an opportunity for the exercise of personal responsibility. The human calling to knowledge requires the commitment to hold and to declare that knowledge *with universal intent*. This distinguishes personal knowledge from merely subjective opinion.¹⁴

It might be thought that tacit knowledge could be made explicit by focusing attention on it as on an external object. That is, however, impossible because focal attention destroys the action of tacit knowledge. For example, if a concert pianist diverts his focal attention from the score to the motion of his fingers, he can no longer play the musical composition. Another example given by Polanyi is an experiment with inverting spectacles. Although the wearer knows explicitly how to correct his movements, he is unable to find his way until his tacit knowledge has been realigned and that requires a lengthy learning experience. The integration produced by tacit knowledge is not merely a summation of knowledge but the perception of a new coherence. Subsidiary and focal knowledge act together, but they act differently. A tool becomes a tool when it is used as a tool.

This gives insight into the mind/body problem. Thus a physiologist examining the brain of a patient might conceivably obtain complete knowledge of all the neural processes involved in the patient's act of perception, but he would not see what the patient is seeing. Focal attention to the brain cannot reveal the subsidiary knowledge used by the brain. The physiologist attends to the brain as an external object, whereas the patient indwells the brain and uses it as a tool. Thus the mind can be regarded as the meaning of the brain.

How then can one understand the mind of another person? Polanyi explains that this needs empathy. First of all, we need to *affirm* the other person as a *functional* whole rather than a collection of behavioural properties. Then we need to pay close and imaginative attention to the other person in order to achieve an indwelling in his personality as a whole. We have to look out of his eyes rather than into his eyes.¹⁵

This short account of Polanyi's concept of tacit knowledge cannot do justice to the range and importance of the ideas involved. It is a concept that needs long and careful attention so that one can indwell it and use it as a tool. A danger that has to be avoided is to regard tacit knowledge as a single object, because that would be equivalent to an attempt to render it explicit rather than tacit. Tacit knowledge describes an operation rather than an object. By virtue of our common humanity, every person will have large areas of common tacit knowledge, but as an individual there will also be differences. The nature of individuality precludes us from fully entering into the tacit domain of another person. Moreover, an individual will use different parts of his tacit knowledge under different circumstances. Different kinds of tacit knowledge are involved in riding a bicycle or in solving a crossword puzzle. Sometimes Polanyi seems to treat tacit knowledge as a unique entity and this leads to difficulties, which we shall discuss in the next section of this paper.

4. Levels of Knowledge

The dehumanising effect of the objectivist analysis of human knowledge, against which Polanyi was contending, is seen particularly in the idea that whole entities must be explained by dividing them into their constituent parts. This reductionism has been taken to imply, for example, that the behaviour of living beings can be described entirely by the laws of physics and chemistry. Polanyi repeatedly cites the famous statement of Laplace that complete knowledge of the past and the future of the universe would be available to an intelligence that knew the forces and positions of all material bodies at a particular instant of time¹⁶. He argues that, since such Laplacian information would consist entirely of co-ordinates and impulses, it would be virtually meaningless. In his view, the followers of Laplace have substituted, by a conjuring trick, knowledge of experience for knowledge of atomic data. Modern claims that all study of living beings can be reduced to molecular biology constitute a return to this mistaken Laplacian ideal.¹⁷

Polanyi counters reductionism by reference to the operational principles of machines, which he explains as follows. Machines operate under dual control.¹⁸ At one level, they obey the laws of physics and chemistry. However, these laws are insufficient to explain the function of a machine, although they can account for its failure. Dual control is exercised by an operational principle, which imposes boundary conditions that are not controlled by the laws of physics and chemistry. Thus the machine operation needs two levels of explanation. At one level the operation depends on physical and chemical topography described by the laws of physics and chemistry and at another level the operation depends on the topography of the materials used in the construction of the machine. A natural choice is to regard the construction of the machine as providing the higher level and the laws of physics and chemistry as providing the basic lower level. This description in terms of levels is analogous to the description of tacit knowledge in terms of subsidiary and focal components. There is a further analogy inasmuch as the operation of tacit knowledge provides meaning at the focal level and the function of the machine provides an independent meaning, which is not inherent in the subsidiary laws by themselves. Just as focal knowledge cannot be reduced to subsidiary knowledge, so the operational principles of machines cannot be reduced to the laws of physics and chemistry. Reductionism therefore cannot be applied successfully to the operation of machines nor indeed to any whole entity that possesses a functional property. *A fortiori*, it cannot be applied to living beings.

The use of the term 'level' is metaphorical. In its primary use it refers to the height or depth referred to an arbitrary datum such as sea level. The choice of datum level does not matter when the levels of two objects are compared, but when there are more than two objects there has to be an agreed common datum. The use of the metaphor of level becomes confusing when more than one meaning is to be ascribed to a particular level. Polanyi moves from two-level structures such as occur in particular instances of tacit knowledge to the multiple levels of hierarchical structures of meaning. His favourite example is the hierarchy involved in making a speech. Voice production, which is the lowest level of speech, leaves open the next level, which consists of the combination of sounds into words controlled by a vocabulary. The next level consists of the combination of words into sentences controlled by the rules of grammar. At the next higher level sentences are combined into style controlled by the principles of literary criticism. Above this is the speech itself controlled by the principles of rhetoric. Each level is subject to its own controlling principles and is open to the next higher level, which exercises marginal control on it. The attempt of reducing a level to the one below it destroys the meaning of the higher level.¹⁹

This idea of hierarchies of meaning is effective in showing the weakness of a reductionist approach. It has a wide appeal to philosophers of science. Peacocke takes it as the paradigm of the scientific attitude. He speaks of nature's hierarchies and distinguishes between hierarchies of natural systems and of scientific theories.²⁰ Polanyi links hierarchies of meaning with hierarchies of living beings in the context of evolutionary theories. He writes that living beings form a sequence of levels controlled by a series of boundary conditions, which stretch from the lowest level of the forces of inanimate nature to the highest level of man's responsible choice.²¹

Although the idea of hierarchical structures is attractive in providing a unifying metaphor, particularly in biology, it faces some severe difficulties. Consider the example of the making of a speech, which Polanyi uses on many occasions. First there is the problem of applying the idea of level to objects like sentences. Apparently the use of the term is connected with the complexity of the object. Certainly a sentence is more complex than a word because it consists of a combination of words. However, Polanyi's discussion is concerned with the meaning of the sentence and not with the number of words. The meaning may not be improved by making the sentence more complex, nor is it easy to understand what is meant by the level of a meaning. Perhaps that difficulty can be set aside by speaking of the function of a sentence or the complexity of its functions. However, it is not certain that the functions of sentences are more complex than the functions of words. How then does one assess the levels in this hierarchy?

An even greater difficulty arises from the lack of uniqueness of this hierarchy. The hierarchy as an entity does not uniquely give the choice of the terms. Sentences could be divided into types of clauses or different kinds of logical assertions. Words do not necessarily have to be divided into sounds. In fact such subdivision is very difficult to consider as meaning. Speeches do not just consist of style but of content, nor does style generally refer to sentences. The hierarchy lacks cohesion, or at any rate it lacks independence. The trouble with Polanyi's operational principles is that these do not stand alone, but form an intricate web of connections. Reference to the operation of tacit knowledge suggests that instead of a hierarchy of connected entities one is faced with a non-denumerable network of branches and loops. As in an electrical, or neural, network there will be many connections, but no single hierarchical ordering.²² Thus in Polanyi's example of a machine there are many operational principles and many boundary conditions besides those of shape and choice of material. The design of a machine does not consist of the discovery of a hierarchy of meaning but in the examination of a bewildering number of variables subject to many different constraints. An engineer has to select the variables that appear to be most significant and to arrange them in groups of manageable size having related properties. Thus in the example of a machine consideration has to be given to such matters as the 'fitness for purpose' of the device, its efficiency, the human and material resources available for the design and manufacture, the properties of the materials and their availability and cost, the energy requirements, safety in manufacture and operation, reliability, life expectancy and the environmental impact. A compromise has then to be achieved between the different constraints. It is difficult to see how these variables could possibly be arranged in hierarchies of meaning as in Polanyi's scheme. He dismisses the complexities of engineering by referring to them as consisting of an interest in 'momentary constellations foreign to the scientist, whose eye is fixed on the inner law of nature'.²³

In the context of tacit integration the idea of the two levels of subsidiary and focal knowledge works well, but in its extension to hierarchies the idea of multiple levels is not so successful. It seems that Polanyi in his attack on reductionism has left out the personal aspect of the tacit operation. He treats the hierarchies as if they were explicit structures of knowledge and does not take sufficient account of the unspecifiable element in

all perception of meaning. The metaphor of a hierarchy appears to have become disconnected from Polanyi's central theme of personal knowledge. Just as there are no impersonal objective facts, so also there cannot be isolated hierarchies of meaning arranged in levels. The choice of significant features of an entity is, like the recognition of the entity itself, a human choice and indeed Polanyi makes this very explicit in his discussion of the scientist's choice of a scientific problem.

5. Emergent Knowledge

Polanyi uses the idea of operational principles very effectively in his consideration of the nature of living beings. After showing that human persons are actively involved in acquiring knowledge by solving problems, he notes that this leads to the acknowledgement of similar powers in other persons. That acknowledgement implies the recognition of the skilful performances of other persons and so there emerges a correspondence between the structure of comprehension and the structure of the comprehensive entity, which is the object of that comprehension.²⁴ This involves acts of recognition, which by relying on tacit knowledge enable us to recognise the behaviour of all sorts of comprehensive entities

Polanyi then asserts that human skills can be arranged in hierarchical order and cites again the example of a literary composition. From this, he infers that there is a similar hierarchy of levels in living beings. In particular, living beings are distinguished from inanimate objects by their possession of purposive functional behaviour subject to operational principles. Like the operational principles in machines, these principles in living beings are subject to failure. That shows the impossibility of reducing them to the laws of physics and chemistry. They relate to a higher level that has emerged from inanimate matter.

In the hierarchical structure of levels of being, each level is controlled by a higher one and no level can gain control over its own boundary conditions. Hence it cannot bring a higher level into existence. Thus the existence of higher levels entails the operation of a process of emergence. Polanyi writes, 'If this be vitalism, then vitalism is mere common sense, which can be ignored only by a truculently bigoted mechanistic outlook'.²⁵

Polanyi bases his 'vitalism' on the recognition of functional behaviour in living beings. Tacit knowledge is involved both in the recognition of such functions and in the operation of the functions. The essential role played by tacit knowledge distinguishes Polanyi's approach to functional behaviour from Aristotle's belief in 'final causes'. However, when at the end of *Personal Knowledge* he attributes such behaviour to inanimate matter, he does come close to Aristotle.²⁶

Polanyi's 'vitalism' and his belief in hierarchical levels of operation lead him to the belief that there is an emergence of higher levels. This is a 'personal' theory of evolution, whereas, in his view, the theory of evolution by natural selection is impersonal and cannot account for the emergence of single individuals of a higher species. Personal emergence is exemplified by the development of the mental powers of human infants and children. Moreover the theory of evolution by natural selection is based entirely on self-preservation and something more is needed to account for the moral sense of human persons and for the human sense of obligation to standards and the reverence due to men greater than oneself.²⁷

In the closing pages of *Personal Knowledge*, Polanyi attempts an evolutionary theory that will account for emergence. He suggests that the tacit component of human knowledge is a feature of a more general entity of a 'biological field', which produces emergence.²⁸ This field is associated with a gradient of potential

achievement and is observed in the heuristic processes preceding human discoveries.

Polanyi uses the terms ‘field’ and ‘gradient’ as metaphors relating emergence to physical processes. The usefulness of a metaphor depends on the link it establishes between the normal meaning of an expression with a novel usage in a different context. The term ‘field’ became prominent in science through the discovery of electromagnetic waves by J C Maxwell (1831-1879). Maxwell replaced the idea of electrical particles acting on each other at a distance by the idea of a contiguous field of distributed energy and momentum in space and time. The subsequent development of relativity theory showed that space and time had to be considered as a single entity of space-time. Strictly speaking there are therefore no static spatial phenomena independent of time. However, for purposes of calculation, the time variation can sometimes be neglected in phenomena in which the motional energy is small. In such approximations the field can be described in terms of its gradient. Polanyi’s metaphor of a gradient field therefore carries with it the notion of something unchanging in time. The use of a gradient field in the description of something dynamic like emergence would appear to be highly unsatisfactory. The difficulties in Polanyi’s analogies are indeed formidable. In any case physical fields belong to the level of ‘the laws of physics and chemistry’ that Polanyi frequently calls ‘mechanistic’ and that he contrasts with the personal features of knowledge operating at a higher level. It is surely unsatisfactory to invoke entities from a lower level to account for those at higher levels and Polanyi has already declared that this is impossible. Thus the field metaphor seems to involve a contradiction. Moreover physical fields can be observed and measured, whereas emergence appears to be indeterminate and unspecifiable like tacit knowledge. A strong further technical objection of the metaphor is that gradient fields are, as already mentioned, static in time, whereas emergence is related to temporal change. All in all it comes as rather a disappointment to find that a book that starts with a ringing declaration of personhood ends by attributing the emergence of personal knowledge to an impersonal and unchanging field.

6. Personal Knowledge and Human Creativity

Polanyi does not often use the word creative. Occasionally, he refers to ‘creative imagination’,²⁹ but he fights shy of crediting human beings with creativity. It may well be that he was afraid that creativity was too close to the limitless aspirations of totalitarian systems with their repudiation of traditional values. Polanyi’s essays ‘Beyond Nihilism’³⁰ and ‘The Two Cultures’³¹ with their analysis of the malign influence of Rousseau and the French *philosophes* is important in this context. He relates Rousseau’s assertion of intrinsic human rights of creative spontaneity to the glorification of the noble savage. These views contrast sharply with the work of Polanyi’s friend Arthur Koestler, whose book *The Act of Creation*³² was published six years after *Personal Knowledge* and nine years before *Meaning*. For Koestler, personal knowledge is invariably an act of creation. This difference in emphasis of two writers who shared similar ideals is no doubt largely due to the fact that Polanyi was a scientist before turning to philosophy, whereas Koestler had a literary background. Polanyi was aware of the divergence of the ‘Two Cultures’. In his essay with this title, written in answer to C P Snow’s original essay,³³ he suggests that Snow’s analysis does not go far enough.³⁴ The perceived gulf between the literary and the scientific cultures is not merely due to the ignorance of science by workers in the humanities, as suggested by Snow, but is due to the mistake of accepting scientism as representing true science. Polanyi contends that literary culture is being destroyed by its acceptance of scientism into its own system.

Although Koestler’s work lacks the careful analysis undertaken by Polanyi, the stress on human creativity supplies a gap that exists in Polanyi’s work. With scientific knowledge as the paradigm of all human

knowledge, Polanyi speaks of discovery and problem solving rather than creativity and novelty. Polanyi's terms stress the universal pole of human knowledge, but they do not give full weight to the personal pole. He is dismissive about 'inventions', because their importance depends on external economic constraints, whereas 'the validity of a scientific observation cannot be affected by changes in the value of goods'.³⁵ Elsewhere, he writes that invention is a kind of 'trick learning', while scientific discovery is an 'act of interpretation'.³⁶ Technology is therefore an ephemeral activity compared with scientific research.

Underlying these reflections is Polanyi's conviction that science is a bulwark for truth and that 'The Republic of Science'³⁷ is the guardian of 'The Free Society'.³⁸ In their pursuit of scientific truth, scientists combine what is best in traditional beliefs and values with the liberty to question and explore. They 'indwell' the scientific tradition and by means of this tacit knowledge are enabled to 'break out'³⁹ into new insights.

There is much to be said for this vision of reality in a relativistic age such as ours. Unhappily, Polanyi's ideal scientific community of committed scientists no longer exists and perhaps it never existed, although his account of the scientific community in Berlin in the years before Hitler comes close to the ideal.⁴⁰ However, the disaster that overtook that community and scattered its members shows that scientific research cannot operate in isolation, nor can universities sustain the load of acting as isolated bulwarks of free enquiry. Even more serious for Polanyi's visionary scheme is the objection that scientific research is too narrow in its scope, because it omits vast areas of human activity. In particular, it overlooks human creativity in the fashioning of tools and the construction of useful devices and systems.

Creativity is more than discovery or problem solving, although it plays a part in those activities. Engineering design, for example, is concerned with the creation of entities that do not yet exist. An electric distribution system is not something that can be discovered, nor is it a problem that can be solved, but it is a newly created entity, creating value for society.⁴² Similarly, musical composition and the visual arts do not easily fit into Polanyi's scheme of discovery. Probably even scientific discovery has a stronger component of creation than he admits. There is a difference between the discovery of America, which is a favourite analogy used by Polanyi, and the discovery of relativity theory. The discovery of America is an example of the anthropocentrism of the human senses, whereas the discovery of relativity theory is an example of the anthropocentrism of the human reason. In both examples, the underlying phenomena were observed, shaped and interpreted by human beings, but the discovery of relativity theory required greater creativity.

The omission of creativity in Polanyi's otherwise masterly exposition of human knowledge is related to his treatment of time. Polanyi uses a so-called 'tenseless' approach to time, which distinguishes between earlier and later but which does not account for the direction of time and for causality.⁴¹ His vitalism describes the functional behaviour of living beings, but stops short of crediting them with powers of independent causation. Alongside and behind the personal activity of human beings he posits the action of a cosmic field. In spite of his brilliant insight into the tacit component of knowledge, Polanyi's world does not make allowance for the creation of new entities.

Polanyi's legacy is manifold. He set himself the task of defending freedom of thought and in doing so, he rediscovered that thoughts require thinkers and that truth requires persons committed to truth. In particular he reacted against the corrosive influence of scientism, which as a practising scientist he knew to be mistaken both in its methods and its conclusions. This fight against scientism is still necessary for the defence of freedom because, as Polanyi saw clearly, scientism inevitably leads to nihilism and to the destruction of society. However,

Polanyi's concentration on scientific knowledge restricted his vision and did not allow him to affirm human creativity as strongly as personal knowledge. Such an affirmation and elucidation await the arrival of his successors.

Endnotes

Acknowledgement: My warm thanks are due to my friend and colleague Kurt Schwarz for many stimulating discussions on this and related subjects.

¹ Michael Polanyi, *Personal Knowledge*, Routledge & Kegan Paul 1962

² *PK*, pp. 4-5.

³ Michael Polanyi and Harry Prosch, *Meaning*, University of Chicago Press 1975, p. 3.

⁴ Drusilla Scott, *Everyman Revived- The Common Sense of Michael Polanyi*, The Book Guild 1985.

⁵ *Everyman Revived*, p.16.

⁶ *PK*, p. 5.

⁷ Michael Polanyi, *The Tacit Dimension*, Doubleday 1966, p. 48.

⁸ *PK*, p. 146.

⁹ *PK*, pp. 306-308.

¹⁰ *TD*, Chapter 3.

¹¹ Michael Polanyi, *Knowing and Being* (edited by Marjorie Grene), University of Chicago Press 1969. See especially the essay 'The Republic of Science' (1962) and the autobiographical essay 'The Potential Theory of Adsorption' (1963).

¹² *PK*, pp. 53 & 182

¹³ *PK*, 'Part Two: The Tacit Component', *TD* chapter 1, and *KB*, which has four essays under the general title of 'Tacit Knowing'. Of particular interest are 'The Logic of Tacit Inference' (1964), 'Tacit Knowing: Its Bearing on Some Problems of Philosophy' (1962), and 'Sense Giving and Sense Reading' (1967).

¹⁴ *PK*, 'The Structure of Commitment', pp. 308-316.

¹⁵ *PK*, pp. 262-264

¹⁶ *PK*, pp. 139-142.

¹⁷ *KB*, p. 236.

¹⁸ *TD*, pp. 38-40, *KB*, pp. 175-176, 217-219, 226-227.

¹⁹ *TD*, p. 41, *KB*, pp. 154-155, 233.

²⁰ A R Peacocke, *Creation and the World of Science*, Oxford University Press 1979, pp. 113-115.

²¹ *KB*, pp. 233-238.

²² The idea of a single hierarchy of knowledge is a type of 'nomological monism' and is part of the quest for 'grand unified theories (GUT)', which in the words of Stephen Hawking would enable us to 'know the mind of God'. It is part of the belief system of popular scientism.

²³ *PK*, p. 178.

²⁴ *PK*, pp. 347-354.

²⁵ *PK*, p.390.

²⁶ Philip Clayton, 'Emergence, Supervenience and Personal Knowledge', *Tradition And Discovery*, Vol. 29, 3, pp. 8- 19. Clayton does not make this distinction.

²⁷ *PK*, p. 396.

²⁸ *PK*, pp.398-400.

²⁹ See, for example, Polanyi's paper with this title in *Chemical and Engineering News*, Vol. 44, April 1966, pp. 85-93. This paper is included in the collection edited by R T Allen: *Society, Economics and Philosophy – Selected Papers by Michael Polanyi*, Transaction Publishers, New Brunswick, New Jersey 1997.

³⁰ *KB*, pp. 3-23.

³¹ *KB*, pp. 40- 46.

³²Arthur Koestler, *The Act of Creation*, Hutchinson 1964.

³³C P Snow, *The Two Cultures and the Scientific Revolution*, The Rede Lecture, Cambridge University Press 1959.

³⁴'Two Cultures Revisited: Polanyi on the Continuity Between the Natural Sciences and the Study of Man', *Tradition And Discovery*, Vol. 28, 3, pp. 6-19. Yu argues that the theory of tacit knowing establishes a continuous transition from the study of the natural sciences to that of the humanities.

³⁵PK, p. 177.

³⁶PK, p. 76.

³⁷KB, pp. 49-72.

³⁸*Meaning*, pp. 198-216.

³⁹PK, pp. 195-202..

⁴⁰KB, pp. 97-104.

⁴¹K K Schwarz, *Design and Wealth Creation*, Peter Peregrinus 1990.

⁴²Michael Tooley, *Time, Tense and Causation*, Oxford University Press 1997. It is interesting to note that the equations of science do not embody the direction of time, although the phenomena described by the equations do so. A view of the world based on equations is therefore essentially static in the sense that both the future and the past are real. Causation is a feature of a dynamic world, in which the future is open and not real. Laplacian views assume a static universe. Polanyi's tacit knowing could fit into the structure of a dynamic universe, but Polanyi did not discuss this aspect. This needs further investigation.

Notes on Contributors

Richard Gelwick (rprogel@juno.com) was a medical humanist at the medical school of the University of New England before he retired. He also was for many years General Coordinator of the Polanyi Society. Gelwick published the first bibliography of Polanyi's non scientific writing and is also author of *The Way of Discovery; An Introduction to the Thought of Michael Polanyi*. He has been a frequent contributor to *TAD*.

Walter Gulick (WGulick@msbillings.edu) has recently retired from his position as a professor at Montana State University, Billings. He became a member of the Polanyi society at its founding in 1972 and is today the General Coordinator of the Polanyi Society as well as Book Review Editor for *TAD*.

Percy Hammond (P.Hammond@soton.ac.uk) is a retired professor of electrical engineering. His speciality is the design of electrical machines. He has written several books on engineering electromagnetics. He is a Fellow of the Royal Academy of Engineering and of the Institutions of Electrical and Mechanical Engineers.

YU Zhenhua (ecnuyu@hotmail.com) is a professor of philosophy at East China Normal University, Shanghai, China. Now he is working on the theory of tacit knowledge/knowing for his second doctoral degree at University of Bergen, Norway.

A Disembodied Adventurer

Richard Gelwick

ABSTRACT Key words: James Hall, Patton Howell, Jungian psychology, pontine stroke, locked-in syndrome, mind-body relationship, Michael Polanyi's theory of knowledge, ethical care for stroke victims, life of the mind without body.

This review introduces the account of Polanyi Society member James Hall's rare survival of a pontine stroke. With the help of Patton Howell, the story leads to the clinical and philosophical meaning of a life virtually without body experience yet rich in intellectual and spiritual activity.

Patton Howell and James Hall. *Locked Into Life*. Boise, Idaho: Tea Road Press, 2002. Pp 213. ISBN 0-9708666-2-3. \$28.95, hardcover.

Introduction

On April 11, 1991, James Hall, Jungian psychiatrist, was on his way to give a paper at a Polanyi centennial conference that was being held at Kent State University.¹ En route he suffered a pontine stroke, an event from which 1 in 10 survive. *Locked Into Life* is a joint account by a forensic psychophysicologist, Patton Howell, and James Hall. Howell was foremost in saving Hall from being terminated by his medical attendants and in rehabilitating Hall's capacity to live and to tell the adventure of living as virtually a mind without a body.

Hall is among the early followers of Polanyi's work on theory of knowledge. He was a medical student at Duke University when Polanyi gave the Duke Lectures (1964), and he saw a connection between Polanyi's subsidiary and focal awareness that contributed to Hall's understanding of Jung's use of the concepts conscious and unconscious. Over the years, Hall pursued this insight, and he participated from time to time in meetings of the Polanyi Society.

From Locked-In to Breakout

The account of Hall's stroke and surviving to experience a new way of being is startling. In story form, Patton Howell begins by taking the reader into a world unknown and dreaded by most humans. Hall's injury is not an illness to be cured. The pons is a cerebral bridge of communication between our lower brain and our higher brain. The trauma of the stroke has destroyed part of Hall's mid-brain. The lower brain that allows the body to continue functioning is still working but the higher brain is cut off from communication with it. The body is basically paralyzed from the neck down while the eyes connected to the higher brain still move though with little control if any. Normal measurements for brain death could not tell whether Hall had cognitive function. This condition is known as the locked-in syndrome. It presents one of the most difficult challenges to caregivers and to personal relations of the victim. How do we know whether the person is conscious or is vegetating on the intravenous feeding?

On the way to the Polanyi conference, Hall was experiencing disorienting symptoms as he drove from the airport. In Akron, he sought the address of a hospital, but he could not find it. He was found leaning on the blaring horn of his rental car parked on the side of the road. After receiving emergency care, Hall was flown

to Dallas, his home city. There Hall was given standard care for persons in his condition, which left open the question as to whether James Hall was really there.

For a number of years, Hall, Patton Howell, and Bill Moore – a psychiatrist, had formed a special fraternity of their own sharing regularly professional experience and speculations on the relations of their specific fields. Confronted with Hall’s condition and as friends of Hall’s wife, Susanne, they were confident that Hall’s intellectual strength might save his mind from breaking down as he suffered the isolation of the locked-in syndrome. In direct opposition to medical staff opinions, Howell and Moore set about to discover the existing mind of Hall. They used what Polanyians would recognize as “indwelling” to put them into the mind of Hall. They remembered their times together, thought of the mind of Hall as within them, and they talked to Hall out of this framework.

One day after a therapist had tested Hall for visual response with letters on plastic cards, the therapist concluded there was no cognitive activity. After the therapist left, Moore and Howell did their own experiment with their own cards that were larger and set further apart making them easier for Hall to indicate, if he could. They had to observe very carefully for a contextually long stare compared to the usual involuntary eye blinks. With patience much greater than Hall’s caregivers, they found that Hall was conscious and able to communicate through a spellboard. This breakthrough led to enhancement of Hall’s ability to communicate by having a specially designed computer that reacted to his eyes. As Hall grew in strength of mind through his interactions with Powell, Moore, and Mrs. Hall, his mind also began to organize and to recall his thoughts from the time of his stroke. Hall also became more creative in his use of his mind to communicate. He found that in his state, he was free of the burdens and confusions of the body. He could now think twenty-four hours a day. The mind never sleeps, he says. The mind is either awake or dreaming.

Hall now lives at home. Therapy has helped him to be able to swallow, to have some movement of his arms and of his body. Advanced computer technology has also enabled him to peck at a computer keyboard so that he is not limited to the earlier eye-sensitive spellboard. He even receives visitors and does interpretations of their dreams. For him, his new existence is primarily a world of the wonderful reality of mind.

Personal Knowledge and Medicine

There are many potent implications in Hall’s case, and one of them is the significance of Polanyi’s theory of personal knowledge for medicine. Hall’s case is typical of the mistaken fallacy of detached and impersonal knowing as being the most objective knowing and the best medicine. Hall’s official caregivers were prisoners of this fallacy, and they nearly executed Hall in their prison. Patton Howell and Bill Moore are qualified health professionals, but they also were inclined to consider the truth of their total experience. Their work and earlier discussions had already prepared them to consider that human minds are more than brains. They knew Hall well and believe that his active and intelligent mind would fight, if it could. Their belief led them to look for ways to get in contact with Hall’s mind, and they found that their belief was true. Underlying this specific case is the general need for medicine and health care to keep the patient as person at the center of practice.

Hall’s case demonstrates a number of good practices for medical care. One is relating to the presence of the patient personally. Powell and Moore noticed that the care team treated Hall the same way that normal cats treat a decorticated cat, a cat that has its cortex separated from its higher brain. Exposed to a decorticated cat, other cats ignore it and regard it as dead even when the decorticated cat is stimulated to snarl, show its fangs

and to claw. Caregivers spoke over and around Hall as if he were not there. Significantly, the first sentence that Hall spelled answered his caregivers: “I demand to live asshole.”²² It is standard training for caregivers to speak with awareness that hearing is one of the last senses to go, yet the attitude of scientific detachment so pervades the medical culture that this training is often forgotten.

Another important medical lesson in this case is the hope for stroke victims shown by Patton Howell. It is clear as you read the book that Howell has worked with other stroke victims, and he is battling society and the established medical culture to give better care for these persons. He even goes so far as to point out that with the technological advances of medicine it is now less costly to maintain a person like James Hall than an average American going about their normal affairs. Howell dares to speculate that in the future with the advantages of longer life, we could have a large population of persons still enjoying life through their minds even though they have had strokes.

Finally, the great Hippocratic ethical precept “to do no harm” is seen as Howell and Moore contend with the medical staff. While this standard is normative in medicine, borderline cases do not always receive its protection. Howell points out that each stroke case is unique and related to the person’s whole life development. One of Hall’s attending psychiatrists says before Hall’s breakthrough that it is too much of a burden on family and friends and Hall might live in this condition indefinitely. Howell appeals to “the great philosopher of the nineties, Michael Polanyi” who “has pointed out that if we cannot escape the habit of relying on observers then let us at least rely on good observers who are trained to report their experiences as objectively as possible.”²³ Howell’s point here was about the importance of taking seriously in science and in philosophy Hall’s post locked-in reports of his experience. But the point applies again to the danger of medicine’s doing harm because of its mistaken paradigm of objective scientific knowledge that tends to discount the specific evidence in front of them.

The Mind According to Hall and to Howell

One of the principal and strongest claims of Hall and of Howell is that this is “not a story about physical tragedy but about the ability of the mind to exist without body.”²⁴ The mind-body issue is woven throughout the story and the appendices as Hall and Howell learn what existence without a normal body connection between brain and mind means. One meaning is that a person can have a high level of cognitive function with fewer brain cells than we normally have. When Howell and Moore were contending for the quality of Hall’s mental life after the spellboard breakthrough, chief hospital staff still doubted the significance of it. Then Howell gave Hall the Weschler Adult Intelligence Quota test with some adaptation in timing of responses due to Hall’s having to use the spellboard. Hall was timed according to his signal that he had an answer. Then he was given time to spell it out. On this measurement, Hall scored 135, the same score he had made when he was a medical student.

A second meaning of mind without body is familiar to Polanyians who see in Polanyi’s thought that the mind is not reducible to its material parts. Polanyi not only held that the whole is more than the sum of the constituent parts but also has a reality at another level. For Hall and Howell, this is clearly seen in the fact that Hall’s new way of being is manifesting independence as Hall’s thought remembers, theorizes, contemplates, and addresses not only his wife and friends but also the intellectual world.

This independence of mind that Hall and Howell emphasize is essentially non-dependent upon Hall’s current sensory experience. Hall is thinking and generating freshly from the physical, cultural, professional, and

spiritual background of his life. Hall is not limited to the sensory experience or the ideas in his past. Hall is free to explore and to grow in his new way of living without the body's sensory communication with his brain.

Hall gives an account from major stages of his learning about the meaning of his altered mind-body condition. The first one is that at first he had to contend with the dissolving of his mind, as he was isolated from communication with others. He could hear others talk, and he mentally repeated their conversations and replied to them mentally to keep his mind going. He felt like he was in a "white fuzziness."⁵ Sounds are different because there is no body resonance. He cannot even feel his own breathing. At first, he wondered if he were alive or in the state after death. A second stage occurs as Hall is liberated by the spellboard. In this stage, Hall describes himself as free from the self-centeredness of the body's demands. Even a beautiful woman is not sexually attractive to him, as she would have been before. There is no sense of loss here but instead a feeling of gain as the mind now dominates his existence. The third stage builds on this premise of the mind without the limits and burdens of the body's demands. Hall feels that he is given a new opportunity of redemption and begins to speak of spiritual matters. He now feels that he is able to engage in living spiritually and has the opportunity to bring something beautiful back to the world.⁶ Following Jungian therapist Barbara Hannah, Hall asserts: "Mind constructs an immaterial space of its own."⁷ Over a lifetime, mind creates a soul, which lives beyond the body. Sin is the willful dissolution of the mind. Finally, Hall shares in the appendix seven visions that have come to him as he has lived in his mind or soul for ten years.⁸

The visions from Hall's mind show his creative life. Vision #1 sees the universe from the moment of singularity as a "Big Thought" rather than a "Big Bang." Hall says, "Pure mathematics describes best what was intangibly present at the beginning – intangible thought." Vision # 2 says that the "Great Thought" that was at the beginning is still with us and has become overlaid with physical matter. Vision #3 sees in quantum physics' wave-particle theory an analogy to Hall's experience of mental colors – red, yellow, green, blue, and purple. "This energy is mental flickering between elemental thought and elemental matter."⁹ Vision #4 sees elemental particles overlaid by elemental relationships. Over time, these organize into molecules that in turn are broken down and reformed at random. There is a gradual direction from "a higher command of ideas" that leads to body that has brain and mind. Vision # 5 describes molecular matter and life not as a new creation but as a further development of the immaterial beginning. Vision # 6 has some epigrammatic statements on human beings such as: "Human thought has used matter as a mirror to see its own message." And "...physical matter has become a page upon which to write our thoughts, a mirror in which to see ourselves, "I" the essential human being, is thought."¹⁰ Vision #7 sees human beings as on the beginning of communion with the Great Thought at the beginning of the universe. This standpoint opens for Hall a new understanding of life and his task of redemption.

Scientific and Philosophical Controversy

Locked Into Life, if taken seriously, should produce scientific and philosophical controversy. So far as I can find out, there is not yet a significant response to the findings on mind-body relations discussed by Patton Howell and James Hall or of the importance of Hall's experience as a stroke survivor. One reason may be that the book is done as a popular presentation based perhaps on the assumption that the medical and philosophical establishment will not take it seriously. So why let these traditions bury the story? It may be that Howell and Hall believe adoption of their views will have to come into medicine and philosophy from the outside, not from within. Polanyi certainly saw the way established scientific views are not easily overthrown by direct argument. He did not, however, advocate doing away with the stability of science maintained by a strong tradition of

experiment and of reason subject to scrutiny by the scientific and philosophical community.

One of the weaknesses of the book is that while friendly to the general public it is written without sufficient precision to meet scientific and philosophical standards. Talking about mind as separate from body, for example, the book is loose. Hall clearly still relies on some body functions. What happens when Hall's body cannot be nourished or sustained and he dies from secondary infections is not clear. Does Hall's mind persist? Hall and Howell's statements about the immortality of the mind or soul add up at best to intimations of immortality. Further, they discuss these familiar notions without reference to the long debate and history over these topics. It is not clear from Hall's analogy to quantum theory whether he is a metaphysical dualist, monist, or pluralist.

On the issue of metaphysical reality, Hall's notion of God has a not surprising Jungian character. God is experienced as a changing multipersonality in contrast to the traditional unchanging eternal being.¹¹ God seems more interested not in what people thought but why they thought it. This view fits with Hall's pre-stroke outlook that did not accept responsibility or guilt for what he did to others. Howell quotes Hall as saying: "Remember that I don't feel guilty. That's unhealthy."¹² After his stroke, and Hall depends upon his spouse to make him feel safe and loved, Hall never apologizes or repents of his many marital infidelities which were openly and painfully done to her. The view of God as more interested in why you did something rather than what you did seems to amount to a moral inversion that one can do whatever they want so long as they are honest and sincere in their motivation. Oddly, Hall had written about moral inversion in his Polanyi centennial paper describing Polanyi's dynamo-objective coupling as a "repressed moral belief in the service of a presumed objectivity."¹³ God as a supreme psychoanalyst, not judging but trying to bring consciousness to hidden motivations, seems to raise the metaphysical question of whether there is objectively any real God at all that has a moral order.

A more strict account of Hall's experience can lend support to the type of claim made by Polanyi, namely that the mind or any higher comprehensive entity has a domain of reality and of control beyond the parts that constitute it. Hall seems strong on this point as he explores his thoughts and describes his encounters with Bill Moore and Patton Howell as having surprising vitality and reality.¹⁴ The thoughts and work of Hall and of Powell definitely upgrade the evaluation of the life of victims of pontine stroke. Whether this work will be influential remains to be seen.

Their report is also rich with many associations and connections including Taoism. Hall and Howell find in Taoism a way of expressing their belief that our self is a little "i" interacting with others, like a stream of rushing water that changes as it interacts with its course. These interactions become our souls, and when we die they continue to live and change.¹⁵ Persons working on the relations of mind and body will find interesting empirical and philosophical implications in this testimony from Hall and Howell.

Finally, any normal reader of this book is engaged in an usual relationship to the text knowing that the subject, James Hall, lives in a condition radically different from her or him. The achievement of the book itself is amazing. Howell's dedication saved Hall. A person once presumed brain dead is addressing you at a high and creative level. His capable mind is writing through a computer. Whatever the merits of the argument about mind and body, Hall's heroic courage and Howell's compassionate devotion are challenging to our own understanding of what it means to be human.

Endnotes

¹ James Hall, "Polanyi and Psychoanalysis," pp. 896-903, *From Polanyi to the 21st Century, Proceedings of a Centennial Conference, Kent State University, April 11-13, 1991*, Richard Gelwick (ed), The Polanyi Society: University of New England, 1997. Hall's paper was also published in *Tradition & Discovery* 18:2 (1991-1992): 5-9.

² *Locked Into Life*, p. 55.

³ *Ibid.* p. 186.

⁴ *Ibid.* p. 126.

⁵ *Ibid.* p. 66.

⁶ *Ibid.* p. 125.

⁷ *Ibidem.*

⁸ *Ibid.* pp. 165-171.

⁹ *Ibid.* p. 167.

¹⁰ *Ibid.* p. 170.

¹¹ *Ibid.* p. 134 – 135.

¹² *Ibid.* p. 48.

¹³ Hall, "Polanyi and Psychoanalysis," p. 899.

¹⁴ *Ibid.* p. 77.

¹⁵ *Locked Into Life*, pp. 142-143.

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.

REVIEWS

Pascal Engle. *Truth*. Montreal: McGill-Queen's University Press, 2000. Pp. viii + 177 ISBN: 0-7735-2462-2 \$22.95, paper.

Pascal Engel's book is about truth. Or is it more about "truth"?

As Pascal Engel explains, much of contemporary discussion of the problem(s) of truth involves distinguishing between truth as a meta-linguistic concept (i.e., "truth") and truth as a substantive or metaphysical concept. Tarski was able to solve the infamous Liar Paradox by use of the concept of truth as a semantic predicate. When one says "this sentence is false," one is uttering a sentence in a meta-language which refers to a sentence in the object-language. Also, as Engel explains, after that distinction is made, the other problems concerning the concept of truth still remain unsolved. Basically, the other problems concern the relationship of language or thinking or mind or the disciplines to reality. Furthermore, Engel proposes his own solution, "Minimal Realism" to the problem.

I hope I have not misled you into thinking that this book is mainly intended to present a new philosophical theory of truth. Though the author does argue for his own theory of truth in terms of a minimal realism, his main intention is to present a critical survey of the current discussion of truth and realism. Furthermore, his area of concern is largely American and British philosophy with some brief comparisons to the discussion of truth by Continental philosophy and postmodernism. Given the arena of discussion that Engel chooses to frame the problems of truth and reality, we can fairly ask the following questions: Within this framework for discussion, does Engel solve the problem of truth? Moreover, does Engel adequately present the problem of truth as understood within the framework of discussion that he has chosen? Regardless of whether this framework is itself adequate for understanding the problems of truth and reality, has Engel adequately characterized the framework? If Engel has failed to adequately characterize the framework of discussion, is the framework that he presents to us a valid framework for understanding the

problems of truth and reality?

My questions on reflection concede too much to the philosophical assumptions of Engel and much of the currents in twentieth century philosophy and current philosophy. My questions assume that all thinking occurs within frameworks and that rational discourse is possible only within frameworks. Moreover, the very raising of my questions presumes a certain type of answer to the questions of truth and reality: truth and reality are largely defined, if not exclusively defined, by frameworks of thought and language. So, if there is to be a theory of truth and realism that seeks to explain the "...platitudinous sense that true statements correspond to the facts..." (p. 88), it must do so by responding to or arguing with the notion that thinking cannot cross or transcend frameworks. Indeed, his own description of the requirements for a theory of truth betrays his assumption that the basic issue of truth is to explain how we can operate with "truth" where thinking is apparently bound by frameworks:

...In a sense, everyone wants to conciliate our basic intuitions about truth within a single theory that would (a) be sufficiently neutral to account for the fact that our use of the predicate "true" is pervasive in many discourses and justifiably so, (b) be compatible with the ordinary logical behaviour of this predicate, (c) be compatible with the basic platitudes that we associate with truth and with common sense, and (d) cut enough philosophical ice to be worth calling it a *theory*... (p.87).

Alternative theories of language and thinking would produce very different requirements for a theory of truth. I want to give you two examples of theories that do not use the concept of framework to explain language and thinking, and so are not faced by the challenge of how to explain the talking and thinking that seems to cross the boundaries of frameworks:

Firstly, if we were to deny, along with Noam Chomsky, that thinking occurs within frameworks but rather assume that thinking at a fundamental level has a "deep grammar" and so

is universal, then the requirements for a solution to the problems of truth and reality would be very different. For instance, the parallel but different requirements for the problem of truth could be described as follows: (a) how different domains capture different elements of reality, (b) where we need to modify the ordinary uses of the word “true” to explain the uses of “true” in specialized domains, (c) where we need to modify the basic platitudes or common sense ideas of truth to explain the unusual dimensions of reality discovered by physics and mathematics, and (d) maintain a high degree of intellectual honesty.

Secondly, if we were to assume along with Karl Popper and Michael Polanyi that reality forms both the boundary condition for and the object of thinking and language, then again we have different requirements for the problem of truth. For Popper and Polanyi, we start with the problem of how we can have knowledge at all given the complexity of the natural world. Their solution is that we use the traditions developed by science to help us gain some foothold upon reality. For Popper, we use trial and error to correct those traditions and for Polanyi we use tacit knowledge to expand our traditions. Both agree that we begin with our traditions and that our traditions are conditioned by our interaction with the real world. For both philosophers, the parallel but different requirements for the problem of truth could be described as follows: (a) how different levels of reality are captured by different domains, (b) how we need to explain the different dimensions of truth, including the common sense version, (c) where we need to develop new conceptions of truth or reality to explain how we interact with the various levels of reality, and (d) maintain a high degree of intellectual honesty.

So far, I have not at all criticized Engel’s discussion of truth. I have merely described both how he approaches the problem of truth and how we could approach that problem in a different manner. Now I will criticize Engel’s discussion. He has every right to choose a framework for discussing the philosophical problem. He has every right to exclude other frameworks from his discussion. However, what he seems to be doing, especially when he makes brief comparisons to Continental philosophy and postmodernism is to imply that his discussion of truth covers the entire field of philosophy. He seems to be implying that there is nothing else to be said about truth.

I find this approach both arrogant and narrow. It is arrogant in assuming that mainstream (Anglo-American) philosophy, which Engel follows, is the only philosophy

worth bothering about. It is narrow in assuming that mainstream philosophy is not just one framework among others for exploring philosophical problems. It would have been more intellectually humble of him to define the scope of his study as to be bounded by mainstream philosophy and intellectually honest to admit that his solution—“Minimal Realism”—solves, at best, only one version of the problems of truth and reality.

It is extremely ironic that a philosopher so aware of the concern about frameworks and the philosophers who devote so much of their thinking and writing to explain, defend, or to overcome what they see as the problem of how frameworks limit thought and language, ignores the alternatives to his own chosen framework. I don’t know why he has chosen to ignore the alternatives to mainstream philosophy because he explicitly rejects one of the premises of both mainstream Anglo-American and postmodernist philosophy that language or the text is primary, and that everything else is a figment of the text. Engel is on the side of realism and against relativism. Moreover, he is on the side of truth as a norm. In his words, “...although minimal realism is a realism in the sense that there are verification-transcendent truths, truth is not a property that is ‘out there’ in the world, like tables, chairs or lakes. It is a property *of* propositions, of things that are thought, believed or known. In this sense truth is an epistemic *concept*, although truth is not an epistemic *property*” (p122). Therefore, “...Truth has substance because it is constitutively linked to belief, assertion and knowledge and because it is a normative property of our knowledge-seeking enquiries” (p. 147). Moreover, Engel seems to recognize the limits of his framework and recognizes his departure from his framework in advocating a substantive theory of truth and reality:

... analytic philosophy, at one stage of its evolution at least, has tended to isolate the analysis of such notions as truth, meaning, and content within the domain of a purely linguistic and conceptual investigation, and a number of contemporary conceptions of truth still bear the mark of this methodological turn. But the present analyses have not led us into that direction. On the contrary they have led us to consider the realist/anti-realist issues as being substantive as they ever have been (p.148).

So, the irony of Engel concentrating on the arguments and discussions of the analytic mainstream as opposed to looking at the side currents of philosophies that reject what Popper calls the “myth of the framework” is even greater

because Engel explicitly admits that the analytic “methodological turn” went off in the wrong direction.

I conclude with a quotation Engel uses from Bertrand Russell, who was one of the intellectual founders of mainstream Anglo-American philosophy, the stream that Engel swims with. But Russell seems to have been able to speak to multiple audiences. This quotation explains the problems of truth and reality that other streams of philosophy attempt to solve—how common sense thinking leads to developing theories that depart from common sense thinking, and how this conflict creates for us the problem of relating the two different realities—the reality described by common sense and the reality described by physics and the sciences as offshoots of common sense:

We all start from “naïve realism”, *i.e.* the doctrine that things are what they seem. We think that grass is green, that stones are hard, and snow is cold. But physics assures us that the greenness of grass, the hardness of stones, and the coldness of snow are not the greenness, hardness and coldness that we know in our experience, but something very different... Naïve realism leads to physics, and physics, if true, shows that naïve realism is false. Therefore naïve realism, if true, is false, therefore it is false. (p. 80).

Sheldon Richmond
askthephilosopher@sympatico.ca

Stefania Ruzsits Jha, *Reconsidering Michael Polanyi's Philosophy*. Pittsburgh: University of Pittsburgh Press, 2002. Pp. ix + 318. ISBN 0-8229-4165-1, \$32.00, hardcover.

Stefania Jha's book is exciting and exasperating, insightful and misleading – in short, a flawed gem. It's exciting because Jha eschews standard exposition and attempts a creative interpretation of what Polanyi accomplished. She makes extensive use of the Polanyi papers at the University of Chicago's Regenstein Library, and her ability to cite this material lends some of her fresh approaches an authority they would otherwise lack. But the book is also exasperating. Jha's writing style is frequently prolix and her articulation is often imprecise; the book is not an easy read. Perhaps largely because the book is based on several different articles she has published, a good bit of the material in many chapters is redundant. Jha is also not always careful to check the consistency of her usage of terms. So it is not fitting to recommend this book unambiguously. Yet there is

much in the work that will reward the patient reader

The book is divided into three parts: a biographical account of Polanyi's intellectual journey, an exposition of his philosophy, and what Jha calls “Neo-Polanyian Developments and Critique.” The introductory biography serves as a context in which Jha lays out several of the themes that she returns to again (and again) in subsequent chapters: the importance of the “judicial attitude” for Polanyi (17), the key role of intellectual passions in bringing unity to the mind's cognitive and conative functions (29), the place of *The Tacit Dimension* as Polanyi's most systematic statement of his philosophy (39), and the many-faceted role of truth as fact, ideal, and regulative principle (44).

The nature of the content in part two, identified as an exposition of Polanyi's thought, and part three, Neo-Polanyian Developments and Critique, is not as clearly distinct as the titles of the parts would suggest. In the first chapter of part two, Jha sets forth the schema that serves as her primary vehicle of both exposition and Neo-Polanyian extension. She claims that Polanyi successively developed three models of his theory of tacit knowing, and that these three models derive their basic insights from three distinct theoretical domains. There is, first, the Gestalt-Perception Model (53). Perception is a learned skill involving the integration of sensed parts into a coherent whole. The process of scientific discovery is but a strained and more inclusive version of perceiving. Jha names the second scheme of tacit knowing the Action-Guiding Model (55). Here existential and phenomenological sources are drawn upon to highlight the function of subsidiary factors guiding action and leading to meaning. Third is the Semiotic Model (60). Polanyi's reference to Peirce in KB 181 establishes this model: “A person A may make the word B mean the object C.” The from-to structure of consciousness, tacit inferences, and logical-ontological hierarchies are key notions within this model.

Jha's delineation of these three models is novel, but its helpfulness can be questioned in two ways. First, is it the case that Polanyi is influenced by the sources Jha lists? That Polanyi borrowed from Gestalt psychology is an uncontested fact. But the influences suggested in her second and third models need to be demonstrated. In chapter three Jha writes, “Merleau-Ponty's contribution to Polanyi's theory was his analysis of intentionality, the concept of the directed (vectorial) quality in knowing” (71). Now intentionality was a crucial notion for Brentano, Husserl, and virtually everyone in the phenomenological tradition. Two questions arise. (1) Did Polanyi appropriate the notion of intentional-

ity only from Merleau-Ponty? (2) Did Polanyi rely on any philosopher for the vectorial aspect of his thought? The archival evidence indicates that Polanyi read Merleau-Ponty only after Marjorie Grene discovered *The Primacy of Perception* in 1960 and urged Polanyi to read it. But surely both the vectorial quality of knowing and intentionality are central to Polanyi's emphasis on such issues as "the urge to make contact with a reality" (SFS 35) or the distinction between the subjective, the personal, and the universal (PK 300-303), emphases originating long, long before 1960. The vectorial aspect of Polanyi's analysis of scientific discovery seems inherently required in virtue of the subject matter; certainly any dependence on Merleau-Ponty can be ruled out.

I have similar reservations about Jha's claim that the thought of Dilthey and Merleau-Ponty "mark the conceptual points of departure of Polanyi's development of logic" (71). Nor can I find any place where Polanyi "expressed his debt to Dilthey's influence on the existential strand of his thinking" (fn 31, 274). Polanyi says that "while knowledge by indwelling is clearly related to Dilthey and existentialism, its extension to the natural sciences is contrary to these philosophies" (KB 156) and notes that Dilthey's work is "part of a great intellectual network which includes phenomenology and existentialism and . . . out of it has issued modern Gestalt psychology" (SM 102). A relationship to an intellectual network is not the same as indebtedness to an influence.

Before examining further any of the purported influences Jha suggests, it seems important to question the very notion that Polanyi derived any of his key insights from reading philosophers. My understanding is that Polanyi developed his distinctive views primarily by reflecting upon his experience as a scientist. This reflection was initially motivated by his opposition to social control of scientific inquiry and his admiration of the sort of spontaneous order, observable in capitalism and scientific societies, that was consistent with free inquiry. As he attempted to communicate his views to others, especially to philosophers, he found he needed to become more familiar with the Western philosophical tradition and articulate how his thought connected to that common heritage. Thus his comments about Merleau-Ponty, Dilthey, Peirce, Dewey, and possibly Kant seem to me better understood as attempts to communicate his own conceptions in the thought world of commonly understood or seemingly similar thinkers than as expressions of explicit or covert dependence on the thought of the persons he cites.

Jha calls her third model "semiotic," yet her exposition of this model has little or nothing to do with the explication of signs and their relations normally implied by the term "semiotic." Polanyi made reference to Peirce, but there is no published or archival indication that Polanyi ever studied or understood Peirce's semiology. As usually understood, semiology accepts the modernist notion of logic that stresses that logical relations are objectively and necessarily entailed whether or not an embodied thinker deduces the correct conclusion, except that semiology postulates these necessary relations to exist between signs rather than between propositions. Thus semiology often implies the kind of objectivism that Polanyi's whole project opposes; it hardly seems apropos to name one model of Polanyi's thought "semiotic."

Aside from her dubious ascribing of influence, it may be asked, secondly, whether Jha's separation of Polanyi's thought into her three models provides insights that cannot be found by reading Polanyi directly. The complexity of Polanyi's own overlapping structures (from-to structure of consciousness, integration of subsidiaries to form focal meaning, tacit-explicit) seems to be increased by Jha with yet more overlapping terminology. The overlap in her analysis is evident in that part-whole integrations are involved in all three of her models. Meaning is produced in all three models. Perhaps Jha's analysis would be better served if she talked about increasingly complex phases of Polanyi's epistemology much the way Marjorie Grene did in her 1977 article, "Tacit Knowing: Grounds for a Revolution in Philosophy."

A major objective of Jha is to trace "Polanyi's seldom-acknowledged debt to Kant" (206). Chapter four is devoted to this topic, but the theme is frequently revisited subsequently. Jha attempts to demonstrate that Polanyi is dependent on Kant's notions of aesthetic and teleological judgment, "mother wit," the shaping influence of categories, limiting knowledge to make room for faith, practical reason, and the moral person legislating for himself.

Jha claims that Polanyi's notion of universal intent is derived from Kant. In support of this claim, she cites the following passage from Polanyi: "While Kant's categories, by which experience of external objects is possible, reappear with me in the active knower participating in all live knowledge, in this case such a knower, responsibly legislating for himself with universal intent, is more like the moral person of the Second Critique and the *Metaphysics of Morals*" (KB 156). Jha goes on to say, "The *categories*

Polanyi indicated above are known in the form of the categorical imperative [formula]: ‘Always act in such a way that you can also will that the maxim of your action should become a universal law.’ The possibility of acting with universal intent means that our actions are not completely determined by empirical conditions, that we are free agents” (95-96). Aside from the fact that it is a bit jarring to leap from the categories to the categorical imperative, what is one to make of her claim?

First, it must be acknowledged that there is ample evidence that for many years Polanyi regarded Kant as a highly important thinker. In 1947 he wrote Koestler that to assume one is a scholar and yet not to have read Kant would be like visiting Egypt and not seeing the Pyramids (thanks to Martin Moleski and Phil Mullins for this and several other references from Polanyi’s unpublished papers). However, it is debatable how well he understood Kant. The Polanyian papers have many examples of Polanyi seeking to master Kant’s thought in his correspondence and discussion with Marjorie Grene during the 1950’s. In 1967 Grene threatened to hold up a sign in one of Polanyi’s lectures, “UNFAIR TO IMMANUEL KANT.” Yet it should not be assumed that Grene’s philosophical assessments are always superior to Polanyi’s. Polanyi valued the psychologically oriented Kant of the first edition of the *Critique of Pure Reason*, whereas Grene, like most of her philosophical contemporaries, valued the more logically oriented second edition. Polanyi took seriously Kant’s comments about an indeterminate mother wit at the root of judgment, and then he combined this understanding of judgment with a psychological sense of the a priori as designating established and relied upon insights used in the construction of heuristic accomplishments (in contrast to the second edition logical notion of the a priori as meaning universal and necessary). This explains what Polanyi meant in writing Grene in 1959 as follows: “[A]l a priori is to be understood (in the sense of the third critique) as rational operations which are entailed in . . . achievement” (281, fn 80). This is a provocative interpretation of one aspect of Kant, and Jha catches sight of it.

Second, the general notion that humans are protected from nihilistic relativism by their adherence to principles with universal intent is surely not a product of Polanyi’s study of Kant with Grene, for it is already found in his 1946 work, *Science, Faith and Society*. The term “universal intent” is not used so far as I am aware, but the general notion is evident in such statements as the following two. “The coherence of all men’s consciences in the grounds

of the same universal tradition is an integral part of my position” (SFS 82). “While we recognize that true propositions cannot be established by any explicit criteria, we do assert the universal validity of propositions to which we personally assent” (SFS 73). Whether Polanyi in his years before meeting Grene derived his notion of universal intent from Kant is an issue worthy of research.

Other of Jha’s claims of Kantian influence on Polanyi are not as convincing. For instance, she writes, “Polanyi inherited the premise of free will from Kant but did not analyze it” (242). Polanyi’s economic and political writings are replete with reflections on the importance of freedom to human existence without any hint of a dependence on Kant. The view that humans are free in some respects is manifest in ordinary (perhaps naïve) experience; it does not need to be rooted in some philosophical influence

In the sixth chapter, Jha avoids suggesting influences and instead compares Dewey’s instrumentalism with pragmatic and practical themes in Polanyi’s thought. She helpfully claims that it is with respect to the notion of individualism that Dewey and Polanyi differ most (175). Dewey’s method of inquiry emphasizes that individuals should seek freedom from constraining tradition yet also emphasizes the duty of individuals to serve society. Polanyi sees traditions as contributing to an individual’s calling and carrying the standards that guide free individuals toward spontaneous rather than obligated order.

For whom is Jha writing *Reconsidering Michael Polanyi’s Philosophy*? Her mentor at the Philosophy of Education Research Center at Harvard, where she worked as a research associate while writing her book, was Israel Scheffler, an epistemologist and philosopher of science with deep grounding in analytic philosophy. It often seems that Jha is trying to convince Scheffler and others with strong empiricist or rationalist leanings of the worth of Polanyi’s philosophy. A largely successful example of this attempt at explanation is found in her discussion of the interaction between Polanyi and Adolf Grünbaum in chapter five. And yet Jha does not engage contemporary analytic philosophers in conversation to persuade them of Polanyi’s significance. Neither does she engage those she several times mentions vaguely as Polanyi scholars – no article from *Tradition and Discovery* or *Appraisal* is cited, nor does she draw upon thinkers as diverse as Poteat, Allen, Sanders, Congdon, or Prosch (other than in connection with *Meaning*). The reason for omitting Polanyi scholars may be found in her belief (cited in fn. 26, 297) that they are “by and large theologians”

while her interpretation “keeps the spirit of science in view.” The book has copious notes, but they are largely citations that are historical in nature even though Jha intends to develop a Neo-Polanyian philosophy. The upshot of all this is that Jha seems isolated in her writing and doesn’t benefit from the work of those similarly trying to apply and develop Polanyi’s thought.

And how might Jha’s Neo-Polanyian philosophy be characterized? Jha does not make it easy to answer this question. Her critique is clearer than her re-conception. She is put off by Polanyi’s teleological ontology, which “leads to either an unwarranted anthropological conception or may encourage a theistic interpretation. In any case, he was incorporating a troublesome final cause or value in his modified evolution of ideogenesis” (225). She thinks he over-emphasizes the conative and affective dimension of thought. She is concerned that his philosophy never assumes the systemic coherence of an architectonic (although one must wonder about Jha’s claim that *The Tacit Dimension* represents Polanyi’s failed attempt at an architectonic). She thinks he unsatisfactorily mixes an ethics of duty with a teleological ethics. She is also concerned by what she terms his “analogical and somewhat obscure vocabulary” (233). These are among the most important problems that Jha seeks to remedy with her Neo-Polanyian philosophy.

One much stressed move in her Neo-Polanyian philosophy is to rely on the judicial attitude Polanyi mentioned in a 1937 letter rather than repeat Polanyi’s usual reference to personal knowledge (which sounds too subjective to her) or intellectual passions (too fully immersed in the conative) (206). Jha also favors making ethics an a priori practice more basic than epistemology, doing this somewhat in the mold of Levinas. This involves an empathetic openness to the other that Jha describes as a process of indirect from-at knowing in contrast to the usual from-to knowing Polanyi promulgates. Jha develops this notion in chapter seven in the course of describing her “Neo-Polanyian medical epistemology” (189).

In a way it is unfortunate that Jha chooses to use the term, found at several points in Polanyi’s work, “from-at knowing” to identify the significant Polanyian point she makes in discussing medical epistemology. As she acknowledges, Polanyi at one point says from-to and from-at knowing are equivalent (192). But in the same article that Polanyi equates from-to with the from-at (“Logic and Psychology”), he at another point treats them differently and thereby provides a springboard for Jha’s unnecessary and

confusing distinction. A patient is said to have a from-to awareness of such external objects as a cat, whereas a neurophysiologist examining the patient’s brain in the process of seeing the cat is said by Polanyi to have no experience of this integration; “he has an at knowledge of the body with its bodily responses at the focus of his attention. These two experiences have a sharply different content, which represents the viable core of the traditional mind-body dualism” (“Logic and Psychology,” 39). Polanyi is making a distinction between the internal process of knowing, an experience, and the external object that is known perceptually (in the example, the brain seen as object rather than functioning as the seat of subjectivity). Both sides of the dualism can be and usually are interpreted in terms of the from-to structure of consciousness. One looks at neurons just as one looks at a cat (the “to” dimension), but both the cat perceiver and the neurophysiologist perceive in terms of their indwelt subsidiaries (the “from” dimension). Polanyi’s dualism is not of the pernicious Cartesian type, that is, it is not a substance dualism. Neither is it a Kantian double aspect dualism, because mind as process and the material things mind knows exist at different ontological levels. Jha is reluctant to acknowledge this sort of emergentist dualism and seems to settle for the double aspect theory Polanyi discredits (239, but also see 241).

The valuable point Jha makes in her Neo-Polanyian medical epistemology is that Polanyian conceptuality provides a clear intellectual basis for treating patients both as bodies and as experiencers. The physician can focus on healing in a way that incorporates as subsidiaries external symptoms of disease, technological data, the patient’s reports of pain or state of mind, and so on (200). Thereby physiological and humanistic treatment can be integrated into a holistic approach on intelligible grounds.

Jha concludes her work with a sketch of a Neo-Polanyian ethics (see especially 253-254). I find what she says in this section stimulating if not always entirely clear. She wonders if Polanyi’s ethical embodied knowing has its roots in the Jewish tradition of ethical practice in contrast to Christian ethics that simply comes “from belief and telling about values, the commonly held Christian view” (235). While in the Orthodox and Catholic traditions there are strands that emphasize (Greek) contemplation, it is quixotic to think that Christian ethics is not centered on practice. At any rate, here is a sample of some of her creative re-conception:

In the neo-Polanyian ethics of tacit knowing,

moral principles are accessible to us *after* training our awareness (with the help of a mentor) by tapping into the subsidiary, so that we may make a responsible judgment with universal intent – all premised on freedom of the will. The ethics of tacit knowing is unlike Kant’s in that the judicial attitude is not severed from sensibility, is and ought, fact and value are linked rather than separated, and the empirical (fact) aspect is not relegated to a supplementary position. What is actually done is considered as a teaching tool for what ought to be done. (254)

Stefania Jha is to be commended for writing a book on Polanyi that does more than paraphrase his ideas. I find her present book to be stronger in its promise of things to come than it is successful in offering a consistently cogent reconsideration. But I salute the effort she obviously put into this work.

Walter Gulick
WGulick@msubillings.edu

