

Tradition & Discovery

The Polanyi Society Periodical

Volume XXXIV

Number 2

2007--2008

Preface	2
News and Notes	3
Polanyi Society Financial Statement	3
Minutes of Polanyi Society General Membership Meeting	4
2008 Polanyi Society Meetings—Call for Papers	5
T. F. Torrance (1913-2007): A Life	6
Tony Clark	
Remembering Doug Adams	9
Allen Dyer and Phil Mullins	
Information on Polanyi Society Electronic Discussion List	10
“Personal Knowledge at Fifty” -- Conference Update	11
MEMBERSHIP RENEWAL/FUND DRIVE	12
“Personal Knowledge at Fifty”-- Conference Registration Form	13
Tentative Conference Schedule	14
On Our Exosomatic Existence	15
J.E. Tiles	
WWW Polanyi Resources.	21
Response to Tiles, “On Our Exosomatic Existence”	22
Robert E. Innis	
New Voices: An Interview with Paul Knepper: Michael Polanyi and Judaism	26
Notes on Contributors	29
A Brief Symposium on Mark Mitchell’s <i>Michael Polanyi</i>	30
Paul Lewis, Walter Gulick, and Mark T. Mitchell	
On Working with Michael Polanyi	39
Peter H. Plesch	
Reviews	51
Stefania R. Jha, ed. “Hungarian Studies on Imre Lakatos.” <i>Perspectives on Science</i> , 14:3 (Fall 2006)	
Richard Henry Schmitt	
Stanley Hauerwas and Romand Coles. <i>Christianity, Democracy, and the Radical Ordinary: Conversations between a Radical Democrat and a Christian</i>	
Paul Lewis	

The Polanyi Society

General Editor-*Tradition & Discovery*

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

Walter Mead, **Board President**

4 Kenyon Court
Bloomington, IL 61701-3320
wbmead@ilstu.edu

Martin X. Moleski, S.J., **Board Secretary**

Canisius College
Buffalo, NY 14208
(716)888-2383 FAX (716)886-6506
moleski@canisius.edu

Jere Moorman, **Board Treasurer**

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

Dale Cannon

Division of Humanities
Western Oregon University
Monmouth, OR 97361 USA
cannodw@wou.edu

David Rutledge

Department of Religion
Furman University
Greenville, SC 29613-6298
david.Rutledge@furman.edu

C. P. Goodman

Alpines, 2 Cliffe Lane/Hathersage
Hope Valley, Derbyshire S32 1DE UK
cpgoodman@lineone.net

Esther Meek

Geneva College
Beaver Falls, PA 15010
longingtoknow@gmail.com

Richard W. Moodey

Gannon University
109 University Square
Erie, PA 16541
moodey001@gannon.edu

Zhenhua Yu

Department of Philosophy
East China Normal University
3663 North Zhongshan Rd.
Shanghai 200062, China
ecnuyu@hotmail.com

Tony Clark

Department of Religion and Humanities
Friends University
2100 W. University St.
Wichita, KS 67213
clarkto@friends.edu

Associate Editor/Board of Directors

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

Book Review Editor

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

Preface

This issue of *TAD* has an incredible array of different materials. There are memorial reflections on two recently deceased scholars, Doug Adams and Thomas Torrance. Both are figures whose writing made ample use of Michael Polanyi's thought. Jim Tiles has written a review article on Robert Innis' new book and Innis kindly responded. Mark Mitchell has recently published a new introduction to Polanyi's thought. Paul Lewis and Walter Gulick review this book and Mitchell comments on their reviews. There are excerpts from a technical article published in 2004 in the *Journal of Polymer Science, Part A* that provided Peter H. Plesch's reflections on his work with Polanyi as a chemist in the mid forties. It was an article that said some very interesting things about Michael Polanyi, about the history of chemistry and about scientific discovery. Professor Plesch provided a further comment that complements the excerpts. There is an interview with Paul Knepper, a scholar interested in Polanyi's Jewish background. Finally, there are interesting reviews by Richard Schmitt and Paul Lewis.

You will also find an update on the June 13-15, 2008 Polanyi Society conference at Loyola University, Chicago, with a tentative schedule and a conference registration form. Inquiries about the conference can be e-mailed to me (mullins@missouriwestern.edu). For the third straight issue, we are plugging the 2007-2008 membership/fund drive because we still need some dollars to support this conference. Finally, there is a call for papers for meetings sponsored by the Polanyi Society in the fall of 2008. Although matters are not fully settled, there will likely be a meeting in conjunction with the American Academy of Religion (Nov. 1) and the American Philosophical Association (Dec. 28).

Phil Mullins

Tradition and Discovery is indexed selectively in *The Philosopher's Index* and *Religious and Theological Abstracts* and is included in the EBSCO online database of academic and research journals.

NEWS AND NOTES

Walter Mead has written an essay titled “I Know More Than I Can Tell: The Insights of Michael Polanyi” that appeared in *Modern Age*, v. 49, no. 3 (Summer 2007): 298-307.

In the January 2008 issue of *First Things* (pp.6-10) there is an interesting exchange of letters between Avery Dulles and Walter Thorson regarding Polanyi’s innovative alternative to Darwinian evolution in his concept of “emergence.” Both are appreciative of Polanyi’s approach, but Thorson provides a particularly interesting case for challenging the mechanistic and reductionistic assumptions inherent in Darwinism, and most evident in reigning schools of neo-Darwinism, by relying on Polanyi’s insights.

Aaron Milavec’s new book *Salvation is from the Jews* (Liturgical Press) came out in October of 2007 and is available on Amazon.com for \$17.96.

Dennis Cato had articles in two recent issue of *Paideusis*, which is online at <http://journals.sfu.ca/paideusis/index.php/paideusis> : “Of the Trivial and Radical: Is There A Coherent Constructivist Pedagogy?” (15: 1) and “A World of Our Own: Heesoon Bai and the Flight into Romanticism” (15:2).

Polanyi Society Travel Funds Available

For students and others requiring assistance to attend the Society’s June 13-15, 2008 Polanyi Society conference at Loyola University, Chicago limited funding is available. Society members are urged to call the availability of this assistance to the attention of those whom they consider worthy candidates. Those interested in applying for this funding, as well as those able to assist in making this funding available, should contact Walter Mead ([wbmead@insightbb.com](mailto:wamead@insightbb.com)) and see the information on the Polanyi Society web site (<http://www.missouriwestern.edu/orgs/polanyi/>).

Polanyi Society Financial Statement September 1, 2006 — August 31, 2007

Beginning Bal. checking	\$2023.74
-------------------------	-----------

Income

10/11/06	Memberships, gifts	\$1000
11/27/06	Membership, gift	\$ 100
2/1/07	Membership, gift	\$ 500
2/23/07	Memberships, gifts	<u>\$2000</u>
	Total Income	\$3600

Expenses

9/5/06	Travel Grant-Amer	\$ 300
10/11/06	Travel Grant-Leathers	\$ 290
10/17/06	TAD 32#3	\$ 791.73
11/17/06	Travel Grant—Hess	\$ 400
11/28/06	Stop Pymt-Smart check	\$ 30
11/29/06	Travel Grant—Smart	\$ 200
12/13/06	Pacific Ratio Achives	\$ 120
3/13/07	Checks	\$ 14.91
3/14/07	Travel Fund	\$ 35.00
4/19/07	TAD 33#1, 33 #2	\$1255.57
5/14/07	Member mailing	\$ 230.29
6/13/07	B. Clinchy reimbursement	<u>\$ 337.21</u>
	Total Expenses	\$4004.71

Beginning Bal. savings	\$2712.44
------------------------	-----------

Income

Ann Scott Gift	\$7513.68
Interest	\$ 20.68

Total Savings	\$10246.80
---------------	------------

2/01/07 Change of Treasurer; account transferred to Charter Oak Bank

4/24/07 5% CD (savings) —\$7500

8/31/07 checking Bal. \$4365.73

Jere Moorman, Treasurer

Minutes of Polanyi Society General Membership Meeting

Saturday, November 17, 2007, 11:20 AM — Grand Hyatt — San Diego, CA

The meeting was chaired by Wally Mead, President. The necessary quorum of members (7) was in attendance.

1. Mead discussed the possibility of recruiting a young scholar to work on getting *TAD* indexed and placed in more libraries. Neil Arner, Ph. D. student at Yale, who was present and prima facie agreeable to the idea, was suggested as a possible candidate. It might be helpful if some money could be provided to aid his work.
2. Meek suggested that posters be designed to advertise the Scott Memorial Essay Contest. We should find someone with graphics expertise to make sure that the poster would attract attention both to the contest and to the Polanyi Society.
3. *The Political Science Reviewer* will dedicate an issue to Polanyi's political theories. Eight authors have been invited to contribute to the issue.
4. Gulick reported that he hoped to have the first draft of the Polanyi Reader done in February, 2008. It has been three years in the making.
5. The University of Chicago has agreed to reprint *The Tacit Dimension*. It should be available in the summer of 2008 at a price of \$16, if all goes well.
6. The Scott Memorial Fund has \$7500. It is meant to assist young scholars.* We are seeking additional grants and donations. Many ideas were suggested about how such funds might best be disbursed: essay contest, student sections at the Loyola Conference as well as future annual meetings, other meetings or seminars, etc.
7. The following were unanimously elected to the Board on a motion by Gulick and Cannon (who with Mullins were members of the Nominating Committee): Moorman, Lewis, Rutledge.
8. There was unanimous agreement to a motion by Gulick and Cannon that there should be a special section for graduate students and young scholars at the 2008 Loyola Conference.
9. Next year's annual meeting will probably be held in conjunction with the AAR (Nov 1-3, Chicago) unless there is a groundswell of opposition to the idea. Other possibilities under consideration include the SBL in Boston the traditional weekend before Thanksgiving and the Eastern Division of the American Philosophical Association meeting between Christmas and New Year's in Philadelphia.
10. The dues for 2008-2009 membership in the Polanyi Society (and receiving *TAD*) will be increased to \$35 a year for regular members and retained at \$15 for student members.
11. Mead reported that a grant application submitted by Mead and Rutledge to the Charles Koch Foundation for a total of \$9,000 was still under review. It requests support for (a) travel costs and honorarium of plenary speaker (R. Allen) at Loyola U. conference: \$2,000; (b) Travel Fund: \$3,000; and (c) speakers bureau: \$4,000.
12. Recent books published by Mark Mitchell (*Michael Polanyi-The Art of Knowing*) and Tony Clark (*Divine Revelation and Human Practice*) were lauded.
13. The meeting adjourned by general consent, hearing no objections, shortly after 12:00 noon.

Respectfully submitted,
Martin X. Moleski, SJ Secretary

* In the terms of the gift (discussed by the Board of Directors at their 11-16-07 meeting), Ann Scott specified helping with publication or travel for research that would lead to publication. Phil Mullins and Richard Gelwick were designated to work with the Board of Directors and Ann Scott in making any allocations of these dollars. The donor's intention is that the gift be a memorial to the late William T. Scott and that these funds (or any later added) should not be quickly expended.

2008 Polanyi Society Meetings—Call for Papers

The year 2008 celebrates the fiftieth anniversary of the publication of *Personal Knowledge* in ways that go beyond the special conference June 13-15 at Loyola Chicago. Organizing the “*Personal Knowledge* at 50” conference in Chicago is well under way; this call for papers deals with two additional opportunities to present scholarship. Offering sessions at the APA (see immediately below) ventures into new waters, and if there are not sufficient responses to the various calls for papers, we may not be able to offer all the sessions we’d like to sponsor. We hope for a robust response to the call for proposals for each of the following occasions!

Call for Papers for Two Sessions at the American Philosophical Association

The Polanyi Society will be holding sessions for the *first time ever* with the Eastern Division of the APA in 2008. The APA meeting is December 27-29, 2008 in Philadelphia and the Eastern Division is the largest annual gathering of the APA, one which attracts large numbers of younger philosophers in search of a position in philosophy. The time just before New Year’s Day is a down time for hotels and lodging is cheaper.

For one session, we are calling for proposals that deal with the relationship of epistemology and ontology. More specifically, is the order that is found in nature and experience, and referenced in language, discovered or imposed? Chapter 3 in PK on “Order” might be utilized, as might Part IV of PK. While all proposals would be expected to make use of Polanyi’s thought, related contemporary thinkers and issues might also be addressed. For instance, the issue of Intelligent Design or the adequacy of naturalism or the issue of teleology in nature might be addressed. For a second session, proposals on any philosophical topic related to Polanyi’s thought are solicited. Many issues in the philosophy of science and political philosophy, for instance, would benefit from exploration.

Proposals are ordinarily up to 500 words in length, but full-length papers may also be submitted for consideration. Send proposals as an email attachment to Walt Gulick, wgulick@msubillings.edu, by April 1.

Call for Papers for Two Sessions at the American Academy of Religion

The AAR will be meeting in Chicago separately from the SBL November 1-3, 2008 rather than the week before Thanksgiving. Thus we are unsure how our proposed sessions might fit into the revised schedule, but we anticipate seeking a Friday night and a Saturday morning session per usual.

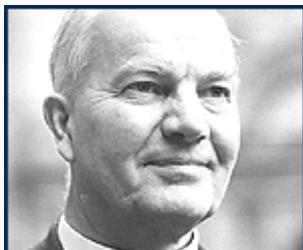
For one session, we seek proposals from persons willing to critique/respond to the recently published book by Philip Rolnick: *Person, Grace, and God*. A second session will have a similar sort of format. We seek proposals from persons willing to critique/respond to the recently published book by Tony Clark: *Divine Revelation and Human Practice: Responsive and Imaginative Participation*. Rolnick and Clark will reply to the papers on their books. We are exploring the possibility of jointly sponsoring these sessions with other groups – for instance, the Karl Barth Society with respect to Tony’s book. Please submit an offer (with some indication of background interest or approach) to critique one of these books to Walt Gulick, wgulick@msubillings.edu, by April 1.

T. F. Torrance (1913-2007): A Life¹

Tony Clark

ABSTRACT Key Words: T. F. Torrance, Michael Polanyi, Karl Barth and Church of Scotland.

This brief reflection remembers the life of T. F. Torrance, theologian and churchman, and some of the ways in which he was influenced by Michael Polanyi.



The Christian theologian Thomas Forsyth Torrance died in Edinburgh on 2 December 2007. Torrance was born in Chengdu, Szechwan, China on 30 August 1913. He married Margaret Spear in 1946 and they had two sons and one daughter. Torrance, who was ordained a minister in the Church of Scotland in 1940, was Professor of Church History, New College, Edinburgh University 1950-52, and then Professor of Christian Dogmatics from 1952-79.

T. F. Torrance was undoubtedly one of the foremost theologians of the second half of the 20th century and perhaps the greatest Reformed theologian since Karl Barth. After his long service as a Professor at New College he remained active as a scholar, continuing to publish for two decades after his retirement. Born to a missionary family in China, Torrance was deeply devoted to the church. Early in his career he served as a parish minister in the Church of Scotland and in 1976 was elected for a term as Moderator of the General Assembly of the Church of Scotland. Torrance's ecclesial concerns were ecumenical. He played a substantial role in the dialogue between the Eastern Orthodox and Reformed Churches and had the unusual distinction, for a Presbyterian minister, of being made a Protopresbyter of the Greek Orthodox Church by the Patriarch of Alexandria in 1973.

Torrance's academic career was marked by a prolific scholarly output including over two hundred books, articles and reviews reflecting a remarkable range of interests and understanding. Together with J. K. S. Reid he was responsible for the founding of the *Scottish Journal of Theology* and he was also involved in editing the translation of Calvin's New Testament commentaries.

As a postgraduate student Torrance studied with Karl Barth in Basel for two semesters. This experience made an immense impact upon him and he became one of the leading disciples of the Swiss theologian and was instrumental in the reception of Barth's work in Scotland. His advocacy of Barth was extended to the whole of the English-speaking world through his co-editing of the English translation of Barth's multi-volumed *Church Dogmatics*.

Torrance's own writings reflect the influence of Barth's theology in numerous ways, but his reading of Barth was by no means uncritical. Torrance's academic career was flourishing in the turbulent years of the 1960s. At this time there was, in theological circles, a deep concern to reinterpret Christian theology in the light of contemporary interests and convictions. Barth's contribution, at this point, was to call theologians and the church to root theological understanding not in any transitory *Zeitgeist* but in the revelation of God in Jesus Christ. The merit of this approach, to which Torrance was so strongly drawn, was that it sought to ground theology in its own proper and distinctive source. However, a problem which accompanied this strategy, as it

was adopted by Barth, was a disturbing fissure between theology and the culture within which it was expressed. It was this problem that prompted Torrance to develop Barth's theology in new directions. Torrance's contribution, in this respect, was to bring theology into conversation with the natural sciences, and thereby establish a connection with a key aspect of contemporary culture.

At this point we must acknowledge the significance of the work of Michael Polanyi for Torrance's work. Relatively early in his academic career Torrance was impressed by Polanyi's *Personal Knowledge*, which he read soon after its publication in 1958. On the strength of this he invited Polanyi to give some lectures in New College. It was at that time a friendship between Torrance and Polanyi began.² This friendship continued to the end of Polanyi's life at which point Torrance became Polanyi's literary executor.

The degree to which Torrance was able to draw upon Polanyi's thought is demonstrated in many of his publications after this time. Alistair McGrath is no doubt right to point out that Torrance's use of Polanyi was "a means of developing and strengthening his own fundamental theological ideas, and it is emphatic that those ideas are not *grounded* in Polanyi's writings."³ Nevertheless his engagement with Polanyi was both considerable and sustained. Torrance's seminal work *Theological Science*, published in 1969⁴, was largely based on lectures which he had given at Union Theological Seminary in 1959 and yet the references to Polanyi are numerous. That Torrance could establish such an extensive engagement with Polanyi's work on a theme at the heart of his own theological concerns so soon after reading *Personal Knowledge* is evidence enough of fertile common ground between the two thinkers.

Torrance was aware that Polanyi was not primarily concerned with theology and religion. He wrote, "It was evidently not Polanyi's main intention, in reconstructing the scientific basis of man's knowledge of the universe, to make room for religious faith or knowledge of God."⁵ Torrance believed that they were, nevertheless, "a by-product of his argumentation."⁶ One of the things that attracted Torrance was Polanyi's articulation of the relationship between faith and reason and his acknowledgement of the necessary role of "faith" in science. Torrance was impressed that, in the context of a discussion about scientific knowledge, Polanyi would adopt the "Augustinian" statement: "Unless you believe, you will not understand" – even though, as a patristic scholar, he could not resist pointing out that the phrase actually comes from Clement of Alexandria!⁷

Torrance shared with Polanyi a desire to question the distortions of philosophy as it had developed in the modern period. They both sought to confront the various forms of objectivism which deny – or, at least, offer an entirely inadequate account – of the place of the person in human knowledge while refusing to reduce human knowledge to subjectivity. It is in and through our participation, or indwelling, in the things about which we seek to understand that our theoretical knowledge arises. In the case of Polanyi the principal focus is the reality of the natural world while for Torrance it is the reality of the revelation of God in Christ. In both cases, it is the antecedent reality which represents the external pole, or anchor, of our knowledge, and it is the very *being* of such realities which can call into question the knowledge we claim. Reality, as Polanyi was fond of saying, retains the potential to reveal itself to us in new and unexpected ways. Torrance clearly shared Polanyi's post-critical realism.⁸

In the light of this it is apparent that Torrance's engagement with the natural sciences was not a betrayal of Barth's theological method. He did not attempt to prescribe a theological method based on the methodology of the natural sciences. Rather, as a thinker with critically realistic convictions in both the natural

sciences and theology, he sought to show that, in both spheres, the method of enquiry must be determined by its object. Torrance wrote that “Science, to be science, operates with something irreducibly given, over which we have no control.”⁹ So theology, to be theology, must contend with its authentic and unique source most fully revealed in the person of Jesus Christ. In this he shows himself to be a faithful disciple of his mentor. Indeed, Torrance’s theology may be regarded as both an extension and a corrective of Barth’s most profound insights.

T. F. Torrance was a scholar of remarkable learning and churchman of profound, orthodox, trinitarian faith. His contribution was great and his legacy to the church and to theology is a rich one.

Endnotes

¹ In writing this obituary I have borrowed biographical information found in the obituaries for T. F. Torrance published by *The Times* on December 11th 2007 and *The Independent* on December 7th 2007.

² See T. F. Torrance, “Michael Polanyi and the Christian Faith – A Personal Report,” *TAD* 27:2 (2000-01):29.

³ Alister E. McGrath, *T. F. Torrance: An Intellectual Biography* (Edinburgh: T&T Clark, 1999), 233. McGrath’s emphasis.

⁴ T. F. Torrance, *Theological Science* (Edinburgh: T&T Clark, 1969).

⁵ T. F. Torrance (ed.) *Belief in Science and in Christian Life: The Relevance of Michael Polanyi’s Thought for Christian Faith and Life* (Edinburgh: The Handsell Press, 1980), xvi.

⁶ Ibid.

⁷ See T. F. Torrance, “Michael Polanyi and the Christian Faith – A Personal Report,” *TAD* 27:2 (2000-01):27.

⁸ Whether Polanyi shared Torrance’s realist view of God is a debated point. What is clear is that the contours of Torrance’s critically realistic theology parallel those of Polanyi’s general epistemological insights.

⁹ T. F. Torrance, *Transformation and Convergence in the Frame of Knowledge: Explorations in the Interrelations of Scientific and Theological Enterprise* (Belfast and Ottawa, Christian Journals Limited, 1984), 108.

Remembering Doug Adams

Allen Dyer and Phil Mullins

ABSTRACT Key Words: Doug Adams, Christianity and the arts, Michael Polanyi.

These brief reflections remember the late Doug Adams, Professor of Christianity and the Arts at Pacific School of Religion and Graduate Theological Union, Berkeley.

Doug Adams died July 24, 2007. Throughout his life, Doug was a spiritual presence and his enthusiasm will live on in the memories of those who knew him. He embodied the joy of life. He knew what to take seriously – and also what not to take seriously. He mocked pretense, but he understood it. He was a quick thinker, a ready wit, a kind teacher, and a wonderful friend.

Adams was an undergraduate at Duke University and he was a student there in the spring semester of 1964 when Polanyi was James B. Duke Distinguished Professor in the Department of Religion. Polanyi gave five public lectures at Duke as well as a lecture in the Divinity School; he addressed several other audiences and Doug, as well as a number of other Duke students working with Bill Poteat, were indelibly marked by Polanyi's presence that spring at Duke. Doug much later approvingly reported to Polanyi biographer Bill Scott that Polanyi was willing "to talk with students, treating them with attention and respect."¹ He told Scott intriguing stories about how Polanyi was fascinated with the then new frisbee that students were tossing, and about how he had an opportunity to pose to Polanyi his then pressing questions (to which Polanyi responded) about his interest in the Pauline scheme and about possible links between Polanyi's and Wittgenstein's thought.

After graduating from Duke, Adams went to seminary at Pacific School of Religion, where he studied more Polanyi with Charles McCoy; he completed his Th.D. in theology and art at the Graduate Theological Union, Berkeley, where he worked with John and Jane Dillenberger. After short stints teaching at the University of Montana and as a post-doctoral Smithsonian Fellow in American art at the National Museum of American Art in Washington D. C., Doug took a position at Pacific School of Religion. He taught there and at the Graduate Theological Union, Berkeley (where he at one point chaired the doctoral faculty in art and religion) for thirty years.

Early in his career, he joined the Polanyi Society and, for many years, before the Polanyi Society Board of Directors was reorganized, Doug was the coordinator for art studies. His appreciation and writing about art was always informed by his early apprenticeship with the philosophical thought of Michael Polanyi.² He wrote six books and was an editor for seventeen other books; he wrote about painting, sculpture, dance and worship. Doug was a leader in organizations fostering interest in religion and arts. He served as president of The Sacred Dance Guild and the Society for the Arts, Religion and Contemporary Culture, and was founding director of the Center for the Arts, Religion and Education at PSR/GTU. He inspired philanthropy. He saw so many things that needed doing, and imagined ways they could be done.



Adams was a role model for his divinity and doctoral students and friends. Walking through a museum with him was an experience to remember. Modern art was demystified, and sacred art was made reverent and relevant. He appreciated the creative process and it became part of the experience shared with him. Anyone who attended one of Doug's classes or public lectures (sometimes in costume) quickly recognized that he was a performer who always magically charmed his audience. He was a gifted teacher who won the Sarlo Excellence in Teaching Award at the Graduate Theological Union. Although he was enormously creative and productive, his office was famously a mess with barely a path from door to desk. But there was a map to help him find things that he might later need. Doug appreciated the finer things in life, and that included good wine, and what it could do to a person and to an occasion. Many a lecture at PSR/GTU was a festive event with appropriate libations to lessen inhibitions and add to the enjoyment. Joy crept into everything he did.

As those who attended the 1991 Kent State Polanyi conference will remember, Doug often was full of surprises. He was a member of a panel convened late in the afternoon. Though he had prepared remarks carefully, he recognized it was unlikely his comments would overcome the lethargy that had set in after a rich, long day. At the appointed time, he stepped to the front of the stage and hurled his paper stack of prepared handouts toward the audience and they drifted down like leaves. The audience was suddenly jolted into a state of alertness.

Doug Adams' students and friends will miss his enthusiasm, his devoted personal attention, and his generosity of spirit.

Endnotes

¹ William Tausig Scott and Martin X. Moleskiki, S. J., *Michael Polanyi Scientist and Philosopher* (New York: Oxford University Press, 2005): 255.

² See, for example, Doug Adams and Phil Mullins, "Meaning with the Arts: The Implications of Polanyi's Epistemology for the Arts," *Studia Mystica*, I, 2 (Summer 1978): 28-48 or Doug Adams, *Transcendence with the Human Body in Art: Segal, De Staebler, Johns, and Christo* (New York: Crossroad, 1991). The latter was reviewed in *Tradition and Discovery*, 23:2 (1996-97): 37-39.

Electronic Discussion List

The Polanyi Society supports an electronic discussion group that explores implications of the thought of Michael Polanyi. Anyone interested can join. To join yourself, go to the following address: http://groups.yahoo.com/group/polanyi_list/join. If you have difficulty, send an e-mail to Doug Masini (masini@etsu.edu) and someone will see that you are added to the list.

“Personal Knowledge at Fifty”

Conference Update

June 13-15, 2008 the Polanyi Society is sponsoring a conference at Loyola University, Chicago on the theme “*Personal Knowledge At Fifty.*” *Personal Knowledge* was published in May, 1958 and this conference will celebrate this event as well as provide an opportunity to reappraise Michael Polanyi’s *magnum opus* and its philosophical agenda in terms of developments in philosophy, science and the globalization of culture.

The tentative schedule for the conference, organized like the 1991 and 2001 Polanyi Society conferences at Kent State University and Loyola University, Chicago is on the following pages as is registration information.

Immediately below is an abbreviated form of the Call for Papers that was included in *TAD* 34: 1 and is available on the Polanyi Society web site (<http://www.missouriwestern.edu/orgs/polanyi/>). Proposals can be accepted until March 31, 2008.

Call for Papers

Proposals are invited for papers that discuss the themes or impact of *Personal Knowledge* and the importance of Polanyi’s philosophical ideas in the contemporary world. Below are a few suggested general categories within which papers might be grouped; these are intended merely to stimulate reflection. The final program will organize sessions in terms of rubrics fashioned in light of proposals submitted.

Personal Knowledge, Postcritical Philosophy and Postmodernism

Personal Knowledge As Fiduciary Philosophy and the the History of Philosophy

Personal Knowledge And William Poteat, Marjorie Grene, Wittgenstein, Phenomenology, etc.

Personal Knowledge and Contemporary Discussions of Emergence

Personal Knowledge On Religion

Personal Knowledge And Contemporary Philosophy of Science

Personal Knowledge And Political Philosophy

Personal Knowledge, Moral Inversion and Polanyi’s Criticism of Culture

Personal Knowledge and Polanyi’s Reformulations in Later Writing

Personal Knowledge: Shortcomings

Proposals for panel presentations on topics are invited.

Proposals will be blindly reviewed by a panel of jurors and should be no longer than 250 words. On the first page of the proposal, give your proposed paper title (or panel title), your name and your e-mail address. On the second page, repeat the title and provide an abstract. Mail proposals as e-mail attachments to Phil Mullins (mullins@missouriwestern.edu).

MEMBERSHIP RENEWAL/FUND DRIVE

On the previous page, there is information about the Polanyi conference to be held June 10-13, 2008 at Loyola University, Chicago, which celebrates the publication of *Personal Knowledge*. Like the 2001 conference also at Loyola, this event is sponsored exclusively by the Polanyi Society. Elsewhere in this issue there is information about possible Polanyi Society meetings next fall at the American Academy of Religion and, for the first time, at the American Philosophical Association, Eastern Division. Unfortunately, it is necessary for the Polanyi Society to cover all of the expenses of organizing these meetings. We must also remain solvent enough to cover other annual operating expenses to publish *TAD*. The Organizing Committee for the 2008 Loyola conference is investigating strategies modestly to improve the finances of the Society. We welcome any suggestions about possible funding sources. One necessary funding option--getting Society members to reach into their pockets to pay annual dues and make contributions--is outlined below.

Membership dues for the Polanyi Society are still only an unbelievable \$25/academic year, although they will be increased to \$35 a year for regular members (\$15 for students) in the fall of 2008. In the 2007-2008 academic year, the Society must be more diligent about dues collection and we will remind you about the opportunity to support the Loyola conference and other meetings. You may get a payment notice reminding you that it is time to renew your membership. You are invited **now** to combine your dues payment with a contribution.

In order to encourage you to “think generously,” please review the chart below that sets forth some “rungs” on the contribution ladder. We hope you will reach as high as it is possible for you conveniently to stretch. Unlike the Public Broadcasting System and National Public Radio drives in the US, we do not have Polanyi Society coffee mugs, book bags and other memorabilia to distribute to those who are generous. But for those who do stretch (at least \$50), we can provide a copy of any of the following if you identify your preferences: (1) a remaindered copy of Andy Sanders’ 1988 book, *Michael Polanyi’s Post-Critical Epistemology: A Reconstruction of Some Aspects of “Tacit Knowing”* (offered in 2001 but there are about 20 copies left); (2) paper copies of any available old issues of *TAD* that you want (all those since 1991 are on the web site but the paper copies have not yet been discarded); (3) an audio CD of Polanyi’s 1962 McEnerney Lectures (now also available for downloading from the web site).

Donation Range	Designation	Acknowledgment
\$20-50	Associate	1 year membership
\$51-\$100	Friend	1 year membership
\$101-\$500	Benefactor	1 year membership
\$500	Patron	3 year membership

All donors will be acknowledged in the program of the 2008 Loyola Conference. The Polanyi Society is a 501C3 tax deductible non profit organization; the Society sends (to those who pay US income tax) charitable donation letters for donations above \$25. Dues and donations can be sent by post, fax or e-mail to Phil Mullins (HPG, MWSU, St. Joseph, MO 64507, mullins@missouriwestern.edu, or fax 816-271-5680). Credit cards donations are welcome. **Please recall that a similar notice was included in the July 2007 and October 2007 issues of *TAD*. If you have already paid 2007-2008 dues, you do not need to do so again.**

**“Polanyi’s *Personal Knowledge At Fifty*”
June 13-15 Loyola University, Chicago
Conference Registration Form***

Name:	Email:
Street Address:	Phone (day): Phone(evening):
City, State: ZIP/Postal Code: Country:	Date of Arrival: Date of Departure: <small>(Limited accommodations are available before and after the conference)</small>

	Registration Before April 15	
	Cost per person	Total Paid
Full Registration(incl. banquet & coffee breaks)	\$125	
Friday only	\$30	
Saturday only (excluding banquet)	\$40	
Saturday only (including banquet)	\$100	
Sunday only	\$30	
Late Registration Fee	\$25	
Total Registration		

_____ I wish to apply for a student registration waiver.

		Room
Check desired dormitory accommodation: _____ Room (double occupancy): \$60/day _____ Room (single): \$80/day	If you elect for double occupancy, please indicate either the name of your roommate or that you wish to be assigned a roommate. Name of Roommate: _____ Please Assign	
Total number of nights in residence: _____ x room rate _____	Subtotal (room) _____	

	Board	
	Cost per person	Total Paid
Meal Card (Fri. dinner, Sat. breakfast and lunch, Sun. breakfast and lunch)	\$50	
Individual Meals in lieu of meal card	\$10	
Banquet ONLY (Saturday)	\$60	

Choice for Saturday night banquet: _____beef _____ chicken _____ vegetarian

Trip on public transportation to Regenstein Library for Polanyi Archives--Leave Friday at 11a.m. _____yes _____ no

* Please complete this form and return it (1) via US Mail to Phil Mullins, HPG, MWSU, St. Joseph, MO 64507, (2) via fax to (816) 271-5680 or (3) as a scanned e-mail attachment to mullins@missouriwestern.edu . Checks should be made to the Polanyi Society. Credit cards, except American Express, can be used for pre-registration. Supply the following: exact name on the card _____; card expiration date _____; card number _____.

Donations to defray the cost of this conference are welcome.

Tentative Conference Schedule

Friday June 13

- 8:00 Registration Opens
- 8:30—2:30 Trip to University of Chicago Library for a visit to the Polanyi Archives.
- 3:00—4:30 Concurrent sessions with conference participants' papers
- 4:45—6:15 Concurrent sessions with conference participants' papers
- 6:30—7:15 Dinner
- 8:00—9:00 Plenary Address: "The Political Implications of Commitment," **Richard T. Allen**, editor of *Society, Economics and Philosophy: Selected Papers of Michael Polanyi*, co-editor of *Emotion, Reason and Tradition, Essays on the Social, Political and Economic Thought of Michael Polanyi*, and author of *Thinkers of our Time: Polanyi*, is also editor of *Appraisal: A Journal of Constructive and Post-Critical Philosophy and Interdisciplinary Studies*.
- Post Plenary: Social Time

Saturday June 14

- 7:00—8:00 Breakfast
- 8:30—10:00 Concurrent sessions with conference participants' papers
- 10:00 Coffee break
- 10:30—12:00 Concurrent sessions with conference participants' papers
- 12:15—1:15 Lunch
- 1:30— 2:30 Plenary Address: "Polanyi's Myopia," **Stanley L. Jaki, O.S.B.**, Distinguished Professor at Seton Hall University, who holds doctorates in theology and physics, is the author of fifty books and four hundred articles on topics in the history and philosophy of science. He is a Hungarian-born scholar who once met Polanyi and was a Gifford Lecturer and the recipient of the Lecomte du Nouy Prize (1970) and the Templeton Prize (1987).
- 2:45 — 3:45 Plenary Address: "Backstage: Magic, Mentorship and Tradition," **David A. Peck**, a philosopher some of whose work treated Polanyi, a public speaker and licensed electrician who has been performing as a sleight of hand magician for over twenty-five years.
- 3:45 — 4:15 Coffee break
- 4:15 — 6:15 Panel on William Poteat and Michael Polanyi
- 6:30 Social Time
- 7 p.m. Banquet
- Plenary Address: "Fifty Years of Discovering Polanyi, *Personal Knowledge and the Polanyi Society*," **Richard Gelwick**, Professor Emeritus, University of New England, author of *The Way of Discovery*, the first introduction to Polanyi's philosophy, compiler of the first bibliography of Polanyi's non- scientific writing, and, former General Coordinator of the Polanyi Society and editor of *Traditiona nd Discovery*
- Post Plenary: Social Time

Sunday, June 15

- 7:00—8:00 Breakfast
- 8:30—10:00 Concurrent sessions with conference participants' papers
- 10:00 Coffee break
- 10:15—11:45 Concurrent sessions with conference participants' papers
- 12:00 Lunch

On Our Exosomatic Existence

J.E. Tiles

Robert E. Innis, *Pragmatism and the Forms of Sense: Language, Perception, Technics* (University Park, PA: The Pennsylvania State University Press, 2002. Pp, x + 265. ISBN 0-271-02223-X (cloth), \$52.00.

ABSTRACT Key Words: Michael Polanyi, classical pragmatism, technology, language, perception, the tacit dimension, aesthetics.

This is a critical review of Robert Innis' Pragmatism and the Forms of Sense: Language, Perception, Technic. In this book, one of Michael Polanyi's key preoccupations is related to the ideas of a number of thinkers, including Charles Peirce, John Dewey and Ernst Cassirer.

The “forms of sense” of Innis’s title are language and technology.¹ This means that language and technology are twin “weblike systems of *meaning-making* in which we dwell, into which we have extended ourselves, and upon which we must fatefully rely.” It also means that language and technology “shape, form and mold the very channels in which our body-based perceptual systems grow and develop”(4).

The articulation of this thesis begins with Michael Polanyi’s conception of a “tacit logic of consciousness” (22), in particular the paradigm of the “probe” (in the hands either of a blind man or of a dentist) which becomes a transparent medium, an “exosomatic organ,” through which skillful users extend the range, selectivity and discriminatory power of their senses. The probe illustrates Polanyi’s central contribution to the structure of consciousness, its “from-to” structure (5). Consciousness is not merely “about” something, aimed (intended) or directed toward its object; “we *attend from* (are subsidiarily aware of) a field of movements, visual particulars, symptoms, articulate clues while we *attend to* (are focally aware of) what they ‘mean’” (38). A probe, an object external to the body, becomes an exosomatic organ when it is used to attend “*from* the pressures and impacts made by the probe on our body *to* what these pressures and impacts *mean*” (39).

Technology is “rooted in the general human production of “exosomatic organs” of all types” (131) and language is best understood as part of this phenomenon of extending ourselves into a material practice (in this case the practice of making and responding to articulate sounds and physical inscriptions) until we dwell in and rely on the practice in such a way that it shapes, forms and molds our perceptions. On the strength of a sentence on page 7 of *The Tacit Dimension*—viz. “We can, accordingly interpret the use of tools, of probes and of pointers as further instances of the art of knowing, and may add to our list also the denotative use of language, as a kind of verbal pointing.”—Innis credits Polanyi with the insight that the probe may also serve as model of our use of language (49).

The “pragmatism” of Innis’s title is represented here mainly by Dewey, but also by an Italian, Giovanni Vailati, who came under the influence of the turn-of-the-century American movement and who died a year before William James. While James is mentioned only briefly on a handful of occasions, Innis devotes a chapter to Vailati’s “autonomous and original” (101) work on language—one of two chapters which develop the theme of language as a form of sense. The other is devoted to the convergent (51) work published in the 1930s by Karl Bühler and Alan Gardiner and to a late 19th century figure, Philipp Wegener, who influenced

both Bühler and Gardiner.² But it is Peirce who frames Innis's introductory chapter on the "perceptual roots of linguistic meaning" as well as his introduction of the key insights from Polanyi.

The lessons Polanyi extracted from the "tacit dimension" do indeed illuminate Peirce's semiotic approach to perception. Peirce's central idea is that all perceptual processes are sign processes, that is to say (non-deductive, ampliative) inferences with the "from-to" structure to which Polanyi called attention. There is no room in Peirce's theory for a "'reality' accessible outside the play of signs even on the perceptual level" (20) nor for bare (or simple) awareness of what is present. Perception is a complex incorporating what has already been undergone (poneception) and projecting an anticipation (anteception) (27).

This capacity to interpret what one is undergoing is available only to a creature that can form habits as modifications of its goal-oriented behavior, the same capacity that turns the pressures and impacts made by a probe on the organ of the body in contact with it into something that means something to the organism wielding the probe. Perception is focal awareness of an interpretant prompted by (inferred from) subsidiary awareness of how the body is being affected by aspects of its environment.

In animals and in significant parts of human experience, goal-oriented behavior³ is determined by natural teleology (the nature-given quest for nourishment, procreation, agreeable ambiance) and "inference" is spontaneous, not consciously controlled. This is where the experience of acquiring an exosomatic organ—whether it be a probe or spanner, a keyboard or a skateboard, a mechanical digger or a sailing dinghy—illuminates both what typifies a Peircean sign and the understanding this affords of the nature of perception. Once subsidiary attending has become second nature, its spontaneity may as well have been a product of one's first nature.

One can by extension include the experience of learning one's way around an unfamiliar neighborhood until at length one's awareness of locations has made them familiar by incorporating subsidiary awareness of their relations to other locations in the neighborhood. (Once it has become familiar a neighborhood may be thought of, perhaps, as an exoskeleton worn loosely.) Language, once acquired, likewise—but in a far more multivariant and pervasive way—spreads over experience subsidiary awareness of what situations and their constituents are called and of what, in being so-called, is entailed and excluded. Just as experienced mechanics looking at a piece of machinery see how parts should interact and see what tools are appropriate to gain access or make adjustments, language users looking at a situation see what will interest or concern to their fellow humans and what speech acts are appropriate to gain the cooperation of others in adjusting the situation to render it more suitable to human needs or tastes. The practices of communication develop perception—which is always of what things in, or aspects of, the environment mean—as readily as do the practices of dwelling in those exosomatic organs that we think of as the products of technology.

How far one should push, or rely on the guidance of, this analogy are questions worth raising. The resources for expanding our understanding of language, which Innis canvasses in the work of Bühler, Gardiner and Wegener, take full account, appropriately, of social situations in which language is used. But there is no suggestion in Innis's treatment that social interaction might itself need to be recognized as giving rise to a third form of sense alongside language and technology. Whether something is in the perceptual field of another as well as the intentions, needs or desires of another can be recognized without the mediation of language.

The use of language adds a significant layer of complexity to the perception of the social environment, but that environment is no more entirely the product of linguistic interaction than it is of technological mediation. Higher apes dwell in a rich social environment which is both technologically and linguistically impoverished by comparison with the human environment. Human social practices extend well beyond linguistic practices and arguably have the effects of “shap[ing], form[ing] and mold[ing] the very channels in which our body-based perceptual systems grow and develop” (4) that Innis attributes to language and technology.

All that may turn on this, of course, is how one reads the implicature of the definite article in Innis’s title: “the Forms of Sense”—*some* or *all* of the forms of sense? A more comprehensive treatment might need to deliver on a subtitle that reads, “Language, Technics, Social Interaction and Perception”

Innis is content in the first part of his book (“Framing Language”) and in much of the second (“The Senses of Technics”) to pursue what he characterizes (following Justus Buchler) as “a method of rotation, throw[ing] new light quite generally on how the forms of meaning-making consciousness define, as well as are defined by, a variety of linguistic and technological embodiments” (4). However, the second part of his book also includes a search for an appropriate framework for a critical project. After surveying a variety of criticisms of the effects of technology on our lives, Innis “frame[s] a set of problems” which calls for an inquiry into the appropriate “categories and methods” (137) to be used in evaluating what, given the impact technology has on our perceptual structures, recent technological transformations are doing to us. The categories and methods, Innis suggests, are to be found in the “pragmatist aesthetics” of Dewey’s *Art as Experience*.

The launch of this project, as well of the “rotation” of the meaning-making phenomena of technology, involves a return to Polanyi’s “conception of a ‘tacit logic’ of consciousness and the theory of meaning built on it” (137). This time Polanyi’s insight is considered in the context of Heidegger’s “fruitful analysis of an ‘implement’” (139), of Husserl’s “noetic-noematic [mode of attending—forms of appearance] correlations” (141) and of Dewey’s “pragmatist perspective” (142 f.). A successful “method or rotation” will of course need to recognize when philosophers with different vocabularies are looking at something from the same angle and when what they claim to see can be translated into one another’s terms. Innis thus has Dewey speak of “this noetic-noematic duality” and insists that Polanyi would be “in full accord” when Dewey claims that meanings are *had* before they are cognized” (*ibid.*)

How “full” this latter accord may be seen to be depends on how much interpretive charity is appropriate. Dewey’s doctrine regarding the “having” of feelings and meanings prior to “knowing” them appears linked to his concept of a subconscious that “reflects all the habits a human has acquired” and that informs the “fringe” of “even our most highly intellectualized operations.”⁴ It is tempting to assimilate “having” to subsidiary awareness and “knowing” (“cognition”) to “focal” awareness, but “fringe” and “subconscious” echo a doctrine Polanyi found in William James and which he repudiated.

Attending *from* the pen and paper one is using to write a letter “*to* that which they mean, reduces them to a subsidiary status, but does not render my knowledge of them subconscious or preconscious, or such as one has of an indefinable Jamesian fringe” (*Meaning*, 194). Polanyi acknowledges that it is difficult to identify and sometimes impossible to specify whatever it is that links what he attends *from to* what it means; “tacit integration may often take place effortlessly unnoticed by ourselves. But all this does not make a subsidiary state an unconscious one” (*ibid.*) It is, after all, the effect of habit (the importance of which is stressed by all

the classic pragmatists), but when Dewey refers to the effects of habit as “subconscious” he appears to be alluding to the same effortless spontaneity and not to anything like the “unconscious” workings of, say, one’s kidneys. The effects of habit and the sense these effects give to what is present are “felt or directly had”; they guide one’s response. “Fringe” in Dewey is almost certainly an echo of James, where “it is part of the *object cognized*, — substantive *qualities* and *things* appearing to the mind in a *fringe of relations*”⁵

It is hardly surprising that it should be a struggle to find a vocabulary to describe explicitly what is not explicit in experience, and that someone who, like Polanyi, achieved significantly more clarity in this endeavor than did the early pragmatists, should find their vocabulary deficient. But to attribute to the early pragmatists an appreciation of the importance of the tacit dimension does not require an outrageous degree of charity. Polanyi and Dewey, do not, to be sure, treat the phenomena in ways that are obviously entirely compatible. Both fasten on the way spontaneous inference gives meaning to something by locating it as a part within a whole. (Compare *PK*, pp. 57-58 and *Experience and Nature*, note 4, pp. 212-213.) But Dewey stresses the role of sentiency in the anoetic apprehension (“having”) of the meaning of the *whole* situation, and there is clearly a moment in Dewey’s account where the sense of the whole is transformed by cognitive interaction with its parts.

Whether this usefully complements Polanyi’s treatment, or is even compatible with it, invites further investigation. Innis does not take up this task; he is content to observe that “thinking is for Polanyi also a form of action, just as for Dewey action was a form—perhaps *the* form—of thinking” (140). The contrast here is elusive. All thought for Dewey is part of some practice and can only be properly understood in terms of the purpose it serves. When, as Innis goes on to observe, Polanyi “ascribes to knowledge quite generally the structure of a skill” (*ibid.*), he is returning knowledge to the genus, *habitus* (*hexis*), where Aristotle located both theoretical (*epistêmê*) and practical (*technê*) species of knowledge.⁶ This is one of the old ways of thinking for which “pragmatism” was said by William James to be a new name.

It is, nevertheless, in Dewey’s doctrine of felt quality, and in the “pragmatist aesthetics” to which the doctrine gives rise, that Innis looks for a framework for a critique of modern technology. The “cardinal thesis of ... [this] approach to aesthetic experience” is its continuity (if not identity) with “normal processes of living” (170). For Dewey all experience is permeated by the felt qualities of our organic responses to our environment; art *qua* “aesthetic production and perception [i]s an *idealization* or foregrounding of qualities found in common experience” (*ibid.*)⁷ Art, by this account, might be seen to work to reverse the effects of making felt qualities subsidiary to the distant meanings to which focal awareness spontaneously moves by tacit inference. When one considers how much our lives depend on the efficient treatment of what we encounter through the senses as subsidiary to what matters to us, it is not easy to see what value this would have except as a form of relaxation and recreation. Too much idealization in our lives would distract us from the serious business of living.

How Dewey might be taken as supporting the extension of “the scope of the aesthetic over the whole surface of the perceived world” (165) is perhaps then to be found in a passage from *Art as Experience* which Innis highlights by quoting it in full in two places (149, 186). In it Dewey contends that the products of the technological arts can become “fine in the degree in which they carry over into themselves something of the spontaneity of the automatic⁸ arts”. The thought that craft rises to the level of fine art when it expresses or in some other way embodies the energy that went into its production is worthy of dispute, but what bearing does this have on technology?

On both of the occasions that Innis quotes this passage, it is followed by two equally substantial quotations from Robert M. Pirsig's novel *Zen and the Art of Motorcycle Maintenance*. The first of these describes the way a craftsman's thoughtful procedure is determined not by a preset plan but by the nature of the material he is working on. It illustrates well the general process of thinking—of successful inquiry—that Dewey found in intelligent action. The second is a discussion of the “the deep inner kinesthetic feeling for the elasticity of materials” that Pirsig attributes to skilled mechanics and which allows them to recognize in very different circumstances when a nut is “fingertight,” “snug” or “tight [in a way] in which all the elasticity is taken up.” This is an excellent illustration of what Polanyi called “connoisseurship,” but how does all this frame an aesthetic critique?

Both passages that consider this series of quotations proceed to observe that modern industrial production has largely dispensed with this “mutual accommodation between self and tool” (188), “it thus tends to eliminate the ‘kinesthetic’ component and substitute in its place a ‘nonsomatic’ cybernetic ideal” (152). Dewey, indeed, had harsh words about life on the assembly-line in the 1920s and 1930s, but it wasn't to suggest reuniting the self and its tools by re-establishing the economy entirely on craft modes of production. If repetitive work is necessary, at least compensate those who have to perform it well enough so that they have time and opportunity to pursue activities that yield richer forms of experience. Dewey's critique of the practices of industrial production is only in part aesthetic; it is as much based on equity and social justice as on aesthetic considerations.

Dewey's criticisms of the products of industrial production and of the human-constructed environment are likewise only partially aesthetic. If the form of an object is ill-adapted to its use (182), that is a failure of design. If civic-architecture is “unworthy of the ‘fine civilization’ we aspire to be” (184), this is as much a failure to moderate the profit motive and to invest forethought in what is undertaken—failings of character (ethics) and of intelligence—as it is failure to seek and afford aesthetic satisfaction. Innis acknowledges this in the details of his exposition;⁹ the puzzle is why so much emphasis falls on the “aesthetic”—why it is an “aesthetic rationality” (198-202) that is needed, when the failures of rationality appear to be more general.

The series of three quotations (one from Dewey and two from Pirsig) is repeated with the suggestion that on the first occasion they were to be read in a “Polanyian context” with a “focus on the ‘tacit dimension’” and on the second in a “Deweyan context” with a “focus on the ‘aesthetic dimension’” (186). But sufficient work has yet to be done to clarify how these two dimensions are related. Appreciation of the tacit dimension contributes significantly to a clear, distinct and adequate concept of rationality. Innis's emphasis on “aesthetic rationality” suggests that an appreciation of the “aesthetic dimension” would have a similar effect, but readers who reach the end of the fifth chapter with the feeling of incomplete achievement will at least not find their guide suggesting they have altogether missed the point,

A truly comprehensive critique of technology cannot be carried out by relying on Dewey alone. His work can and must be integrated, as I have only schematically indicated, with that vast constellation of other thinkers who have seen the demand and developments of aesthetic consciousness a base from which to measure the interaction of man with the world through tools, instruments and media of all sorts (201-2).

While there might or might not be something to be gained by investigating further the relationship between the thought of Michael Polanyi and the classical pragmatists, scholars devoted to either will find valuable resources in the work Innis has done to bring a considerable (if not “vast”) “constellation of other thinkers” to bear on the *praxeis* that give form to our perceptions. Those who are frustrated at the neglect with which much of philosophy treats the problematics and the insights of either Polanyi or the classical pragmatists will find in this book surveys of a number of philosophers with similar interests, similar insights and similar roots in continental European thought, as well as examples of scholars in related disciplines whose work might serve to nourish new growth from those roots.

Ernst Cassirer, for example, is drawn into Innis’s conversations on several occasions, including one on the basis of a “remarkable passage”¹⁰ suggesting the probal nature of language by comparing a child’s learning to name things to the paradigmatic blind man groping his way with a stick (pp. 49-50). Cassirer is given a dominant role in Innis’s final chapter where in a little-known (not yet published in English translation) work¹¹ Cassirer is seen to generalize the “from-to” structure of consciousness into a “key insight into the nature of ‘tools’, ... [viz.] that they exemplify the universal spiritual power and the need for mediation quite generally” (208, cp. 214). “[F]or Cassirer, as for Peirce, there is simply no unmediated access to ‘being’ or the ‘world’” (212). And for Dewey as well. It was to express his own sense of the “need for mediation quite generally” that he initially presented his philosophy as “instrumentalism” and only with some hesitation allowed himself to be enlisted as a “pragmatist.”

From resources such as these it might be possible to fashion a canon to rival that which currently dominates philosophical education in that part of the world dominated by Anglophone culture. It is, after all, rarely possible for the thought of an isolated handful of philosophers, let alone a single independent thinker, to change the direction—change the assumptions that guide and the problems that engage—an established intellectual culture. Nothing demonstrates the interest of a problematic, and the value of a thinker’s contribution to its development, more than an extended conversation with others working on the same or similar problems. Innis has indicated where to find voices to engage in such conversations and has initiated several of them in useful ways.

Endnotes

¹ Innis frequently favors “technics”—Lewis Mumford’s “more nuanced and open textured usage”, (132)—in place of “technology.”

² Bühler and Gardiner are mentioned in a substantial footnote on p. 77 of Polanyi’s *PK*, a note which surveys literature on linguistic theory. Innis (68-9) suggests Polanyi uses conceptual resources supplied by Bühler and Gardiner throughout Chapter 5 of *PK*.

³ Cf. “Meaning exists within purpose and within purposeful behavior, a point that Dewey resolutely foregrounded in his organism-based theory of inquiry ...” (33).

⁴ John Dewey, *Experience and Nature*, second edition (LaSalle, IL: Open Court, 1929, reprinted 1971). On “having” and “directly felt” see pp. 211-13 and on the “fringe” see pp. 244-5.

⁵ William James, *The Principles of Psychology, Vol. I* (New York: Henry Holt, 1890; reprint Dover, 1950), p. 258 n. 2; italics in original.

⁶ See *Nicomachean Ethics*, Bekker pages 1139b32 and 1140a2.

⁷ This and the previous quotation from Innis are in part quotations from Dewey's *Art as Experience*, (New York: Putnam 1934; reprinted Perigee, 1980;) pp. 16-17.

⁸ *Sc.* "performance arts"—music, poetry dance. For the passage quoted see *Art as Experience* (note 7), pp. 227-8.

⁹ "The goal in technological production must be the organization of production and perception in such a way that vivid consciousness (*AE*, 266) can be sustained to the highest possible degree" (194).

¹⁰ *An Essay on Man*. (New Haven, Conn.: Yale University Press), 1944, p. 132.

¹¹ *Symbol, Technik, Sprache*, edited by Ernst Wolfgang Orth, John Michael Krois and Joseph Werle. (Hamburg: Felix Meiner Verlag, 1985.)

WWW Polanyi Resources

The Polanyi Society has a World Wide Web site at <http://www.missouriwestern.edu/orgs/polanyi/>. In addition to information about Polanyi Society membership and meetings, the site contains the following: (1) digital archives containing all issues of *Tradition and Discovery* since 1991; (2) a comprehensive listing of *Tradition and Discovery* authors, reviews and reviewers; (3) the history of Polanyi Society publications, and information on locating early publications not in the archive; (4) information on *Appraisal* and *Polanyiiana*, 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 Polanyi; (7) links to a number of essays by Polanyi, as well as audio files for the McEnerney Lectures (1962) and Polanyi's conversation with Carl Rogers (1966).

Response to Tiles, “On Our Exosomatic Existence”

Robert E. Innis

ABSTRACT Key Words: Michael Polanyi, pragmatism, forms of sense, language, perception, technics
This paper is a response to Jim Tiles, “On Our Exosomatic Existence.” It accepts the thrust of the close reading Tiles has given of my Pragmatism and the Forms of Sense but also points out he himself has not fully adverted to certain features of the book dealing with language as a form of social interaction, the precise way the notion of a form of sense is being used, the relations between Polanyi and pragmatism, the function of “quality” as an analytical category in Dewey’s aesthetics, and the actual conceptual framework used to discuss embodied technics. I fully agree with Tiles about the need for a philosophy that accepts the task of “an extended conversation.”

Jim Tiles’s generous discussion of my book is an exemplary exercise in the hermeneutical “principle of charity.” He has engaged many of its core themes with a keen, yet kindly disposed, critical eye. Taking direct aim at its theoretical center, he has nevertheless focused on aspects and themes of the book that would most attract the interests of the community of scholars that are informed by Polanyian procedures and insights, which play, as Tiles makes clear, an essential role in my book. Tiles is right to take the notion of “our exosomatic existence” as the focal point of the book, the goal of which was to explore what philosophical categories would allow us best to understand this root phenomenon of our lives and its exemplification in the twin systems of language and technics. My principal point was that these systems are *indwelt* and as a consequence they function as both enabling and constraining conditions of world-building and meaning-making. As enabling they give us new powers and faculties. As constraining, they pre-define our “access structures” to “the world.”

Tiles rightly emphasizes my exploitation of Polanyi’s pivotal discovery of the from-to structure of consciousness and of the heuristic fertility of the analogy of the probe. He also rightly foregrounds the inferential nature of our fundamental forms of meaning-making, which, however, do not need to be deliberate or under explicit methodical control. And he rightly turns close attention to the attempted linkages between Polanyi’s great achievement and other substantial, even, in my view, indispensable, contributions to our understanding of those “weblike systems of *meaning-making* in which we dwell, into which we have extended ourselves, and upon which we must fatefully rely”(4).

In fact, *Pragmatism and the Forms of Sense* was meant as a kind of continuation of a prior book, *Consciousness and the Play of Signs* (Bloomington: Indiana University Press, 1994--reviewed in *TAD* 22:3 (1995-96): 36-37.) where the relations between “perception” and “semiosis,” or between perception-based and semiotic-based theories of consciousness and meaning-making, were the theme. The conceptual resources exploited there (derived from Peirce, Polanyi, Dewey, Bühler, Cassirer) and the method employed were substantially the same as in the present book. I characterized the task there as a kind of Wittgensteinian “seeing connections,” which appears in *Pragmatism* as the “method of rotation.” Both books are in themselves philosophical probes and not meant to be treatises. Hence they are not “complete” or even completely systematic, nor were they meant to be. But they did have, or at least I tried to give them, a systematic informing

framework that worked at many different levels and held their parts together. Tiles recognizes this fact about the present book.

Tiles is admirably even-handed in his discussion, but there are a number of points, some of them informational, some of them dealing with interpretation, some of them critical, where some sort of response is, I think, called for.

First of all, there are actually three chapters that deal with language as a form of sense. The very first chapter brings Polanyi and Peirce into dialogue on the “perceptual roots of linguistic meaning.” The point is to show how both Polanyi and Peirce “push meaning down” to the perceptual stratum before they “push it up” to the articulate level of explicit sign and language use. The following chapter, which engages the complementary work of Karl Bühler, Alan Gardiner, and Philipp Wegener, focuses primarily on the notion of shared “fields” and “situations” as contexts and sources of linguistic meaning and as goads to the internal development of linguistic forms. This chapter does clearly indicate, as Tiles himself admits, that language is a frame or mold in which social interaction takes place—just as technics itself is. While Tiles is right to emphasize the need to foreground social interaction, I think that this notion operates at a rather different analytical level than that of a “form of sense,” as I used that term.

Language and technics are themselves forms of social interaction and a study of their constitutive features opens a large window on how social interaction takes place *in concreto*, in embodied sense-giving and sense-reading structures. There are clearly many other forms of social interaction, but language and technics are the defining matrices of social interaction itself, specifically in its human form. Smiling, kissing, greeting, humiliating, teasing, stereotyping, exploiting, and so forth are all forms of social interaction, but their distinctive features come from the symbolic and technical species that we are. They are permeated by semiotic and material conditions. So, when Tiles writes that “whether something is in the perceptual field of another as well as the intentions, needs or desires of another can be recognized without the mediation of language,” he is surely right. Every thinker in the pragmatist tradition would agree—and in fact it is one of the central features of the social psychological work of Dewey, for example, in his *Human Nature and Conduct*, and of the important essays of G.H. Mead. The very genesis of the self involves the progressive potentiation and mediation of pre-linguistic forms of interaction, both natural and social. But “without the mediation of language” does not mean “without mediation.” And, as I see it, mediation involves interpretation, and interpretively structured forms of human social practices, starting right at the fundamental perceptual stratum—and my book is about this very fact and its existential consequences attendant upon semiotic and technical embodiment structures. That is also why the first chapter in each of the book’s two parts starts with perception, exemplified first in Peircean and Polanyian insights into linguistically embodied perception and secondly in how Polanyi’s analytical apparatus enables us to think about “technics and the bias of perception: the tacit logic of embodied meanings” in novel ways. Polanyi’s emphasis on commitment, participation, and indwelling and on the role of tacit backgrounds all point to the ineluctable consequences and necessity of interpretation, understood in Polanyi’s case as a form of inference. The chapter on Giovanni Vailati’s linguistic pragmatism was meant to emphasize, from a rather different angle, the critical dimension of exploring the “biasing of perception” by language.

Secondly, Tiles asks about the exhaustiveness of the notion of “forms of sense.” Are language and technics *the* only ones? Well, in Tiles’s use of the term, clearly not. And, one might ask, what about art, religion,

myth, the political order, mathematics and the whole realm of number, quantity, and abstract relations? Are they not “forms of sense?” Yes, they are. So, are we involved in a contradiction here or some extended Homeric nod or systematic equivocation? I think not. The notion of a form of sense is related to, but not identical with, that of a “symbolic form” as the term was used by Ernst Cassirer and Susanne Langer. The symbolic forms they were concerned with are truly “finite provinces of meaning” in the phenomenological sense given to this notion by Alfred Schutz. But my goal was not to reproduce or reconstitute their projects but to do something different, following up, in fact, a hint of Cassirer’s that “language” and “technics” were the semiotic and material frames of all world-building *qua tale*. I wanted to show how different philosophical resources that were rarely brought into relation to one another could be organized around these twin foci. So, I set out to explore a topic in the material sense and exemplify a method at the same time. On a more general level, then, Tiles is right. There are multiple forms of sense, but my goal was, paradoxically, to explore some crucial aspects of the twin sources or defining matrices of the forms of sense, which I argued that language and technics are. Human life emerges out of these two sources that run along two intersecting trajectories. The other forms of sense—art, myth, ritual, religion, and so forth—arise from these enabling conditions.

Thirdly, as to the problematical “full accord” of Polanyi with Dewey’s claim that meanings are *had* before they are cognized, I based my proposal on the acritical way we are encompassed by, and constitute, wholes, in all senses that Polanyi gives to this notion. I do not think that “having” is, or can be, assimilated to subsidiary awareness alone. What I had in mind was the logic of skills and their appropriation that Polanyi made the operative centerpiece of his project of epistemological reconstruction. The model of skills in Polanyi is arguably more powerful than the model of perception (although I would not myself put the two in opposition). As to Dewey’s notion of the subconscious, I am not sure one should make much of this term. I think it covers much the same ground as Polanyi’s tacit background that is *indwelt* and used acritically unless we are faced with problematical situations that indicate a kind of “breakdown” or “interruption” of habitual “business as usual” transactions with the world and others. As to the notion of a “fringe,” what Polanyi repudiated was its identification with subsidiary awareness. The “fringe,” on William James’s account, belongs to the object-side, not the “consciousness-side” of the noetic relation. The fringe is neither subconscious nor preconscious. Indeed, the Jamesian fringe is not “indefinable.” It can be followed up and analyzed. But this following up and analyzing would itself uncover that the fringe is what we are conscious *of*, not what we are conscious *from*. As I see it, the “fringe” has a very different analytical function than the “subsidiary.” Strangely enough, Tiles quotes a passage from James that says exactly that. Polanyi’s repudiation of a correlation was right in what it affirmed, but wrong in what it seemed to deny, the validity of the notion of a fringe, which certainly has a phenomenological and analytical validity. James’s notion of a fringe is, I think, especially valuable in helping us understand the felt significances projected in art works.

Fourthly, Tiles touches upon the role of “quality” in Dewey’s pragmatist aesthetics, which I used as a critical device to analyze technology and technological embodiments. He is right to say that art, on Dewey’s account, “might be seen to reverse the effects of making felt qualities subsidiary to the distant meanings to which focal awareness spontaneously moves by tacit inference.” But I find it extremely puzzling to then say, as Tiles does, that since the “efficient treatment” of what we encounter is so important for “what matters to us,” too much of the type of idealization or foregrounding of qualities, that Dewey makes the heart of aesthetic experience, would “distract us from the serious business of living.” But it is precisely the intrinsic importance of the subsidiaries that lies behind Polanyi’s account of art, both in *Personal Knowledge* and in *Meaning*. Distinguishing between indication and symbolization as types of integrations, Polanyi says that in symboliza-

tion “the subsidiary clues do *not* function ... merely as indicators pointing our way to something else. In this second kind of meaning it is the subsidiary clues that are of intrinsic interest to us, and they enter into meaning in such a way that we are *carried away* by these meanings” (*Meaning*, p.71). This is why Polanyi speaks of a *self-giving integration*. It is also the reason why I found a close connection between Polanyi’s and Dewey’s theories and the possibility, relying on Polanyi, not just of an analysis of technology as embodied perception but, relying on Dewey, of an analysis of technology from the point of view of embodied qualities. Laying a Deweyan aesthetic grid over technics is meant to have both descriptive and normative force. Dewey wants to tell us both what has happened with the rise of machine technologies and their organization by different types of economic systems and the kind of “experiential price” that has been paid. The contrast that Dewey draws between the technological and the fine arts, then, is not motivated either by nostalgia or by some utopian hope. The last chapter of Dewey’s *Art as Experience* is essential reading here, but, it must be said, it simply exemplifies the chief theses and proposals found throughout the book as a whole. Moreover, while Tiles is also right to say that “Dewey’s critique of the practices of industrial production is only in part aesthetic; it is as much based on equity and social justice as on aesthetic considerations,” I never meant to say the opposite. My goal was to show how his aesthetic critique functioned as a kind of experiential ground level to his whole approach. Equity and social justice for Dewey were rooted in the availability and accessibility of types of experiencing that the various objective frames in which we live out our lives make possible. The focus on a distinctively “aesthetic rationality” in Dewey’s work was not meant to displace his concern with other forms of rationality, a concern which permeates his liberal and humane approach to life and to the “problems of men” and not just the “problems of philosophers.”

Fifthly, I think that Tiles underemphasizes the progression in my analysis of technics from the perceptual, through the aesthetic, to the semiotic. To say that the work of Ernst Cassirer “is drawn into Innis’s conversations on several occasions” and he is given a “dominant role in Innis’s final chapter” seems to me to be a bit on the weak side, since the whole point of that chapter was to show how a “semiotic” analysis and critique of the “information revolution” would look, a revolution, it has been claimed, that changes radically our relations to nature and our embodiment relations as such. In fact, there is an arc from the first chapter in the book to the last that is constituted by a recognition of “the universal spiritual power and the need for mediation quite generally.” This is surely not Polanyi’s way of talking about things, but, when all is said and done, it is certainly consonant with it.

Sixthly, and finally, I agree with Tiles that we need “an extended conversation with others working on the same or similar problems.” We need to move from a master thinker and master theory approach that refuses “translation” into other terms or will only accept other approaches that yield their sovereignty. But, in philosophy, such claims to universal sovereignty no longer have a place. We need collaboration and cooperation on both the theoretical and the practical levels, a willingness to focus on what Alan Gardiner called “the thing meant” and not engage in some sort of rhetorical knife fight. “Philosophy as conversation” is not just a slogan of the neopragmatists but an effective recipe for progressive insight. There are bound to be strong disagreements, facile agreements, and deliberate misunderstandings. Philosophy as conversation should not lead us into the Hegelian night in which all the cows are black. But what I tried to do in *Pragmatism and the Forms of Sense* is to practice, in addition to the method of rotation, what I also called a method of “retrievals and continuations.” In doing so, I brought to the table a group of thinkers and their positions that had in my opinion an extraordinary power to frame a long and deep discussion about universal formative principles of human lives. So, in full agreement with Tiles about useful conversations, let us continue.

New Voices: An Interview with Paul Knepper

Michael Polanyi and Judaism

ABSTRACT Key Words

In this interview, Paul Knepper, Senior Lecturer, Department of Sociological Studies, University of Sheffield, and Research Fellow, Centre for Jewish Studies, University of Manchester and one of the only scholars to take an interest in Michael Polanyi's links to Judaism, responds to questions about this topic posed by Tradition and Discovery editor Phil Mullins.

Phil Mullins: *As you have pointed out, Polanyi's Jewish background has been relegated to a footnote in most Polanyi scholarship. There is virtually a cottage industry devoted to discussing Polanyi's exposure to, interest in, and appropriation of Christianity, but no scholar that I am aware of before you has looked seriously at Polanyi's debt to Judaism. I gather that you see Polanyi as in some ways a typical Jewish intellectual from Central Europe living through the dissolution of the Austro-Hungarian Empire. That is, several of Polanyi's ideas and attitudes are rooted in his early life as a nonobservant Jew from Budapest who faced the great changes in Europe in the first half of the twentieth century.*

Paul Knepper: Yes, I think Polanyi's Jewish background is important for understanding his philosophical outlook. His background as well as his experience as an émigré during the Second World War is important.

Jewish identity had become rather complicated for Central European Jewish intellectuals before the First World War. The educated and affluent Jews of Budapest, Vienna, and Prague, all part of the empire of Austria-Hungary, were caught between ethnic, religious, political and nationalist loyalties. Franz Kafka, for example, who was born in Prague, was a non-religious Jew caught between German and Czech identities. He resolved this in practical terms by identifying with German-speakers in Prague. Although, as Kafka expressed through various literary works, he had considerable anxiety about where and to whom he belonged.

Polanyi followed a similar strategy. He admired Germany--Germany's scientific and technological achievements--and having acquired his post at one of the Kaiser Wilhelm institutes, identified quite strongly with German culture. So strongly, in fact, that he did not want to leave even as Hitler was making his intentions clear. He rejected the first offer he received from the University of Manchester.

What I argue is that Polanyi's work also reflects his status as a Jewish intellectual, particularly in his theory of scientific knowledge. He envisions a community of scientists at work; individuals engage one another and rely on one another. This puts the scientist on the verge of discovery in a curious position; he or she is part of the group and yet no longer part of the group. This, I would argue, reflects Polanyi's own position with regard to other Jews. As a Jew who had been baptized, he was part of the Jewish community and yet not part of it. Essentially, this is a variation of an argument Malachi Hacoheh makes about Karl Popper. Popper, like Polanyi, clung to a vision of a "republic of science" in which those committed to finding the truth experienced a sense of community, a scientific community in which membership was not determined by religious, political, ethnic or national status.

Or, let me put it this way. What was more significant to Polanyi's philosophy as expressed in *Personal Knowledge*: his Catholic baptism in 1919 or his leaving Germany as a Jewish scientist in 1933? I think it's difficult to argue that baptism made much of a difference. It was one day in the course of his career as a German

scientist and he says as much in his letter to a Catholic correspondent. But leaving Germany as a Jew was a major moment; it was the turning point really. During the 1930s when he lectures openly in Manchester and Liverpool about Jewish identity, his interests shift from practicing science to thinking about the place of scientific knowledge in society. He stops writing in German and writes in English. He identifies with Britain; no longer a scientist, no longer German.

Phil Mullins: *When Polanyi came to Manchester in 1933, he soon came into contact with what you termed in your TAD article “Manchester Zionists” and more generally with Anglo Judaism.¹ Louis Namier was a Manchester colleague and friend but one whose views he did not share. Polanyi gave a few speeches and eventually published the 1943 article “Jewish Problems”² which articulates criticisms of Judaism and Zionism. Put rather directly, you argue that Polanyi lacked firsthand knowledge of Jewish culture and his criticisms often are based largely on stereotypes of Eastern Judaism which he likely picked up in early schooling.*

Paul Knepper: Let me answer your question in reverse order; I will speak to Polanyi’s comments about Judaism first. It is clear from Polanyi’s work that he does not make use of concepts from Judaism as he does from Christianity. As Martin Moleski pointed out in an email message to me, he does not quote from the Talmud or use Hebrew expressions. Further, when Polanyi does talk about Jewry, he does so with a certain detachment. He says that he is not attracted to Judaism and makes a number of negative comments about religious Jews.

This is, as I explain in the *Philosophy of the Social Sciences* article, not unusual for affluent European Jews.³ Across European cities, acculturated, bourgeois Jews were embarrassed by the appearance of Jews from the Pale of Settlement who began migrating into European cities after 1881. For Jews who thought themselves secure in their national homes, the arrival of desperately poor Jews from rural areas was unsettling. When I read Polanyi’s comments about Jews, I hear the voice of a secular Jew from a wealthy area of Budapest annoyed by the links the new arrivals made between Jewish identity and religious practise Polanyi regarded as nothing short of superstition.

It is important to understand where Polanyi is coming from when he rejects Judaism. He is not speaking as someone who attended synagogue, underwent the course of study for bar mitzvah, lit Hanukkah candles at home every year, and so on. He never really experienced Jewish life. What he knows, he knows from a distance, and I surmise that some of his attitude comes from his second-hand knowledge. This point was suggested to me by Sheldon Richmond. At gymnasiums of the sort Polanyi attended, the practise was to separate Jewish students for religious training. A rabbi appeared for an hour or so during the week to give instruction. This, I think, is the perfect formula for acquiring a cynical attitude.

I am even more convinced of this after researching the reaction of Britain’s Jews to new arrivals in the late nineteenth and early twentieth century. Anglo-Jewry, comprised of London’s leading Jewish families such as the Rothschilds and Montefiores, were embarrassed by Russian Jews arriving in London. They feared that the antisemitism directed at these new arrivals—there were accusations of pauperism, sweat-shop labour, and criminality—would set back the position of Jews in Britain. So, they embarked on a campaign to make Russian Jews respectable by encouraging them to wear English clothing, stop speaking Yiddish, and pursue liberal forms of Judaism.

Zionism—the other part of your question—is interesting because Polanyi, who claims to be indifferent to Jewish identity, feels compelled to write about it. Once in Manchester, Polanyi encounters Lewis Namier, who like Polanyi is a Jew who expressed affinity for Britain and Christianity. Namier argues that the founding of a Jewish state is the solution to the “problem” of European Jews and works to establish the modern state of Israel. Namier had a gift for annoying people in his advocacy and he managed to annoy Polanyi to the extent that Polanyi writes an article in response, the article we know as “Jewish Problems.”

What Polanyi does in this article is fascinating, and revealing, because he does not address the contemporary scene. He does not talk about violence against Jews in Palestine nor that of Hitler’s Germany; he doesn’t talk about what British policy should be, nor really, what the position of Jews in England should be (whether to continue to boycott German goods or something more/else). Instead, he talks about medieval Jews and rabbis. He talks about Jewish intellectuals before the First World War, about the Austrian socialist party; he worries about how Namier’s argument sounds to British ears and expresses his own thoughts about Jewish identity. I suppose what I find most interesting about this is Polanyi’s reflections on his own status. He expresses some bitterness about being taken as an apostate by Jewish leaders and, in the same pages, talks about feeling guilty for allowing himself to be taken as a non-Jew by British people.

So, one could say that Polanyi lived outside the Jewish community and that his Jewish status was irrelevant. But this would be a mistake. Polanyi himself claims this but his Jewish identity kept intruding—his choice of study as a university student (medicine), his departure from Germany, his debate with Zionists.

Phil Mullins: *In the same year “Jewish Problems” appeared, Polanyi published “The English and the Continent.”⁴ This was the article a few Moot members saw and it led to an invitation from Oldham to Polanyi to join the Moot. Although the Moot was a Christian group, there were a few secular Jews in it, including Mannheim. The Moot was focused on how some kind of order, a “Christian Order” to some, was to be restored after the war. Polanyi at times expressed discomfort with the Christian aspect of the Moot, but he clearly admired the English tradition, as he discusses in “The English and the Continent.” So, on the one hand, he seems to have been dismissive of Judaism and its traditions, and on the other, he seems to be discovering the importance of tradition for his philosophy of science and his vision of the liberal society. This strikes me as somewhat ironic.*

Paul Knepper: You raise two points I think I can comment on. Polanyi thought, along with a number of others, that individual nations in Europe would give way after the Second World War to a kind of European commonwealth (and the European Union as we see it today reflects a political process that began in this period). In the final paragraphs of “Jewish Problems,” Polanyi refers to this as a fusion of Jewish and Christian ideals as had existed in the first century. This idea may have come from his experience with the Moot. So far as I know, he does not raise this idea in any of his other work, published or unpublished. When I first came across this, it struck me as quite an extraordinary statement, but since then, I have come across other Jews in Britain who pursued a similar line. In the decades before the First World War, Claude G. Montefiore, a founder of the Jewish Religious Union, promoted a syncretistic Judaism in response to his perception of rising unbelief in British society. He feared that Jews assimilating into British society would abandon the religious life, and sought to create a more satisfying version of Judaism by introducing aspects of Christianity.

Your point about tradition is evocative. Tradition is important to Polanyi’s thinking about the production of scientific knowledge. He admired the British tradition, including the Protestant aspect. I believe

he makes the remark in the “English Tradition” essay about the British stopping trains and buses on Sundays as if no one would be going anywhere other than church. Had Polanyi explored Jewish tradition—the prayers said in synagogue, observances in the home surrounding Shabbat, practices surrounding Pesach, Yom Kippur on so on, he might have felt the same way. But of course he didn’t explore Jewish tradition.

Endnotes

¹Paul Knepper, “Polanyi, ‘Jewish Problems’ and Zionism,” *Tradition and Discovery*, 2005, 32(1):6-19.

²Michael Polanyi, “Jewish Problems,” *The Political Quarterly*, January-March 1943, 14:33-45.

³Paul Knepper, “Michael Polanyi and Jewish Identity,” *Philosophy of the Social Sciences*, 2005, 35(3):263-293.

⁴Michael Polanyi, “The English and the Continent,” *The Political Quarterly*, October-December, 1943, 14:372-381.

Notes on Contributors

Walter Gulick (WGulick@msubillings.edu), Professor Emeritus at Montana State University, Billings, was an original member of the Society of Explorers (the 1972 name of the Polanyi Society) and has served as the General Coordinator of the Polanyi Society as well as, for many years, Book Review Editor of *TAD*. He has written a number of articles on Polanyi for *TAD* and other journals.

Robert E. Innis (Robert_Innis@uml.edu) is Professor of Philosophy at the University of Massachusetts, Lowell. His books include *Semiotics* (Indiana University Press), *Consciousness and the Play of Signs* (Indiana), *Pragmatism and the Forms of Sense* (Penn State University Press), and *Susanne Langer in Focus: The Symbolic Mind* (forthcoming Indiana University Press).

Paul Knepper (p.knepper@sheffield.ac.uk) is Senior Lecturer, Department of Sociological Studies, University of Sheffield, and Research Fellow, Centre for Jewish Studies, University of Manchester. He is currently in Malta researching Jewish experience within the British Empire.

Paul Lewis (lewis_pa@mercer.edu) is Associate Professor of Christianity in the Roberts Department of Christianity at Mercer University in Macon, GA. He is associate editor of *TAD* and has authored book chapters and journal articles and is currently working on a Polanyi-informed account of character formation.

Mark T. Mitchell (mtmitchell@phc.edu) is Assistant Professor of Government at Patrick Henry College. He recently published the newest introduction to the thought of Michael Polanyi (*Michael Polanyi: The Art of Knowing*) and he is finishing a new book on rootlessness and democracy. His article “Michael Polanyi and Michael Oakeshott: Common Ground, Uncommon Foundations” was included in *TAD* 28:2.

Peter H. Plesch is Professor Emeritus at the University of Keele. He is a physical chemist who worked in Michael Polanyi’s lab in the forties.

Jim Tiles (jtiles@hawaii.edu) is Professor of Philosophy at the University of Hawai’i at Manoa. He is author of three books, *Things that Happen* (1981), *Dewey* (1988) and *Moral Measures* (2000) and edited a four volume, *Dewey: Critical Assessments* (1992) and co-authored (with his wife) *An Introduction to Historical Epistemology* (1993).

(Notes on Contributors continues on p. 38)

A Brief Symposium on Mark Mitchell's *Michael Polanyi*

Mark T. Mitchell. *Michael Polanyi: The Art of Knowing*. Wilmington, DE: ISI Books, 2006. Pp. 195+xvii. ISBN 1-932236-90-2 (cloth, \$25 or \$20 at isibooks.org) and 1-932236-91-0 (paper, \$15 or \$12).

ABSTRACT Key Words:Mark Mitchell; Michael Polanyi; Michael Polanyi's life and thought; personal knowing; Michael Polanyi political philosophy; Michael Oakeshott, Eric Voegelin, Alasdair MacIntyre and Michael Polanyi.

Paul Lewis and Walter Gulick summarize and evaluate Mark Mitchell's new book, Michael Polanyi: The Art of Knowing, and Mitchell responds to their comments in this symposium article.

I. Mark Mitchell's New Introduction to Polanyi Paul Lewis

In this book, Mark Mitchell, Assistant Professor of Government at Patrick Henry College, provides a thorough-yet-concise and exceptionally lucid introduction to the thought of Michael Polanyi. Tacitly organizing his treatment into three parts, Mitchell begins with a brief biography of Polanyi (Chapter One). Mitchell then moves to a summary of Polanyi's emerging philosophy that roughly follows its chronological development. Mitchell first treats Polanyi's early writings on economics, science, and politics (Chapter Two) then turns to an extended discussion of his epistemology (Chapter Three) before concluding this *de facto* section of the book by examining how Polanyi extrapolates from this epistemology to explore matters of meaning, morality, and religion (Chapter Four). Mitchell concludes with an examination of Polanyi's legacy by comparing his work with that of philosophers Michael Oakeshott, Eric Voegelin, and Alasdair MacIntyre.

The portrait of Polanyi that emerges from Mitchell's treatment is that of a person whose work is passionately motivated by a moral concern to which he creatively responds by seeking a *via media* between the dichotomies offered by modern thought. While Polanyi himself talks most about intellectual passions, Mitchell effectively highlights the profoundly moral passion that drives Polanyi's work, i.e., his perception of what one might call the bi-polar character of the twentieth-century West. On the one hand, that century witnessed advances in the sciences and technology that brought about both significant and real gains. On the other hand, the twentieth century also saw an increase in the destructive capacities of the West, largely because these endeavors had become de-coupled from the moral and spiritual resources that could have kept them under tighter control (ix-xi). Polanyi's term for this phenomenon is moral inversion, which he sees as the legacy of a perfectionism bequeathed to the West from Christianity that remains deeply engrained in the West's collective psyche, at the same time that society is left rootless by a pervasive moral skepticism (54-55).

Polanyi's quest to recover a moral grounding for human projects leads him to take the middle path in virtually all of the dimensions of life he examines. In his economic writings, Polanyi develops a notion of polycentricity that allows him to diffuse debates between laissez-fair capitalists and advocates of central planning by largely synthesizing Keynesian economics on tax policy with a form of monetarism that eventually merges into public awareness through the work of Milton Friedman (28). In his account of how science works, Polanyi finds a way to honor both modernity's hard-won commitment to freedom of inquiry and the emphasis that older western traditions place on authority. Polanyi does this by demonstrating how, in science,

“individual freedom [of inquiry] is restrained by an authority that is *created by the practitioners themselves*” out of a shared commitment to transcendent ideals/ends (50, emphasis added). With regard to politics, Polanyi argues that the cause of the twentieth century’s moral inversion is the development of a view of knowledge that denies the reality of moral truth (52). His solution is therefore to develop a new understanding of knowledge that can support the liberty necessary for human flourishing.

Polanyi’s epistemology, nascent in these early writings, comes to full flower in *Personal Knowledge* and *The Tacit Dimension*. Mitchell ably summarizes Polanyi’s epistemology by saying, “Personal knowledge is a passionate commitment to universal truth made by limited, fallible knowers who strive to make contact with a hidden, indeterminate reality and embrace their findings with universal intent” (103). He argues that Polanyi’s account of knowing successfully steers a course between the temptations of subjectivism and objectivism by affirming that the knower actively participates in knowing things that have an objective character. According to Polanyi, the knower, fully embedded in multiple levels of existence (body, language, culture, history, personal capacities [76, 85-90]), actively participates in knowing via tacitly integrating clues into a larger whole (70) on the basis of a range of passionate commitments (to a framework, to universal intent, and to belief in the existence of reality [91-95]). What is known therefore has a personal character because of the knower’s active integration of clues. What is known also has an objective character because it is responsive to contact with reality. Such knowledge is never final, however, for contact with reality is gradual and reality can manifest itself in indefinite and not-entirely-predictable ways (83). This means that while knowing necessarily is embedded in a tradition, that tradition is fluid and living, what Mitchell terms “dynamic orthodoxy” (67).

An implication of this theory of knowing is that what is real cannot, indeed must not, be limited to what is tangible. Indeed, Polanyi argues that intangibles, such as freedom, are not merely subjective preferences but things that are *most* real. At this point, Mitchell discusses Polanyi’s understanding of how comprehensive wholes (whether a person or a work of prose) are comprised of multiple levels related through a complex set of boundary conditions that allow for dual control (109-110). Just as the meaning of a literary work, arguably its most important quality, arises out of various tacit integrations, so too do intangibles like freedom. These become most real, according to Mitchell, because they “promise a wider range of unexpected future manifestations” (112). Polanyi thus finds a way to bring together another set of terms that modernity had split asunder, i.e., facts and values.

This way of construing meaning also has implications for morality and religion. Recognizing that Polanyi never developed a moral theory, Mitchell suggests that moral ideals would be seen in a Polanyian perspective as the product of tacit integrations that are used subsidiarily in reflection and that moral knowledge is learned, like all knowledge, under the tutelage of a teacher who is part of a community that adheres to a tradition (114-117). A Polanyian account of moral knowing would therefore chart a path between moral objectivism and emotivism, for the same reasons that Polanyi’s epistemology overcomes the splits between subjective/objective and facts/values. With regard to religion, Polanyi’s theory of knowing promises to provide a way to bridge the gap between faith and reason (as well as science and religion), since faith, of a sort, is central to all knowing (128-132).

Mitchell’s concluding treatment of Polanyi’s legacy falls into two parts. In the first, he identifies thinkers with whom Polanyi’s work shares some affinities. Oakshott and Polanyi share a sense of the means by which knowledge is gained and a sense that the problem with politics is a misguided epistemology, despite

that fact that Oakeshott remains somewhat skeptical of Polanyi (142-144). Polanyi and Voegelin share similar concerns about the dangers of radical skepticism coupled with moral perfectionism (although articulated differently), the place of faith in knowing, and a commitment to realism (149-154). MacIntyre, who belatedly comes to appreciate Polanyi, shares with Polanyi a desire to overcome the false dichotomies offered by modernity and recover a meaningful basis for moral and theological discourse (157-162). In the second part of his conclusion, Mitchell looks beyond affinities with other thinkers to the continuing timeliness of Polanyi's work. As Mitchell tells it, while the drive for perfectionism has been replaced by a hedonism that results in a rootless consumerism (162-165), religious and moral skepticism remain rampant today (162). Thus Polanyi's contention that the liberty necessary for human flourishing must serve transcendent ideals remains as timely as ever. Moreover, Mitchell asserts that Polanyi's commitment to realism, the fiduciary character of knowing, and the rootedness of all knowing provide a better way to talk about moral and spiritual truths than post-modern alternatives (165-168).

As an introduction to Polanyi's thought Mitchell's work surpasses anything in recent memory. While this book necessarily lacks the detail of the Polanyi biography by Bill Scott and Marty Moleski, or the constructive appropriation of Polanyi by Esther Meek, it does an excellent job of clearly exposing/summarizing major themes that reflect both the breadth of Polanyi's writings from economics to religion, as well as the center that unites his work, i.e., his theory of tacit knowing. The biographical chapter concisely puts a human face on this thinker who both biographically and philosophically crossed so many boundaries. If there is one thing that might be emphasized more, it is how Polanyi's experience as a scientist served as the paradigm for all human knowing. Nevertheless, this book provides an overview of Polanyi's work that is indispensable for newcomers.

When the book moves beyond exposition, however, it becomes less satisfying, for it oversimplifies some important interpretive issues. I highlight three: debates over Polanyi's realism, debates about his religious convictions, and his relationships with his philosophical peers. Apart from a terse footnote that acknowledges that Polanyi's realism is a contested issue, Mitchell treats it as a settled topic. One wishes that Mitchell had given more a detailed account of where the fault lines lie and why he interprets Polanyi the way he does. Mitchell does a better job with the contested matter of Polanyi's religious convictions. There at least, Mitchell not only acknowledges the conflict between interpreters, but also recounts some of the conflicting evidence (117-122). His treatment again remains incomplete, however, for this time, Mitchell is curiously content not to take a stand concerning what Polanyi's religious convictions were. One would also like for Mitchell to say more about what is to be learned from the juxtapositions of Polanyi with Oakeshott, Voegelin, and MacIntyre. Is it simply that good minds run along similar trajectories (which would seem to be the main insight to be gleaned)? For example, Mitchell interestingly attributes any disagreements between Oakeshott and Polanyi to the differences between an idealistic skeptic and a realistic post-critical thinker (142). One wonders, however, what that impasse suggests for ways to move beyond it. Each time Mitchell relates Polanyi to a contemporary thinker, he emphasizes the similarities between them and Polanyi, leaving differences unexplored, thereby foreclosing the possibility of learning from these other interlocutors.

In sum, the book is strongest when it offers an exposition of Polanyi's thought and weaker when it broaches interpretative issues. Nevertheless, since the primary purpose of the book appears to be to introduce Polanyi to those who do not know his work, it should be treated as a success. Those who are inclined to pursue Polanyi further will still learn at least some of the issues yet to be resolved. They will also be better equipped to form their own tacit integrations from the clues ably provided here.

II. Polanyi as a Political and Economic Thinker: Mark Mitchell's Account Walter Gulick

While by now there are quite a number of books on Michael Polanyi's thought, no other introductory survey is quite as firmly rooted in Polanyi's political and economic thought as Mitchell's work is. Given that Mitchell is an Assistant Professor of Government, this sort of emphasis is not surprising. The concluding sentence of Mitchell's Preface captures well his overriding aim in discussing Polanyi's thought: "Polanyi should be understood as a political philosopher who rightly grasped that liberty depends on resources beyond politics" (xiii). That is, Polanyi's notions of personal knowledge and the tacit dimension, the centerpieces of much attention to Polanyi's thought, are seen by Mitchell as contributors to the social cohesion that makes liberty possible and meaningful. Tradition, the authority of a master, and commitment to the reality of moral and spiritual ideals are among the other contributors to meaningful social existence sheltering personal liberty that Mitchell highlights.

These introductory comments should not be taken to mean that Mitchell slights the epistemological or ontological dimensions of Polanyi's thought. Indeed, exposition of this dimension of Polanyi's thought forms the heart of the book. However, Mitchell is keen on tying the Polanyian revolution in knowing to the concern for freedom of conscience and avoidance of political chaos that motivated Polanyi's turn from science to economic and social theory. Thus right after Mitchell begins his work with a fine chapter succinctly describing the broad contours of Polanyi's life, he turns to the social and economic concerns that increasingly captivated Polanyi in the thirties and forties. And he concludes his study with a chapter long comparison between Polanyi's ideas and the thought of three political philosophers of the twentieth century, Michael Oakeshott, Eric Voegelin, and Alasdair MacIntyre. Political philosophy is of central importance in Mitchell's study of Polanyi.

One of the chief virtues of Mitchell's book is that it is concise and clearly written. In contrast to the struggle Polanyi sometimes had to make his ideas intelligible, Mitchell's prose is lucid – sometimes so clear as to obscure Polanyi's sensitivity to the struggle involved in discovery, the risk involved in commitment, and the feeling and passion animating our tacit impulses. I do not mean to suggest Mitchell's approach is less profound than Polanyi's, but merely to note that there is a very different feeling tone involved in reading Polanyi than there is in reading Mitchell. Focal clarity predominates in this biography of ideas, whereas in reading Polanyi one sometimes feels that not only is the tacit dimension discussed, one is immersed in it. And out of this immersion sometimes Polanyi's prose soars to majestic and unforgettable heights rarely found in any philosopher's writing.

Chapter One, in which Mitchell introduces the reader to Polanyi's life and accomplishments, gives the reader some general idea about Polanyi's work in physical chemistry, but this is not the book to turn to if one wants to learn about Polanyi the scientist. In a fairly lengthy section in his second chapter, Mitchell describes Polanyi's notion of science as "the open-ended attempt to understand reality" (43), yet it is the constraints on the open-ended search that loom largest in his account: the dependence on professional tradition and authority within the scientific community, belief in transcendent ideals that safeguard scientists from

internal or external tyranny, and submission to self-set rules of procedure and adjudication. Science in its broad role as a model of thought and procedure is highlighted in this account.

So how does Mitchell frame his discussion of the significance of Polanyi's social and political thought? He appeals to Polanyi's account of moral inversion and then characterizes "the twentieth century as the bloodiest period of utopian political experimentation the world has ever witnessed" (xi). Certainly Polanyi wanted to account for the savage tragedies of the twentieth century, and he was no fan of utopias, but with the exception of the earliest phase of Lenin's Russia, I doubt that he sees the century's miseries as deriving so starkly from the pursuit of utopias. The extreme slaughter of the world wars and communist control was carried out by power hungry manipulators of ideology and resentment – Hitler, Stalin, Mussolini – rather than by persons with utopian visions. The demonic climax of utopian thought seems rather to have occurred as the French Revolution unfurled as an expression of Enlightenment thought. Indeed, Mitchell notes (53) that Polanyi saw the French Revolution as that turning point in history where reliance on tradition and authority was overturned and replaced by a passionate desire to improve society. What Mitchell does not make sufficiently clear is that Polanyi affirmed the liberal spirit derived from the Enlightenment that Europe enjoyed in the late nineteenth century even as he argued for the importance of tradition and authority.

In the book's central chapter on tacit knowing, Mitchell's usual sure-footed exposition occasionally falters. He claims that "the tacit dimension of knowing consists in an integration of two mutually exclusive elements – the subsidiary and the focal" (76, see also 110 for a similar problematic claim with respect to comprehensive entities). No, it is the integration of subsidiaries that forms the focal. After correctly noting that integrated particulars become more than the sum of their parts, he states, "The resulting Gestalten, if integrated successfully, are entities more real than the particulars of which they are composed" (84). This is often but not necessarily the case, for the criterion of greater reality is that an entity has richer manifestations in the future than its alternative entities. The forceful members of a committee may have a far greater impact in the future than the committee of which they are integrated members. Similarly, Mitchell's shorthand summary of Polanyi's complex understanding of reality ("For Polanyi, intangibles are more real than tangibles" [84, see 114]) is flawed. Minds may be more real than cobblestones, but the planet earth is more real than an idle fantasy. Finally, Mitchell follows Polanyi in stressing the indispensability of the active element in transposing subjective passivity into personal knowledge (98), so my critique may be more properly addressed to Polanyi than Mitchell. For key components in Polanyi's description of personal knowledge are ignored by over-emphasizing active commitment: the fact that insight often comes as a gift (the Pauline emphasis on grace), and passive evocation helps bring the requisite particulars into place to be actively integrated.

Mitchell's interpretation of Polanyi is remarkably thorough for a relatively brief book. The picture that finally emerges of Polanyi is of a quite conservative political philosopher, a picture that reflects fairly on much of Polanyi's writing. But Polanyi is also in many ways a liberal thinker, one who firmly opposed totalitarian tendencies by championing free inquiry to gain knowledge and secure the good. He called for a society of explorers to uncover new truth by breaking out of unduly constraining frameworks of thought and practice. His philosophical writings, culminating in *Meaning*, celebrate free individuals in communities of inquiry exploring the meanings inherent in religion, the arts, and the literary world. Polanyi endorsement of the passion to explore, know, and create is not ignored by Mitchell, but I question whether it is given its proper weight in the book as a whole.

Yet let my final word about Mark Mitchell's book be one of appreciation for his gifted exposition of Polanyi's thought. I enthusiastically endorse his work as an introduction to Polanyi, although I would also caution novices that the book is selective as any book must be, and that there are riches in the original works that Mitchell's exposition only hints at. But as a prolegomena to Polanyi, this is outstanding work.

III. Reviewing the Reviews

Mark T. Mitchell

This sort of exercise is bound to conjure up a variety of feelings that, while certainly natural, must not be allowed to overshadow the purpose of the exercise, which, I take it to be, the intelligent discussion of a book. First, I am grateful to Phil Mullins and the editorial board of *Tradition & Discovery* for setting up this exchange, however brief, between two reviewers and yours truly. Along with that, I am grateful for the generous way in which both Paul Lewis and Walter Gulick review my book. Their spirit of conviviality is, I think, evident and much appreciated by the author. Second, I suppose it is natural to feel a bit defensive when one's work is criticized, however mildly. One finds one's self muttering such things as "but isn't it obvious?" and "surely he doesn't think..." and "but of course that's what I meant." And finally, if, as is the case here, at least some of the criticisms hit their mark, the author is bound to experience some feelings of regret and find himself wishing he had the chance to re-write a section or to fix a sentence or to clarify a point. But alas, what is done is done and the words remain, the accurate and the clear along with those that could be improved. But with all that, it is helpful to me (and I trust to the readers of *Tradition & Discovery*) to engage the criticisms laid out by Lewis and Gulick, and I think it might be simplest if I take the reviews one at a time.

Lewis provides a summary of the various parts of my book before suggesting that the weakest parts are interpretive rather than expositional, for, in his view, some controversial points are oversimplified. Before addressing each specific point, it should be reiterated that this volume belongs to a series (ISI Book's Library of Modern Thinkers), and the intent of this series is to provide a brief, clearly written introduction to thinkers who have, for various reasons, been neglected. The intended audience is college students and other non-specialists. In that light, while there are among Polanyi scholars plenty of controversial issues, I took it as my primary role to introduce Polanyi's thought and, secondarily and where appropriate, briefly to point out unsettled issues or points of controversy. I did not want to get mired in debates that, while important to Polanyi scholars, might seem trivial or, more likely, impenetrable, to those who were encountering Polanyi's thought for the first time. With that caveat, let us turn to Lewis's three criticisms.

First, he notes that I spend little time on the much debated question of Polanyi's realism. Readers of *Tradition & Discovery* will, of course, have at least some sense of what this debate entails. It turns on the status of moral, religious, and aesthetic entities. Do these have existence independent of knowing minds and are therefore objects to be discovered? That is, are they the same, ontologically speaking, as atoms and galaxies and $e=mc^2$ or are they ontologically dependent on the creative imagination of the knower? This debate surfaces regularly in Polanyi scholarship—for a good introduction, an entire issue of *Tradition & Discovery* was devoted to this theme (Vol. XXVI, number 3 [1999-2000]). As Lewis notes, I spend little time on this controversy. I do, for interested readers, include a long footnote indicating the parameters of the question and listing further readings on the matter. My decision to devote little time on this controversy was merely a judgment based on what I thought should be included in a work of this sort.

Second, Lewis turns to my discussion of Polanyi's religious convictions. I do, as he notes, spend considerably more time on this and attempt to show some of the different interpretations by various scholars and acquaintances. Lewis faults me for "being curiously content not to take a stand concerning what Polanyi's religious convictions were." To which I can only reply "guilty as charged." I find this question a great puzzle and, quite frankly, at the end of the day, I don't feel confident enough to take a stand one way or another. It is clear, though, that Polanyi was keenly interested in religion, specifically the Christian religion. He frequently employed religious language to make his points, and I am struck by how often his works conclude by moving right to the cusp of theology, as if to suggest that this is the direction his thought naturally goes. Indeed, the fact that theologians seem to have taken him more seriously than any other academics is instructive. Perhaps, like Kierkegaard, Polanyi wanted to think of himself as a Christian, but, at the same time, was plagued by doubts that caused him to be less than clear about the content of his religious convictions. More than that, I cannot say.

Third, Lewis argues that, in the final chapter, while I show affinities between Polanyi and several 20th century thinkers, I focus on the similarities and do not attend sufficiently to the differences. These differences, Lewis suggests, might help us better understand the issues at stake and formulate ways to move beyond contemporary philosophical impasses. Lewis makes a good point. More could be said about the differences. I do focus primarily on the similarities and the logic of this choice could, I think, be made more explicit if I had more clearly tied this section to the concluding pages of chapter one. There I write of Polanyi's disappointment that his work was not more widely received. He thought of himself as a lonely explorer hacking his way out of the darkness of the modern jungle only to find that precious few people had followed. I quote philosopher of science Rom Harré, an Oxford colleague, who took Polanyi's work seriously. He knew Polanyi's sense of intellectual solitude, but he believed Polanyi was mistaken. In a 1967 letter he wrote: "I have always thought, Michael, that your work lives right in the British tradition....One day I shall persuade you that you are not a lone hand but a member of what is to me a great tradition."¹ By focusing on the similarities with certain contemporaries, I was attempting to show, with Harré, that Polanyi was not as alone as he sometimes felt.

Walter Gulick begins by emphasizing the fact that this book is "firmly rooted in Polanyi's political and economic thought." He goes on to suggest that this is not surprising given the fact that I am a professor of government. While all that is quite true, I think my emphasis on the moral and political roots of Polanyi's non-scientific work is not merely idiosyncratic. I go to some length to show that Polanyi was motivated to move outside of the laboratory precisely because he was concerned about threats to freedom that seemed to be pressing in on all sides. He understood that the attempt to direct science was dangerous to the practice of science just as the attempt to direct an economy resulted in economic disaster. He recognized that communism and fascism were not merely another tiresome instance of ambitious men with large armies seeking to dominate the world. He saw that at their roots they were infected by skepticism as well as impelled by a moral fervor without grounding in anything other than human desire. In short, Polanyi, one is tempted to say, was wakened from his dogmatic slumber by the moral horrors created by political entities. In the preface to his 1951 collection of essays titled *The Logic of Liberty*, Polanyi notes that the essays represent "my consistently renewed efforts to clarify the position of liberty in response to a number of questions raised by our troubled period of history." But he recognizes that a fully adequate and coherent account will have to go deeper. "I have thought of melting down the material and casting it into a mould of a comprehensive system, but this seemed premature. It cannot be attempted without establishing first a better foundation than we possess today for the holding of our beliefs" (LL, xvii). That better foundation was finally articulated in *Personal Knowledge*.

Next Gulick points out that I am in error when I speak of 20th century ideologies as utopias. He writes: “I doubt that he [Polanyi] sees the century’s miseries as deriving so starkly from the pursuit of utopias.” Instead, the horrors of the 20th century were inflicted by “power hungry manipulators of ideology and resentment.” On one level, Gulick is quite right. The motive force most evident in communism and National Socialism is not utopian but a sort of spiritual pathology. And to the degree that is the case, Gulick is correct. But further back, standing behind the pathology and subtly justifying it is, I think, the residue of utopianism without which these movements lose much of their power to compel. The dream of a world-wide communist state is, to be sure, utopian, and even if that took a backseat to the immediate task of purging dissent and acquiring the resources and buffer that dominating Eastern Europe provided, this “just-so story” in the background justified state action in the minds of both perpetrator and citizen observer. So, too, the politics of resentment that fueled National Socialism. The dream of a pure Arian race leading the world in all areas of human endeavor is utopian. From such a position it is perfectly natural to identify and seek to purge those who, for various reasons, undermine or threaten the dream. This vision—what Eric Voegelin calls a second reality—justifies, at least rhetorically (and one should never underestimate the power of rhetoric), actions of baseness and horror. At the very least, the utopian dream, perhaps only tacitly held, soothes the consciences of those carrying out the will of the madman.

Gulick notes that my exposition of tacit knowing sometimes fails adequately to express Polanyi’s views. He quotes from my book: “the tacit dimension of knowing consists in an integration of two mutually exclusive elements—the subsidiary and the focal.” Gulick responds: “No, it is the integration of subsidiaries that forms the focal.” I would say this is true in one way but not in another. Polanyi conceives of knowing as a from-to structure. We attend from the subsidiaries to the focal target. But is there something toward which we focus? If there is an external reality, the answer must be “yes.” The *meaning* of that external entity emerges when we bring to bear the subsidiary clues that constitute its meaning. Our eyes, for instance, see the face before us, but we do not recognize it as a face much less a particular face unless and until the subsidiary clues bear on it. This is, of course, an imaginary game that can never be played, for though the subsidiary clues and the focal target can be conceived distinctly, all knowing includes both concepts. But the fact remains that there exists a target the reality of which does not depend on the subsidiary clues brought to bear by the knower. So perhaps the problem here is between the meaning of the object and the brute reality of the object. There must be a target (something to be known) before subsidiaries can be brought to bear on it. And the fact that we bring these to bear on something implies that there is a something. It is the focal target that, apart from the subsidiaries, cannot be comprehended as meaningful.

Next, Gulick points out that my short summary of Polanyi’s understanding of reality is inadequate. Where I write that “for Polanyi, intangibles are more real than tangibles” Gulick points out that “minds may be more real than cobblestones, but the planet earth is more real than an idle fantasy.” Gulick is correct. My summary lacks the nuance needed to prevent the kind of absurdity that Gulick shows could result. Hopefully, though, this kind of misunderstanding is alleviated by the fact that immediately after my shorthand definition I quote a more lengthy explanation from Polanyi himself. As he puts it, “I shall say, accordingly, that minds and problems possess a deeper reality than cobblestones, although cobblestones are admittedly more real in the sense of being tangible. And since I regard the significance of a thing as more important than its tangibility, I shall say that minds and problems are more real than cobblestones” (*TD*, 33).

Finally, Gulick points out that the picture of Polanyi that emerges in my book is of “a quite conservative political philosopher.” While Gulick acknowledges that this portrayal comports fairly with much of Polanyi’s writing, he goes on to say that it is also the case that Polanyi was a liberal thinker who “firmly opposed totalitarian tendencies by championing free inquiry to gain knowledge and secure the good.” I completely agree, and while I do not want to get bogged down in a discussion of the various uses of the terms “conservative” and “liberal” I can say with some confidence that a conservative can legitimately oppose totalitarianism and champion free inquiry to gain knowledge of the true and the good. So the opposition suggested by Professor Gulick can be misleading. Polanyi, I think it is fair to say, is a classical liberal who recognized that the liberalism of, say a John Stuart Mill could not sustain itself. Polanyi styles himself as a sort of blend of Thomas Paine and Edmund Burke. He seems to understand that liberalism without restraint is as harmful as a static conservatism. Polanyi writes: “But I believe that the new self-determination of man can be saved from destroying itself only by recognizing its own limits in an authoritative traditional framework which upholds it. Tom Paine could proclaim the right of each generation to determine its institutions anew, since the range of his demands was in fact very modest. He unquestioningly accepted the continuity of culture and of the order of private property as the framework of self-determination. Today the ideas of Tom Paine can be saved from self-destruction only by a conscious reaffirmation of traditional continuity. Paine’s ideal of unlimited gradual progress can be saved from destruction by revolution only by the kind of traditionalism taught by Paine’s opponent, Edmund Burke” (*TD*, 62-3). Polanyi, it might be said, is a conservative liberal.

To conclude, as I pointed out at the beginning of the essay, this book is an introduction. Such a project provides the author with a rare opportunity to introduce others to a thinker the author believes is significant and, as in this case, one who has exercised no small degree of influence on the intellectual development of the author. As such, it is in part an expression of gratitude offered by an admirer (though we scholars are chided to keep our distance). It is also written in the hope that perhaps it will prompt some readers to take the time and make the effort to read the original. For a book like this is intended merely to serve as a signpost pointing toward a thinker whose merits deserve to be recognized and appreciated and, perhaps, taken to heart.

Endnotes

¹ Michael Polanyi Papers, [Box 6, Folder 9], Special Collections Research Center, University of Chicago Library.

Notes on Contributors (continued from p. 29)

Allen R. Dyer (dyer@etsu.edu) is Professor of Psychiatry and Behavioral Sciences at East Tennessee State University. After completing his training in medicine, he earned a Ph. D. in philosophy at Duke University.

Tony Clark (clarkto@friends.edu) was for many years an Anglican pastor in UK but more recently completed his doctorate in philosophical theology at St. Andrews and then become Assistant Professor at Friends University in Wichita, KS. His new book *Divine Revelation and Human Practice* will soon be reviewed in *TAD*.

Phil Mullins (mullins@missouriwester.edu) has been the editor of *Tradition and Discovery* since 1991.

On Working with Michael Polanyi

Peter H. Plesch

[Editor's Note: Immediately following are excerpts from P. H. Plesch's "Michael Polanyi and the Discovery of Co-Catalysis: Discussion of an Autobiographical Letter from Michael Polanyi, FRS to Peter H. Plesch of 17 December 1963." Although this is a technical article, it should be of interest also to those who know Polanyi's philosophy of science or are interested in Polanyi's role in the history of chemistry. This excerpted version of Professor Plesch's article includes a few annotations to help those without a background in chemistry. Plesch's full copyrighted article was published online on 5 February 2004 by Wiley InterScience (www.interscience.wiley.com) in *Journal of Polymer Science, Part A* (2004) 42, 7: 1537-1546. These excerpts are reprinted with permission of John Wiley and Sons, Inc. Thanks are due not only to John Wiley and Sons, Inc. but also to Will Stillwell, Peter Plesch, and Plesch's colleague Pauline Weston. Will Stillwell edited and annotated the original *Journal of Polymer Science, Part A* article, working with Professor Plesch, who also corresponded with *TAD* editor Phil Mullins about his original article. Subsequently, Professor Plesch wrote a short piece titled "Michael Polanyi and the Paranormal" that complements his original article's discussion of his work with Polanyi. This is included after the excerpts from Professor Plesch's *Journal of Polymer Science, Part A* article.]

ABSTRACT Key Words; Peter H. Plesch and Michael Polanyi, scientific discovery.

This two-part article includes the following: (1) excerpts from Peter H. Plesch's essay originally published in *Journal of Polymer Science, Part A* (2004) 42, 7: 1537-1546 which reflects on Plesch's research with Polanyi; (2) Plesch's short account titled "Michael Polanyi and the Paranormal" which complements his original article's discussion of his work with Polanyi. Together these two pieces provide interesting insights into Polanyi's work as a research scientist as well as reflections on the nature of scientific discovery.

I

Excerpts from P. H. Plesch's "Michael Polanyi and the Discovery of Co-Catalysis: Discussion of an Autobiographical Letter from Michael Polanyi, FRS to Peter H. Plesch of 17 December 1963"

ABSTRACT: The origin of this memoir was a letter from Michael Polanyi (M. P.) to the present writer (P. H. P.) about their researches in the mid-1940s into the mechanism of what are now called cationic polymerizations*, at the University of Manchester (England). When the Manchester-trained researchers had made little progress with what was a very recalcitrant problem, M. P. thinking that scientists from a different background might be more successful, got P. H. P. from Cambridge to work with an Oxford-trained chemist. In his letter, M. P. analyzes his tactics and the mistakes made in directing this research. The "Manchester" theory they successfully developed was rapidly accepted because it could also explain observations on other related reactions. The involvement of ions established a link with nonaqueous electrochemistry.

* polymerization: a chemical reaction which provides very large molecules by a process of repetitive addition.

Peter Hariolf Plesch

Peter Hariolf Plesch was born on February 14, 1918, in Frankfurt am Main (Germany). He attended the Collège Français (Berlin) and Harrow School (England). He received his B.A. from Trinity College (Cambridge) in 1939, his Ph.D. from Manchester University in 1946, and his Sc.D. from Cambridge University in 1970. During the war (1940-1945), he worked on ceramics, alginates, and isobutene polymerization. He was an assistant lecturer at Manchester University (1946-1950) and a founding member of the first British postwar university, the University College of North Staffordshire (later the University of Keele), as a lecturer in 1951. He retired in 1985 as professor of physical chemistry and is still active there as a professor emeritus.

Introduction

The highly original polymath Michael Polanyi (M. P.) was such an influential physical chemist and philosopher and a personality so complex that any self-revelatory writing concerning his own motives and feelings must be of interest to those who try to understand him, and especially (of course) to any would-be biographers. That is my reason for making public a letter that I discovered recently while sifting my scientific archives.¹ It is reproduced here in facsimile. . .

To make the full import of that letter intelligible, it is necessary to outline the personalities and the situations of those who figure in the events described, and also the state of polymer science in Britain in the early 1940s. An additional reason for doing this is that M. P.'s war work, to some of which I contributed, is not mentioned in any Obituary Notice that I have seen, and that M. P.'s thoughts about chemical mechanisms beyond transition-state theory are also very little known. This is also necessarily an account of the circumstances of my discovery of the phenomenon of cocatalysis* in cationic polymerizations during my Ph.D. research at Manchester University under M. P.'s joint direction², which he rated an important event in his scientific career and which has not been described previously. I have checked my recollections of the events of almost 60 years ago against the records in my *Laboratory Notebooks* of 1944-1947.^{3,4}

Personalities

My father, the physician and physiologist Janos Plesch, was well acquainted with his fellow Hungarian and fellow medic M. P. in Berlin.^{5,6} In 1933 M. P. moved from the Kaiser Wilhelm Institute for Physical Chemistry to the University of Manchester (United Kingdom), following an invitation to take the chair of Physical Chemistry there. My family fled from the Nazis to London in July 1933, and there it was that my father and M. P. took up contact again. . . M. P. asked my father whether his chemist son might be interested in a new vacancy for an assistant in his research group; that is how I came to join M. P. as a research assistant at Manchester University on November 7, 1944. . .

*catalyst : a substance which affects the rate of a chemical reaction without being consumed in the reaction; "cationic" is the adjective; cocatalyst is a substance without which the catalyst cannot function.

The position of M. P. in the Britain of the late 1930s was similar to that of very many intellectuals, scholars, and scientists of Continental origin, many of whom had experienced the dire effects of the fascist dictators at first hand. With a few notable exceptions, the British Establishment, especially the Civil Servants, regarded foreigners, no matter who or whence, with strong suspicion. A detailed treatment of this theme is another story, but as far as M. P. was concerned, this generated a disillusionment that was not widely known outside the circle of his friends because M. P. never became bitter. He resigned himself to the fact that neither his formidable intellect nor his great experience in physicochemical research would be used in attempts to solve some of the really serious major scientific-technical problems that arose during the war; that was a contributory reason for the waning of his scientific interests and his increasing preoccupation with socio-economic problems, which culminated in his leaving chemistry and turning, via economics and sociology, to philosophy.

The Problem

However, because of M. P.'s experience with various forms of catalysis and reaction kinetics, he and his laboratory were assigned a problem that had been baffling chemists at Imperial Chemical Industries (ICI). It was the polymerization of isobutene (IB)* to poly-isobutene. This reaction is closely related to the formation of Butyl rubber, a copolymer* of IB and isoprene*, and which was one of the few synthetic rubbers known at that time, and that was a very recent invention.⁷ The probable reasons for ICI choosing M. P.'s laboratory, although he had no previous experience of polymer chemistry, was that he and Manchester University were well known to the chemists concerned; it was conveniently near, and in any case one of the few facts known about the polymerizations of this type was that they are completely different from the free-radical polymerizations being studied by Harry (later Sir Harry) Melville and a very few others. For example, in contrast to the radical polymerizations, the catalysts involved were of the type used in the Friedel-Crafts reactions, which are metal halides such as the chlorides of aluminum, tin, titanium and boron trifluoride. The polymerization could yield products ranging from viscous oils to very tough rubbers, depending on the length of the polymer chains [molecular weight (MW)], and it could be very fast, almost explosive. The polymerizations were usually done in a solvent such as hexane or ethyl chloride at temperatures below ambient, but although the reaction had been known for several years, there were few publications, largely because of its great rate and because the MW of the polymer and its yield were extremely irreproducible.⁸ However, a few features seemed to be consistent and general. The lower the temperature at which the reaction was done, the faster it would go and the higher the MW and the yield of the product, and very often the polymerization would stop when there was still some unreacted monomer* and catalyst present together in solution in the reactor. These features are so unusual that they presented a serious challenge to chemists.

Directly in charge of the research students doing this work were A. G. Evans, a lecturer in physical chemistry, who had done his first degree and his Ph.D. at Manchester University, and Fred Fairbrother, an inorganic chemist, also Manchester-trained and a specialist in the chemistry of the Friedel-Crafts metal

*isobutene: an easily polymerizable four-carbon hydrocarbon.

*copolymer: polymer formed from more than one monomer.

*isoprene: an easily polymerizable five-carbon hydrocarbon.

*monomer: substance which forms polymers.

halides. Under his guidance one of the research students had done a (rather rough and ready, quick and dirty)

comparative study of a range of metal halides with IB, from which it emerged that titanium tetrachloride was probably the most suitable one to use for a more detailed study (see M. P.'s letter).

In an attempt to circumvent an intractable problem, M. P. had also called upon his experience with other catalyzed reactions and expected to gain useful information by a study of an analogous reaction, the much slower formation of a mixture of oligomers* (dimers to tetramers) from diisobutene (DIB), a mixture of the two isomeric dimers of IB, with the same catalysts, and several of the Ph.D. students were working on that reaction.

By roughly the first quarter of 1944, M. P. decided that the lack of progress on controlling or understanding Friedel-Crafts-catalyzed oligomerizations and polymerizations indicated the need for a different approach. As he explained it to me a few years after I had joined his research group, he judged that what was needed were scientists with a totally different background and training because all those engaged upon that project had been Manchester-trained and entirely academic. So he assigned me, from Cambridge and with four years of war-time industrial research experience, to work under the direct supervision of a young lecturer who had obtained his first and second degrees at Oxford, one H. A. Skinner (H. A. S.), known as Hank. He had recently left war-related work on fluorine chemistry at ICI and was persuaded by M. P. to join in what was then M. P.'s major enterprise and center of interest, chemical energetics. Essentially, this is based on thermochemistry, and that was the field in which H. A. S. subsequently made his very considerable reputation.

.....
To understand the significance of M. P.'s action, it is necessary to realize that in the 1940s there were distinctly different paradigms in many areas of chemistry that reflected the views of the influential "grand old men", some of them the authors of the textbooks regarded as "authoritative"; there was a diversity of theories and points of view, such as the controversy between the followers of, the collision theory and the transition state theory of chemical reactions and the equally irreconcilable views of Irving Langmuir and M. P. on adsorption. It took someone of the philosophical insight of M. P. to realize that this diversity of theories as well as other differences of scientific training in different centers would influence the approach to problem solving of the scientists coming from various traditions. It became clear before long that M. P.'s insight led to the desired progress.

The events following my entry into the field that became known as cationic polymerization can be summarized rapidly. I started my experimental work on the polymerization of IB with the technique developed by my predecessors ... It is unnecessary to describe here the then prevailing technique and how I introduced various palliative modifications by more than 50 experiments over nearly a year, but I could not devise any satisfactory improvement ... It was urgent to devise some method by which the monomer (IB or DIB) could be introduced into the solvent, the mixture cooled to the required temperature, and a solution of the catalyst then added to it, all in a closed system. It thus became clear that a really adequate solution of the technical problem required a fundamentally new device, and so I invented one: a pseudo-Dewar vessel.

When I described my invention to M. P. to get his approval for our glass blower to make me such a device, he was most skeptical that a sufficiently good vacuum could be obtained to provide the required

*oligomers: polymerized molecules

adiabatic* conditions. Because of his very extensive experience with high-vacuum apparatus in his own

laboratory and as a consultant to industry, his doubts had great weight. Nonetheless, he agreed to have the vessel made, and within a very few days I had it rigged up and working, and it worked well.

As happens so often, a new technique revealed new phenomena. The first few experiments showed that with hexane as the solvent, IB as the monomer, and titanium tetrachloride as the catalyst, the polymerizations starting at about -80 degrees Celsius generally did not go to completion, but when the reactor was opened, the remaining monomer polymerized. The polymerizations could also be restarted by blowing moist air, but not well-dried air, through the reaction mixture. Two things then happened. We remembered that one of A. G. Evans' (A. G. E.'s) students, working with DIB, had found a very similar behavior, which was known as the "Allen effect" among us research students after him to whom it had happened; it was far from clear why A. G. E. had not followed it up nor M. P. urged him to do so (see M. P.'s letter), and it became an obvious next job to find out which constituent of the atmosphere was responsible for restarting a reaction that had stopped. It took me almost a month to establish firmly that it was water, that is, atmospheric moisture.

A discovery of the type described requires several consequential developments. First, I took the view that a new phenomenon requires a new name. As the term "promoter" was being used extensively, especially in the United States, by industrial chemists to denote a substance that accelerates a catalyzed reaction that would go (more slowly) without it, I devised the term cocatalyst by analogy with coenzyme to denote a substance that is necessary to make the reaction go at all⁹. To fit the new finding into the corpus of existing chemistry, we needed to devise an explanatory theory. This was not too difficult...and it became the essence of what I subsequently called the Manchester theory because I considered it the result of a collaborative effort there, but its origins go back to the hydrocarbon chemistry of the 1930s. It gave the discovery of cocatalysis the status of a significant discovery because it linked the cationic polymerizations to the chemistry of positively charged species and provided a physicochemical dimension by linking it to the (then very young) field of non-aqueous electrochemistry.

The extent to which M. P. was involved in what was for him a new field at the end of his chemical career seems to have been largely forgotten, and it is not even mentioned in his Royal Society Obituary⁶. However, M. P. showed his interest very clearly by convening on September 15, 1945 what was the first discussion meeting on Friedel-Crafts polymerizations¹⁰, and by the way in which he wrote about it in his letters to me; see, for example, the beginning of the second paragraph of the letter under discussion here.

Toward the end of the 1950s, the surge of interest leading to an increasing volume of publications on cationic polymerizations indicated a need for gathering together authoritative and critical reviews of the different parts of the subject. I undertook the production of such a work with the help of 18 contributors, and in 1963 presented a copy of the resulting 700-page volume to M. P.¹¹ It was this gift that moved him to write the letter of thanks of December 17, 1963 that is the central subject of this article.

*adiabatic: occurring without an exchange of heat with the surroundings.

The Letter

22 UPLAND PARK ROAD

Oxford

17th December 1963

My dear Peter,

I have looked through your book in a hurry and want to congratulate you on this achievement. The work is lucidly organized and carried out with meticulous care.

The collective enquiry from which much of this material has taken its origin is one of my most precious experiences. May I tell you something about the mistakes which have delayed the discovery of the co-catalyst. The main stumbling block was a fault of mine which has made me miss a number of discoveries. It was excessive ambition. I knew that the theory of energy transmission made it difficult to understand rapid exchanges of vibrational energy between molecules. I hoped to discover evidence of this in the curious behaviour of isobutene polymerization. When A.G. Evans first reported that a di-isobutene sample failed to react when BF_3 was bubbled through it, I jumped to the conclusion that we had hit on an obstruction of the transmission of vibrational energy necessary for the reaction. I tried not to think of water and hence never succeeded in reproducing the inert di-isobutene. (Actually, A.G. poured water into the inert sample and caused it to react, but this told us nothing, since it was normal for isobutene to react anyway.) I should have then and there asked for drying experiments to be made with metallic sodium, but this idea was discouraged in me by excessive ambition.

Another thing which I seem to remember – but you must correct me, if I am wrong – is that you had just started mixing your TiCl_4 with di-isobutene (?) and called me in alarm at its failure to react. Then, as it is on such occasions (my memory is blurred), it suddenly seemed to have become obvious to all that you had just succeeded in your purpose of clearing up the mechanism (page 2) of the reaction by conducting it under carefully controlled conditions. The result was, of course, to some extent strategic, since it was the systematic variation of the reagent which made us finally hit on one which needed so large a concentration of water that even rather primitive drying conditions revealed the necessity of this component.

(You know that Richard Ong, who committed suicide about two years ago, had ruined himself professionally by always aiming at a greater discovery than that which the problem in hand could offer and thus missing its solution. He did a beautiful piece of work when limiting himself, for once, to something as simple as the monomolecular dissociation of N_2O_5 .

Students should be told about this pitfall.)

I wonder whether your memory bears out my recollection.

Yours ever,

Michael (hand-signed)

Detailed Comments on M.P.'s Letter of December 17, 1963

After the foregoing necessary scene-setting, I can now make some detailed comments on that letter, which is the principal theme of this article.

The significance of the first sentence of the second paragraph has been mentioned, and the same message is expressed by M. P. in several other letters to me. He says clearly that his venture into polymerization chemistry and kinetics* had been for him a valued experience, and I am sure that this is more than a polite turn of phrase from an exceptionally kind man. The rest of this paragraph has many implications and manifold connections. Its central theme is the theory of energy chains as the propagators of a polymerization. From my recollections, it emerges that the energy chain theory of chain reactions that was occupying M. P. seemed to us research students too vague and therefore difficult to visualize, and it seemed unsuitable for testable calculations.¹² The form in which it found its way into the Manchester publications on Friedel-Crafts polymerizations involved the excess vibrational energy resulting from the initiation step being renewed at each propagation step by the enthalpy* of polymerization. It was unclear to the critics how such an accumulation of vibrational energy could be renewed and preserved to produce a chain reaction. Even without calculations, chemical common sense seemed to indicate to most of us that any excess of energy would be dissipated at the next collision; I at least was content to leave that matter un-understood for the time being. However, I am confident that M. P. would have discussed it thoroughly with his close friend and frequent collaborator M. G. Evans (M.G.E.)¹³.

I had largely forgotten about this theory until 1999, when I prepared for publication in the *Notes and Records of the Royal Society* the proceedings of the symposium on Friedel-Crafts polymerizations, which M. P. had convened at Manchester in September 1945. I there came across the lecture by M.G. E. on energy chains and wondered why that had been included. Then, when in 2002 I discovered the letter under discussion here and thereupon reread our earliest publications on the Friedel-Crafts polymerizations in which energy chains are mentioned, the pieces of the puzzle began to fall into place, and I understood why M. P. had asked M. G. E. to give that talk about energy chains at the 1945 Symposium. Further, I began to see what had been the excessive ambition that forms the central theme of M. P.'s letter; actually, M. P. himself says so fairly clearly. He had hoped to find in the IB polymerization an unequivocal instance of an energy chain, and that would have been a major innovation in reaction theory. The implication is that he considered that finding an explanation of the bizarre behavior of the IB polymerizations in terms of known reaction mechanisms would not be such a big deal. He could not know just how difficult that quest would be and just how many theoretical and technical innovations would be needed to build up the carbenium ion theory*, which was rapidly accepted as most likely to explain the Friedel-Crafts polymerizations.

The passage beginning "I hoped to discover..." shows more than just the consequences of obsession with one pet theory. There is also here a demonstration "*in optima forma*" of how even a very experienced researcher can come to grief, that is, miss an obvious clue to the solution of a problem, by deliberately ignoring

*kinetics: theory of the rates at which chemical reactions occur.

*enthalpy: heat content of a substance, a thermodynamic property defined by internal energy, pressure, and volume.

*carbenium ion theory: a theory based on positive carbon ions as reactive intermediates.

an alternative theory, that is, bypassing a possibility of falsifying his pet theory. As it is, M. P.'s phrase "I tried not to think about water..." opens up another nexus of facts, opportunities, and mysteries to be explored.

In the proceedings of the September 1945 Symposium, a report is included by one L. B. Morgan of ICI, Billingham, dated August 1944, but which was not actually presented at the meeting in which it is recognized that with BF_3 as the catalyst, water plays an important part in the polymerization. Morgan's research group seems to have made use of the results in a Manchester thesis by E. T. Butler, which indicated that water is important. It would have been normal practice for the results of Morgan's apparently quite extensive experimental work to have been made available to M. P. because the Manchester project was sponsored by ICI, but although I remember Morgan and other researchers from ICI taking part in our departmental discussions, I do not recall being offered sight of the ICI results. I cannot say whether this was due to industrial secrecy or because M. P. did not consider them really useful or important. In addition, there was at that time already plentiful evidence in the literature, which was noted subsequently in our early papers, of the role played by water in several reactions involving catalysis by metal halides¹⁴. I was familiar with that work, but I do not recall to what extent M. P. was aware of it. With regard to some events in his laboratory, his memory (as recounted at the end of p 1 of the letter) is not accurate. I never experimented with DIB, [di-isobutene] being particularly careful not to encroach on the territory of A. G. E. who was rather touchy about such matters, and who never got over the fact that the discovery of cocatalysis had slipped through his fingers.

On checking the record in my *Laboratory Notebooks*, I found that, contrary to my recollection, progress after my invention of the pseudo-Dewar vessel was not fast, mainly because of technical difficulties. It took a month and 12 experiments after my invention went into service before I wrote on November 12, 1945 under "Preliminary Conclusions", "Some constituent of the atmosphere is required before the reaction will proceed". It took almost another month before we were reasonably sure that it was the moisture in the air that was the active substance, as we called it at first.

On December 5, 1945 by Experiment 78, I tested a theory that it might be merely the addition of a hot liquid (i.e., one at room temperature) to the cold reaction mix (from -60 to -100 degrees C) that started the polymerization; it did not. Evidently this theory stemmed from M. P.'s ideas about energy chains. These vanished after 1945, preserved perhaps in the Museum of Extinct Chemical Species.

There is, however, another phantasm that needs to be recorded in this context, as it sheds light on M. P.'s chemical thinking at that time. I remember very clearly that before the discovery of cocatalysis, M. P. discussed frequently the possibility that the Friedel-Crafts polymerizations might belong to the category of random phenomena, such as the fracturing of solids, the exact course of which is not predictable, that is, those of which one can only say that they will happen under certain experimental circumstances, but for which one cannot predict when or exactly how they will occur. This intuitive analogy must have originated from M. P.'s experiences with the study and testing of crystalline materials¹⁵. It is clear, however, that the recognition of a phenomenon as of indeterminate origin may tell us little or nothing useful about its nature and mechanism, and so that idea did not take us any further. However, in an attempt to find a rational basis for an apparently random phenomenon, the erratic course of the IB polymerizations, M. P. suggested that I make enquiries at the Cosmic Ray Research unit in the Manchester Physics Department under P. M. S. Blackett. M. P. speculated that we may find exceptionally strong cosmic ray showers coinciding with unusually fast polymerizations-or the reverse. I do not recall what I found there, but it cannot have been very startling, as that line of enquiry

was abandoned quite soon. What is important about this episode is that because cosmic rays were a subject of active research and therefore of discussion in the Staff House coffee room, M. P. was very much aware of them and could think of them as a possible origin of an apparently random phenomenon^{16, 17}.

Because of M. P.'s fascination with irregular natural phenomena¹⁸, it seems appropriate to mention that, as far as I know, M. P. did not draw explicitly a well-defined distinction between repeatability and reproducibility. However, in 1999, still imbued with his ideas, I gave a definition of the distinction that—as happens so often now seems obvious. Repeatability is a term that applies to phenomena, such as the occurrence of corrosion, whereas the concept of reproducibility applies to numbers, the numerical magnitude of physical quantities, such as the rate constant of a chemical reaction¹⁹. M. P. evidently recognized the difference between the two concepts. As an experienced experimentalist, he admitted not being much bothered by irreproducibility because he knew that probably its origin would be found soon. However—like most serious scientists—any well-established but unaccountable unrepeatability troubled him because it marks out an area where there is a lack of understanding, and that brings us back to the status of cationic polymerizations in the 1940s. As he wrote later in the letter we are considering here, he thought that my discovery of cocatalysis had “solved the problem”. What he could not know was that there turned out to be several different mechanisms of initiation of these polymerizations, nor that I would be essentially involved in their elucidation by several laborious investigations over the next half-century²⁰.

One further point that emerges from this letter (last line on p 1) is that M. P. considered me to be the discoverer of cocatalysis, despite the numerous observations of the same, or of clearly related, phenomena by others; I always thought of myself as a codiscoverer, and this seems to be an implication of the multiple authorship of the first publication on the subject²¹.

In this connection it seems useful to recognize two kinds of discovery: mere discoveries and significant discoveries. Implicitly, M. P. is ignoring the several mere discoveries (without consequences) of the effect of water on Friedel-Crafts polymerizations and similar reactions, and evidently recognizing that it was my work that led to the significant discovery of the phenomenon. That was because we could now place the Friedel-Crafts polymerizations into the general category of acid-catalyzed reactions involving a proton transfer and the formation of carbenium ions, as has been indicated previously. In my view, a significant discovery is one that can be placed, not necessarily by the actual discoverer, into an appropriate context because it has happened at the right time; in fact, timeliness manifested by public recognition is an important facet of a significant discovery, such as was that of co-catalysis.

References and Notes

1. The scientific correspondence lecture notes and other scientific papers of the author will be deposited in the archives of the Deutsche Museum, 80306 Munich, Germany.
2. Plesch, P. H. Researches into the Catalysed Low-Temperature Polymerisation of Isobutene. Ph.D. Thesis, University of Manchester. England. 1946.
3. Plesch, P. H. Laboratory Notebooks; 1944-1945; Vol. 1 (deposited in the P. H. Plesch Archive in the Deutsche Museum, Munich, Germany).
4. Plesch, P. H. Laboratory Notebooks; 1946-1947; Vol. 2 (deposited in the P. H. Plesch Archive in the Deutsche Museum, Munich, Germany).
5. M. P.'s first academic qualification was as a Doctor of Medicine in Budapest.

6. For details of M. P.'s career, see Wigner, E. P.; Hodgkin, R. A. Michael Polanyi (1891-1976). Biographical Memoirs of Fellows of the Royal Society of London: 1997; Vol. 23, pp 413-448.
7. Butyl rubber was developed by the Esso Petroleum Co. as a result of a cooperative enterprise with I. G. Farben Industrie, which was only terminated by the U.S.'s entry into WW2.
8. The *locus classicus* was a joint article from Esso and I. G. Farben: Thomas, R. M.; Sparks, W. J.; Frolich, P. K.; Otto, M.; Mueller-Cunradi M. J Am Chem Soc 1940, 62, 276.
9. From about the mid-1970s, the nomenclature was reversed at the instigation of J. P. Kennedy whose research group has been one of the major contributors to the exploration of cationic polymerizations. They called the metal halide the cocatalyst and the third component, such as water, the catalyst because it is, or provides the species that, by cationating the monomer, initiates the polymerization. Latterly, the term "catalyst" has largely been replaced by "initiator" and cocatalyst (now the metal halide) by "coinitiator".
10. Polanyi, M.; Plesch, P. H. Symposium on Friedel-Crafts Polymerisations Notes Rec R Soc London; 1990; Vol. 53, pp 135-141. This was followed by a series of meetings on Ionic Polymerisations (1949 Dublin. 1952 Keele. 1973 Rouen, etc.), which continues.
11. The Chemistry of Cationic Polymerisation; Plesch, P. H., Ed.; Pergamon: London. 1963. The book carries the inscription: "This book is dedicated to the memory of my father, Janos O. Plesch, from whom I learnt to appreciate the Koennenschaftler who can do things; and to Michael Polanyi who showed me the importance of the Wissenschaftler who tries to understand."
12. At that time we were unaware, because M. P. seems not to have mentioned it to us, of the article in which it is shown how to calculate the "time of expectation" required for a bond to acquire a particular energy by collision: Polanyi, M.; Wigner, E. Z f Physik Chem (A), Haber-Band 1928, 439. This article came to my notice while writing this Highlight.
13. M. G. Evans was then professor of physical chemistry at the University of Leeds, and in 1948 he took the Chair at Manchester University that M. P. had vacated. For a brief but illuminating account of their relation, see ref. 6. He was a brother of A. G. Evans.
14. Plesch, P. H. Research 1949, 2. 267-275.
15. Polanyi, M. My Time with X-rays and Crystals. In Fifty Years of X-ray Diffraction; Ewald, P. P., Ed.; A. Oosthoek's Uitgevers-mij: Utrecht, 1962. This excellent read gives a valuable picture of life and times and contains an analysis by M. P. of the mistakes he made in those studies.
16. That cationic polymerizations can be initiated by ionizing radiations was discovered in the 1950s, and this phenomenon was studied by several research groups up to the 1990s. However, a comprehensive theoretical treatment of these polymerizations. which required some quite new ideas, was not given until 1993.¹⁷
17. Plesch, P. H. Philos Trans R Soc London 1993, 342, 469-504.
18. Polanyi, M. Science, Faith and Society. The Riddell Lectures; Oxford University Press: London, 1946 (extended version, University of Chicago Press: Chicago, 1964). In this work M. Polanyi discusses several instances of such apparently irregular phenomena.
19. Plesch, P. H. Found Chem 1999, 1, 7-16.
20. Plesch, P. H. Developments in the Theory of Cationoid Polymerisations; RAPRA: Shawbury, 2001, ix + 772 pg. This contains the complete chemical Publications List of P. H. P.
21. Evans, A. G.; Holden, D.; Plesch, P.; Polanyi, M.; Skinner, H. A.; Weinberger, M. Nature (London) 1946, 157, 102.

II. Michael Polanyi and the Paranormal

My academic career started when in October 1944 at the age of 26 I accepted a Research Assistantship in the research group of Michael Polanyi, professor of Physical Chemistry at the University of Manchester (England). That happened because my father, Janos Plesch, a fellow Hungarian, and M.P. had known each other in Berlin and had made contact again in England after my family's emigration in 1933; and M.P. had asked him whether his chemist son might be interested in joining him, which he, I, did. Because of this common multi-lingual, multi-cultural background, there developed a close affinity between M.P. and me, and I regarded him in many respects as a second father. I had an enormous respect for his intellectual abilities, knowing that he had changed very successfully from medicine to physical chemistry, although I had not read many of his writings except those connected with Transition State Theory, which was a hot topic at the time amongst chemists. Polanyi's theory of unimolecular gas-phase reactions had by then been discredited, and his ideas about the function of energy chains in chemical reactions seemed to lack plausibility, but that did not affect the very high regard in which he was held also by the other research students working alongside me, the other academics, and the industrialists from I.C.I. and the Manchester Oil Refineries who attended our seminars. I doubt that anyone of us would have admitted readily that our Master might have had at least a few "toes of clay."

This is the background of the encounter which is the substance of my story. It stems from my early interest in what is now encompassed in the term "paranormal." During the early 1940s I had met a fellow-chemist who was a member of the (London) Society for Psychological Research, the oldest society of its kind, which I then joined. I thus gained access to and became part of that area of intellectual activity, met some other research students interested in these matters, and went to a few seances. I also found a book,¹ by a mechanical engineer, in which the author gives descriptions of seances. The numerous measurements of sizes and distances and weights of the participants and objects during levitations and other manifestations are exactly what one would have expected from an engineer. It seemed a methodical, quantitative investigation such as I intended to do "once I got around" to actually doing research into the paranormal. Meanwhile (ca. 1945) I was much too preoccupied with my Ph.D. researches into the mysteries of cationic polymerizations to stray into the realm of the paranormal. However, I was sufficiently intrigued by that book to want to discuss it with Michael Polanyi who, I felt confident, would have something useful and interesting to say on the subject. This the more so, since in his then recently published Riddell Lectures² he had concerned himself with several very different natural phenomena for which no explanations could be found. So I asked his secretary for an appointment, if possible open-ended. I outlined to M.P. some of the results and especially the measurements recorded in that book.

I do not remember much of what was said, except the phrase which effectively ended our talk: "I cannot really concern myself with such irreproducible phenomena." He may, with his usual kindness, have prefaced or followed this with some mitigating words, but that was what he meant, and for me that was that, as far as he was concerned; but it did not put me off my interest in the paranormal, nor did it diminish my determination that, eventually, I would give it serious attention. "Eventually" for me meant when I had established myself as a serious scientist in a conventional area, and "Eventually" also turned out to be a span of almost fifty years.

Since I am a slow thinker, and my thinking has been occupied with many and various matters, it took me several decades to realise that M.P.'s parting, summarising remark bordered on the absurd; but I have also

heard the same from other natural scientists, and it is a quite common reaction. I have called M.P.'s comment "almost absurd" because it seems so incompatible with his own direct experience of natural phenomena and with his writings, and I came to regard it as an excuse for not wanting to become involved with something so different, so difficult, and potentially so vast.

In his Riddell Lectures, M.P. cites examples of un-understood phenomena. One is a case of irreproducibility of a number, the rate-constant of a chemical reaction. Usually, such irreproducibilities of numbers leave scientists not seriously bothered because they are confident that sooner or later the reason for the discrepancy will be identified.

Another example involves the appearance of certain patterns on the surface of crystals of tin when they were stretched. These lines had been found in M.P.'s own and one other laboratory, but since then could not be made to appear anywhere else. This was an example of an unrepeatable phenomenon, something much more worrying to a natural scientist.³ And, most pertinent of all, the very reason for my presence in his research group was that he wanted my help in trying to find the cause of the irreproducibility of a certain polymerisation, a problem which had been assigned to M.P. as part of the wartime Synthetic Rubber Program of the Allies. In this case there was both irreproducibility - of the rate of the reaction and of the molecular weight of its product, - and also an unrepeatability, in that the reaction, instead of proceeding until all the monomer had been consumed, sometimes unaccountably just stopped.⁴

So the notorious irreproducibility of paranormal phenomena seemed a strange reason. But the incident is an illustration of a situation which was occupying M.P. in the context of his views on how opinions are formed.

In his writings there are many passages in which he deals with various aspects of the reactions of observers to unexpected natural events, and how their attitudes are affected by cultural matters, such as their beliefs about the world. He emphasises how all this affects the observer - scientist's all-important decisions about what to accept or reject, and the effects of these decisions on discovery, that is the very expansion of the range of the Natural Sciences into new domains.⁵ Furthermore, irreproducibility is always and necessarily involved in pioneering work. As M.P. knew well, successful experimentation, which means the achievement of reproducibility, requires knowledge and control of the factors that govern the phenomenon under investigation. But, by definition, to achieve that in a new field must always involve a slow, hard struggle.

References

¹Crawford, W.J. *The Reality of Psychic Phenomena*, (J.M.Watkins, London, 1916).

²Polanyi, M. *Science, Faith, and Society* (O.U.P., London, 1946; University of Chicago Press, 1963 with Preface).

³Plesch, P.H. "On the Distinctness of Chemistry," *Foundations of Chemistry*, 1999, 1, 7. It seems that this is where the distinction between "repeatable" and "reproducible" was first defined explicitly.

⁴Plesch, P.H. "Michael Polanyi and the Discovery of Co-Catalysis: Discussion of an Autobiographical letter from Michael Polanyi, FRS to Peter H. Plesch of 17 December 1963," *Journal of Polymer Science, Part A* (2004) 42, 7: 1537-1546.

⁵The classical example is that several observers before Herschel had seen through their telescopes a disc that moved amongst the stars, but they had dismissed it because a new planet (Uranus) was beyond their "boggle-limit."

REVIEWS

Stefania R. Jha, ed. "Hungarian Studies on Imre Lakatos." *Perspectives on Science*, 14:3 (Fall 2006): 257-353. The MIT Press. E-ISSN: 1530-9274. Print ISSN: 1063-6145.

This recent issue of *Perspectives on Science*, edited by Stefania R. Jha, concerns Imre Lakatos (1922-1974), a protégé and long-time associate of Karl Popper. Five major articles discuss Lakatos' Hungarian background, his approach to the history and philosophy of mathematics, his subsequent work independent of Popper, and his literary remains. In her own contribution, Jha suggests that Lakatos rebelled against Popper and, toward the end of his life, in fact was moving toward Michael Polanyi's approach. Both this and the wider historical and cultural connections presented here will be of great interest to many readers of this journal.

First let me summarize the contents of the issue. An editor's introduction provides a context and a summary of the articles as well as an overview of other recent work on Lakatos. Jha suggests that a central thread of Lakatos' intellectual development was his knowledge of heuristic and mathematics in the style of George Polya, author of the classic *How to Solve It*. There are three articles by other authors, tracing various aspects of Lakatos' work in Hungary (here, dropping the Hungarian diacriticals): his connections with Laszlo Kalmar and Sandor Karacsony at Debrecen concerning their interest in the empirical character of mathematics; his friendship and shared ideas with Arpad Szabo, a historian of dialectic and Greek mathematics; and a discussion of the centrality of heuristic in both Lakatos' early and later work. Jha's own contribution is titled, "The Bid to Transcend Popper, and the Lakatos-Polanyi Connection." It carries the discussion beyond the Hungarian period to Lakatos' work with Popper at the London School of Economics, his realization that Popper's approach was inadequate to an analysis of methods of thinking,

and his subsequent work after Popper's retirement. Jha asserts in her abstract that, "Archival material shows that [Lakatos'] 'new method' struggled to overcome what he saw as the Popperian handicap, by using Polanyi" (p. 318). There is a final article discussing the contents of the Lakatos archive at L.S.E.

The issue is available in electronic form through Muse and other means. Unfortunately, the text is somewhat spoiled by many typos and incomplete application of the journal's own manual of style. In general, though, the articles provide a rich history of connections and context. They help to consider Lakatos' work and career, removing him from the shadow of Karl Popper. Evaluating Lakatos' work raises important questions about the account we give of scientific and mathematical discovery. Looking at his career, as an academic intellectual first in the political climate of Hungary 1944-1956 and then under Popper at L.S.E. 1960-1969, raises questions about the nature of the man and his circumstances.

Due to space limitations, let me just ask five questions that arise when considering this interesting material from the perspective of personal knowledge.

First: How was the thinking of middle-European intellectuals affected by living under Soviet domination? Lakatos was obviously talented at dialectic and polemic. He was interested in the philosophy of mathematics, seemingly a safe subject. He was also politically engaged within the Party, which seems to have produced rewards for his career. But he always spoke for liberty and practiced his talent for dialectic. This was not so safe, and Lakatos was imprisoned for 'incorrect' views between 1950 and 1953. Lakatos emigrated during the 1956 revolution when he could get out. His personal history provides a fascinating contrast to Polanyi's career in scientific research, starting about thirty years earlier and thus avoiding

the totalitarian regimes of Lakatos' day. Ideas and the expression of ideas had entirely different kinds of consequences.

Second: What were the difficulties of working within the sphere of Karl Popper? Popper was not a modest man. Judging by the tone of his writings, he was convinced that his many differences with predecessors, contemporaries, and successors were solely due to the great superiority and originality of his own ideas. Lakatos, exercising his talent for polemic, said that one of Popper's major contributions was "his literary masterpiece 'The Open Society by one of its enemies . . .'" (Motterlini, 89-90). Inevitably Lakatos again got into trouble with the authorities, though this time he did not go to jail. He was "excommunicated" by Popper but harmlessly, since Lakatos still ended up succeeding Popper as chair of the program at L.S.E.

Third: How do we discuss the special case of personal knowing and discovery in mathematics and mathematical logic? If there were any scholarly activity that exists entirely within a realm of propositions (i.e., within Popper's 'Third World') and separate from the physical world and the world of subjective experience, it would certainly be mathematics. As Polya remarks, "humanity learned this idea from one man and one book: from Euclid and his *Elements*" (Polya, 215). But rigorous proof and logical deduction do not get you very far if the topic is problem solving, discovery, changing research strategies, or evolving standards of proof. For that you need induction, empirical facts, the personal element, practical and disciplinary considerations, apprenticeship and mastery of subject, i.e., things that are empirical and subjective. The 'rules' of discovery, such as they exist, are first "have brains and good luck" and second "sit tight and wait until you get a bright idea" (Polya, 172). And the whole process depends upon a deep personal engagement with the problem (Polya, 198-99). Lakatos knew all this, and realized the difficulties it made for any theory of discovery in mathematics.

Fourth: What among Lakatos' unpublished manuscripts points specifically to his late adoption of

Polanyi's ideas or to a Lakatos-Polanyi connection? As attractive as this possibility might be, Jha provides little concrete evidence, nothing significant that is unpublished. She does rehash at length Lakatos' public disagreements with Popper, many of which, it is true, have some parallel in Polanyi's work. Still Lakatos never wholeheartedly adopts Polanyi. The specific evidence of a connection boils down to little more than:

1) The fact that Lakatos respectfully invited Polanyi to lecture at L.S.E. (probably 1969-70 – the exact date is not given; the lecture was "Genius in Science"). This was reparation for a previous dis-inviting of Polanyi forced by Popper five years earlier.

2) A remark by Lakatos that he was taking a 'quasi-Polanyiite' view (actually a humorously titled subtopic in an article written 1970-71: "A quasi-Polanyiite 'falsification' of Popper's demarcation criterion," Lakatos, 146-49). This is a fundamental quarrel with Popper, and there is no direct use of Polanyi's approach.

Clearly, though, Lakatos realized that the L.S.E program on philosophy of science needed to consider not just Popper (its founder), but Polanyi, and others of Lakatos' generation as well: Feyerabend, Kuhn, and Toulmin. All of them were sources of richer accounts of scientific discovery than Popper's. They, especially the younger three, were people with whom one could argue and make progress. And there is strong, published evidence that Lakatos continued his quarrels (e.g. with Toulmin). One suspects, indeed, that being adversaries was a dialectical sign of true intellectual fellowship, of taking the other scholar seriously. In sum, we only know that Lakatos was continuing to work on his research program of "rational reconstruction" till his sudden death at 51. He did this using his talents for dialectic and polemic as before. But this does not mean that he was becoming a Polyanian, or even a 'quasi-Polanyiite' (except as a joke).

Finally: Was the connection between Polanyi and the respectful Lakatos really just their shared admiration for George Polya's work? Polanyi knew

Polya since his first days at university in 1908; he knew, used, and acknowledged Polya's work on heuristic. Lakatos translated Polya's book into Hungarian in the early fifties and wrote his doctorate at Cambridge under Polya's supervision. If consideration of this material about Lakatos does nothing else, I hope that it might cause you to look (again, perhaps) at Polya's wonderful book on heuristic, *How to Solve It*. You will get both profit and pleasure.

References:

Lakatos, Imre. "Popper on Demarcation and Induction" in his *Philosophical Papers*, 1: 139-67. John Worrall & Gregory Currie, eds. Cambridge: Cambridge University Press, 1978.

Motterlini, Matteo. *For and Against Method*. Chicago: University of Chicago Press, 1999.

Polya, George. *How to Solve It*. Princeton: Princeton University Press, 1945.

Richard Henry Schmitt
rschmitt@uchicago.edu

Stanley Hauerwas and Romand Coles. *Christianity, Democracy, and the Radical Ordinary: Conversations between a Radical Democrat and a Christian*. Eugene, OR: Cascade Books, 2008. Pp. xi + 366. ISBN: 1-55635-297-2. \$39.00. Paper.

Stanley Hauerwas and Romand Coles both teach at Duke University, Hauerwas in the Divinity School and Coles in Political Science. In addition to his duties at Duke, Coles is also active in CAN (Congregations, Associations, and Neighborhoods) in Durham, NC. This book grows out of a conversation that began among Hauerwas students who took classes with Coles and then challenged each professor to learn from the other. The result was a team-taught course on Christianity and Radical Democracy that inspired this book. It is a book that defies easy summation. One reason is that it is not, on the whole, a co-authored work. Some portions, such as the introduction are, but much of the book consists of individual pieces by the authors (six by Hauerwas and eight by Coles). In addition, the chapters reflect a

variety of genres. Some chapters are formal essays while others are letters by Coles to Hauerwas or vice versa. The book concludes with a transcript of a recorded dialogue between the authors.

What emerges from the work is a sense of a dialogue that is both playful and serious, fascinating and frustrating, as any conversation about matters that matter will be. Although he is not uncritical of Hauerwas' work, Coles clearly learns from Hauerwas to appreciate how Christianity might matter for radical democracy. For his part, Hauerwas admits that while he is "less clear that he has a stake in radical democracy," he "cannot and does not want to avoid being drawn into the lives of radical democrats" in light of the sympathetic way Coles reads Christian theology (11).

Perhaps the place to begin any summary is with a description of radical democracy. The term, as Hauerwas and Coles use it, refers to those efforts to engage many people in the complex task of negotiating common goods in a pluralistic world. Radical democracy happens most clearly at local levels of community organizing where participants learn the skills needed to act democratically at higher levels (see 4, 20, 153, 277, and 341). Theoretically, radical democracy draws from the work of Sheldon Wolin and Ernst Bloch (see Chapters 6 and 12 respectively) and is seen most concretely in the work of groups like Student Nonviolent Coordinating Committee (SNCC) and the Industrial Areas Foundation (IAF).

One can begin to see why Hauerwas might be intrigued by radical democracy, for it emphasizes the community group the way he emphasizes the church. Hauerwas also values the way radical democracy understands that it takes time to do something substantive—"time to listen to one another and to remember the dead" (4). Both Coles and Hauerwas celebrate the "radical ordinary," i.e., attention to the complexities of everyday life that call forth a "wild patience" (4). In addition, both acknowledge the ways in which democratic institutions often betray their deepest convictions. Hauerwas' own contributions to

this volume tend toward reflections on Christian figures and communities that exemplify at least some of the traits needed to sustain radical democracy, especially the patience and gentleness required to welcome the poor on their own terms rather than as objects of charity. He focuses most on Jean Vanier and L'Arches' work with disabled people (chapters 8 and 14), but also discusses Gregory of Nazianus' writings on lepers (chapters 10). Coles provides theoretical and concrete accounts of radical democracy (chapters 3, 12, and 13), as well as reflections on the intersections between radical democracy and the work of John Howard Yoder (chapter 2), Rowan Williams (chapter 7), Vanier (chapter 9), Gregory (chapter 10) and Hauerwas (chapter 11).

Neither Hauerwas nor Coles mentions Michael Polanyi in this work, although Coles approvingly discusses Karl Polanyi's work in two places (84 and 255ff). Nevertheless, readers who are familiar with Michael Polanyi will find some affinities with the outlook found here. First, and perhaps most notable, is the attempt to locate an analysis of politics in the experiences of a particular community. For Polanyi, it is life among the community of scientists that gives rise to his account of liberty and polycentricity that he thinks should characterize society. For Hauerwas and Coles, it is life among the community of organizers and/or churchgoers that give rise to the practices that sustain authentically democratic life on a larger scale. Another affinity between Polanyi and the authors of this volume is their shared sense of the complexity of reality. Although Hauerwas and Coles do not talk about polycentricity or a reality that promises to reveal itself in ever new ways, they clearly respect how the complexities of life mean that human planning will never fully achieve Weberian rationalization (this is most explicit in Coles' discussion in Chapter 6).

Besides convergences between these authors and Polanyi, one also finds perspectives here that might stimulate contemporary appropriations of Polanyi's work. For example, Hauerwas and Coles remind readers that democratic institutions often

betray themselves—a prospect that Polanyi does not seem to contemplate in any detail. Given the time in which he writes, this is not entirely surprising, and to say this is not to say that there are not clues in his work that might guide such a reflection. To the extent that Polanyi has an articulate social philosophy, he sees a well-ordered society as one that is polycentric, not subject to the control of any single group, and which maintains a commitment to transcendent values of truth, justice, and community (e.g., LL, 35). Those commitments can be used to criticize governments, which he clearly does in his denunciations of communist nations. Nevertheless, Polanyi does not take critical aim at democracy, as practiced in England and the United States. One therefore wonders what a Polanyian criticism of democracy “on the ground” would look like and how it would compare to the insights of this volume. A second topic upon which Hauerwas and Coles' work might stimulate contemporary appropriations of Polanyi is that of authority. Although Hauerwas and Coles treat the topic only briefly (302-307 and 322-329), both call for an authority that does not become authoritarian and thereby “silence the ‘lesser people’” (328). In short, they acknowledge an ambiguity to authority that can be overlooked in Polanyi's treatment of authority, at least as exercised in the republic of science (that Polanyi is anti-authoritarian is clear from his criticism of communist societies). The perspectives of Hauerwas and Coles offer Polanyians rich concepts for articulating a fuller account of how authority should function in a community..

In the introduction to *Christianity and Radical Democracy*, Hauerwas and Coles use the metaphor of “ecotone” to describe their work (14). Drawn from ecology, the term refers to the vibrancy and creativity of life that is often found at the edges where two different environments such as a forest and meadow meet. They hope that this work likewise exhibits some of that creativity, this time to be found at the edges of theology and politics. They succeed.

Paul Lewis
LEWIS_PA@Mercer.edu