

Comments on *Michael Polanyi, Scientist and Philosopher*

ABSTRACT Key Words: Biography of Michael Polanyi, *Michael Polanyi, Scientist and Philosopher*
This article discusses the 2005 OUP biography of Michael Polanyi by William T. Scott and Martin X. Moleski S.J., Michael Polanyi, Scientist and Philosopher. The discussants are N. E. Wetherick, Brian G Gowenlock, and John Puddefoot; Martin X. Moleski, S. J. briefly responds, providing a previously unpublished letter from Polanyi to Reverend Dr. Knox, a Presbyterian minister.

[Editor's Note: In the summer of 2006 (TAD 32:3), there were five articles on *Michael Polanyi, Scientist and Philosopher* by William T. Scott and Martin X. Moleski, S.J. Marty Moleski kindly responded to these authors. What follows continues this earlier discussion.]

A Good Man Who Threw Himself in Among Theologians: A Comment on Polanyi and the New Polanyi Biography

N.E. Wetherick

I never met Polanyi nor heard him speak. I did once (in the early seventies) invite him to address a meeting of psychologists and he accepted (any topic, at any length). Unfortunately he withdrew (or was withdrawn) at the last minute. I had become interested in his work in the mid-sixties by reading *Personal Knowledge* (1958) for the first time and without much understanding. I was keen to meet a man who was clearly a major intellect and shared my dissatisfaction with philosophy as it then was. My luck was out—I was not aware that he had already entered his final decline though he was to live on for several more years. When his last book *Meaning* (1975, co-authored with Prosch) appeared, I was asked to review it and did so at some length (*Journal of the British Society for Phenomenology*, 9, 1978, pp.60-62). I had edited a special number of that journal, devoted to Polanyi, in the previous year. I published three further papers in 1997 and 1998 by which time I had gotten to know his work better. I recently re-read the 1978 review and was pleasantly surprised to find that I can still stand by it.

I am (or was) a psychologist and my subject has not attracted many major intellects—so far only Freud and Piaget. What I have written about Polanyi has been mainly concerned to show how much psychology might have benefited but did not.

My luck was in as regards the authors of Polanyi's biography, Prof. W.T. Scott and Fr. Martin Moleski. I met Prof. Scott in Aberdeen and was able to be of some small assistance to him; I met Fr. Moleski in Edinburgh. I don't think I was of any assistance to him but I enjoyed his company as much as he appears to have enjoyed mine. Their book has vastly increased my understanding of Polanyi in two principal respects. I had always argued that the value of his philosophy of science sprang from the fact that he alone among writers on the subject was also a front-rank physical scientist with laboratory experience; he was someone who had got his hands dirty (though apparently he was clumsy with apparatus – his assistants tried to keep him away from it). This

book (two thirds of which covers his early, scientific career) enables me to put flesh on the bones of that hypothesis. His later career, as philosopher and social theorist, I described as a case of “a good man fallen among theologians”. This is not quite fair to theologians. Fairness to theologians does not come easily to me but perhaps I should have said “a good man who threw himself in among theologians”. He refused to deny them the right to commit themselves to the truth of their propositions in the same sense that scientists commit themselves to theirs. He might have said that while scientists are (or should be) able to specify what evidence would be sufficient to persuade them that a proposition they regard as true is actually false, theologians never are. Unfortunately, human nature being what it is, some scientists are equally at fault in this respect.

Polanyi’s scientific career began early. In 1914, some of his work was approved by Einstein no less but for most of the first world war he was required to serve as a medical officer in the Austro-Hungarian army —part of the time at forward casualty stations. He likely had a closer acquaintance with human suffering than most of us ever acquire. As soon as he could, he returned to research and at an exciting time. Much was by then known of the internal structure of the atom. Much was also known about which chemical substances combined with which and in what circumstances. Everyone agreed that the former phenomena must account for the latter but little was known of how this came about. That was the problem to which Polanyi addressed himself—in Budapest till Horthy revived anti-semitism in Hungary (1920), in Berlin till Hitler did the same in Germany (1933) and in Manchester until his final turn to philosophy in 1948. Working with primitive home-made equipment, constructed ad hoc for each investigation, he had laid foundations for the eventual explanation of many different chemical phenomena, but usually switched to a new problem whenever the way to the solution of the one he was working on seemed obvious to him. This enabled someone else to take the final steps and get the credit for the breakthrough. He advanced and defended a theory of the adsorption of gases onto a rough surface which was rejected by his contemporaries but turned out later to be fundamentally correct. (At Manchester, he was not allowed to teach his own theory.) He also postulated and defended the existence of a new kind of physical force to explain his results, but it turned out to be non-existent and unnecessary following advances in quantum theory.

While Professor of Physical Chemistry at Manchester, he did no experiments himself but won the respect of his assistants and students by his ability to propose an experiment and, when the result was brought to him, say at once what bearing it had on the theoretical issues under investigation and what ought to be done next—or occasionally that the result was wrong and the experiment must be done again. Most of his own time appears to have been devoted to economics at this stage.

Polanyi experienced science in all its aspects, success and failure; he grasped the fact that all that can be done is to commit oneself to the truth of any proposition that one believes to be true, in the knowledge that it may be false. The commitment is motivationally necessary to ensure continued progress; the *in pectore* reservation follows from the way the world is. The world gives every appearance of being a nexus of interacting causal forces but for an event A to function as a predictor of a subsequent event B, a certain subset of causal factors have to be present (absent). We can never know how large this subset is. A factor may be essential to the prediction, but since, in our experience, it has always been present, its relevance has never been realised. Or a factor may have to be absent which has never, in our previous experience, been present - this is the real problem of induction.

It follows that “If A then B” can never be known to be a universal scientific law and, strictly speaking, no conclusion can ever be drawn about the A now before us; i.e. whether it predicts B or not. But we do not usually

speak as strictly as that— we commit ourselves to the proposition or not as the case may be, we treat it as a universal. For a thousand years, the principal users of logic were theologians not scientists and they insisted on the absolute truth of their propositions—on the “Truth”. Scientists were persuaded that they must claim as much for theirs and thence was born strict empiricism. Theoretical propositions must, they thought, come after observation of the facts in order to be “true”, not before it. All the sciences except my own have seen the futility of this requirement. Polanyi saw it, brought the consequences out into the open and drew the appropriate conclusions.

Throughout his life, Polanyi yearned for the comfort of sincere religious belief but could never bring himself to accept it intellectually. He was born a Jew, received at one point into the Roman Catholic Church (but never afterwards attended a service) and once expressed a willingness to subscribe to any form of Protestant worship. At the end of his life, his view was that one should worship God “in order to make Him exist, not because he does exist”. Such a view is only likely to be acceptable among highly sophisticated individuals. Most religious believers worship God because they think he does exist and insists upon it (and might send them to hell if they don’t). Many of them draw genuine comfort from their beliefs but it is necessary to ask why this is the case—a psychological question. For some, Pascal’s wager is the answer—best be on the safe side. But there is a more fundamental reason. In organisms, the knowledge-acquiring mechanism (i.e., the central nervous system) is so constituted that to decide on any course of action it is necessary to take account of the evidence favouring all the alternative courses open to the decider and known by him to be so. To decide on one is to commit oneself in Polanyi’s terms. This is as true of the rat in the maze as of the scientist in the laboratory. As we have seen, it is equivalent to accepting a universal proposition “All situations A make a prediction that requires a response B from me”. The ideal scientist keeps in mind (in his laboratory) the possibility that he may be wrong but even he/she will often accept the full implications of the universal in everyday life. For the majority, this is the basis of the comfort afforded by religious belief. The accepted authority prescribes which propositions are to be accepted and acted upon—there is no need to consider the issues for oneself, no need for any *in pectore* reservations—and indeed entertaining such reservations may be dangerous. In members of the human species (only in them), it is possible to override any previously accepted system of propositions, which some individuals do, but not many. It requires effort and may involve risk.

Virtually all human conflicts are based on religious differences. When all parties hold that their fundamental beliefs are the “Truth”, some of them may feel obliged to offer others the opportunity to convert—and to kill them if they won’t. Christians appear to have stopped behaving like this, but only in the last few hundred years. Muslims still do but they of course started six hundred years later. Such phenomena are not only to be seen in old, established religions; analogous behaviours may be seen in Moonies, Scientologists, etc. They are a consequence of the way our mind/brain works—an essential and inevitable part of the human condition. I cannot share Polanyi’s optimism that the unsatisfactory parts of human nature may be eliminated without sacrificing at the same time the human capacity to advance scientific knowledge of the world and construct and appreciate works of art, literature, music, etc. These capacities are what distinguish us from what used to be called the “brute creation”. We should be thankful for them and live as best we can with the attendant disadvantages. To change human nature is the ambition of all religions; they have all failed and will continue to fail.

Michael Polanyi. Scientist and Philosopher :

Some General Points and Personal Reminiscences

Brian G Gowenlock

A characteristic of good biographies is their capacity to raise questions and supplementary thoughts in addition to the admiration that rightly is the due of the author(s). This work is a considerable achievement for the subject had a very wide range of interests and activities and the authors have succeeded in conveying an integrated picture of Michael Polanyi. My major contact with MP was during my undergraduate and research postgraduate years in Manchester, 1943 - 48 and Part III gives full coverage of all the Manchester years. From the academic staff in the Chemistry Department and also reading some of the Berlin publications, I learned something of the formative years covered in Part II. His later books and a meeting and conversation in Oxford in 1965 added to the picture given in Part IV.

MP's arrival in Manchester was important for the research careers of three members of the 1933 honours B.Sc. class in chemistry. Alwyn. G. Evans and Ernest Warhurst studied sodium flame reactions and Charles Horrex, after a year with Dr G. N. Burkhardt, studied reactions using deuterium labelling. I learned much of the stimulus of those years from these three, all of whom spent some time during the war years in other universities (AGE, EW) or in industry (CH) and CH and EW were successive supervisors of my research under the distant supervision of MP. Apparatus that had been brought from Berlin (p. 147) was still in use, with later additions and replacements, in 1948. In 1934 Daniel Eley joined MP's research group having graduated B.Sc. that year in Manchester (p. 150). My memory suggests that the technician mentioned on p. 148 was Leslie Robertson.. Small errors such as these are few, e.g. M Szwarc (p.207, 219 and 363) appears as Swarc. On p. 191, Hank Skinner is described as an Oxford physicist: he worked in the Oxford Physical Chemistry Laboratory with Leslie Sutton on electron diffraction before working in chemical industry alongside Charles Horrex. The problems of isobutene polymerization formed part of the departmental folklore of unusual results until rigorous purification of the reactants was carried out (p. 191-192).

MP was unusual in his lecturing to the first year class in that it was forbidden to take any notes during lectures. Duplicated notes and diagrams were available after each lecture and the books recommended were Max Born's *Restless Universe* and Linus Pauling's *Nature of the Chemical Bond*. As the weeks went by his voice became weaker and in the New Year of 1944, he had to stop lecturing (p. 193) and note taking returned with the course being taken over by Fred Fairbrother.

On p. 169, the work of E. T. Butler on determination of C-I bond energies is discussed. The remarkable feature of this work is that the values obtained for a variety of organic iodides are reasonably close to modern values but, in many cases, these were obtained by assuming that the activation energies could be obtained from a single rate constant coupled with an assumed frequency factor of 10^{13} sec^{-1} . Later work under the supervision of Charles Horrex by Fred Moore in 1945 and myself in 1946 demonstrated that the pyrolysis of ethyl iodide was more complex, and the study of benzyl iodide by Michael Szwarc in 1946 gave further support to the complexities of these pyrolyses. It remains to note that MP's intuitive perceptions could lead to important results in advance

of detailed kinetic study. His view was that it was of primary importance to establish a trend in the relationship between structure and reactivity and leave to a later date the refining of the technique and the consequent reduction of the error limits.

MP organised a couple of one-day meetings in 1945 and 1946, both on a Saturday, in which he brought together chemists from industry and universities to listen to short lectures on current research. He also invited undergraduates who were contemplating carrying out research in his department.

In late July 1945, Charles Horrex, in an undergraduate lecture course which I attended, referred to the unusual result of a possible nuclear chain reaction from the neutron reaction with U^{235} . He said that he had discussed this with MP who had said that the large exothermicity of this reaction would lead to a rapid expansion of the material such that the possible chain reaction leading to a bomb would be nullified. The following week's lecture began with a contradiction of MP's hypothesis. This may add further comment to the material on p. 208.

The above material of personal reminiscences is probably only of archival interest and I want to turn from this to the more general issues raised by the authors.

Some 60 years ago there was a popular song which had a refrain "Why am I always on the outside? On the outside always looking in?"

This refrain came into my thoughts on reading the biography: in chemistry MP's training was unusual in that his background was in medical science and formal instruction in physical chemistry occurred in Karlsruhe in 1913-1914. It is also the case that his contributions to economics and philosophy were those of an outsider without formal training in these disciplines. I have always felt that the circumstances which moulded his personality and his thoughts are to be found in the traumatic events of the twentieth century. Warfare, defeat, red revolution and white counter revolution in Hungary, hyperinflation in Germany, the rise of Nazism with accompanying anti-Semitism, and a totalitarian regime in the Soviet Union were the background to his massive contributions to physical chemistry. In this context, I was impressed by his unpublished essay on 'New Morality' (p. 128) in which 'the longing to find meaning' and 'how to address spiritual emptiness' are coupled with the desire to develop a 'new morality'. These epitomise the outlook of the man I saw in action both in Manchester years and in his wider writings. I am not surprised that he could find little in common with 'strongly entrenched pillars of logical positivism and of linguistic philosophy'. They had not been where he had been. He must have felt that their methods were inadequate when faced with the challenges posed by totalitarian regimes and the collapse of secular liberal democratic ideals. Did he realise his aims?

The intensity of his views on anything bordering on the planning of science was evident to me in my time as a research student. I had a long discussion with him in 1948 prior to my departure to my first post in Swansea. He told me that I would soon be meeting his friend Hugh O'Neill. The discussion went from one interesting topic to another and when, in response to a question from him, I gave an answer based on my understanding of Reinhold Niebuhr's writings he remarked 'You say that because you are a Christian'. I felt then that 'his philosophy of freedom of inquiry within a collegial atmosphere' (p.94) was his way of working. When we next met, in 1965 in Oxford at a residential conference on 'New Theology?', he told me that he was in sympathy with the views of John A. T. Robinson (*Honest to God*) who spoke at that meeting. I have wondered whether he was acquainted with the writings of Dietrich Bonhoeffer in addition to the material on

pages 273 and 287. He also asked for copies of some of my recent research publications. In return I received from him the second edition of *Science, Faith and Society*.

A final comment. In 1996 Dorothy Emmet published a discerning account of MP's philosophy in *Philosophers and Friends* (Macmillan, London) in which she raises issues of objectivity, truth claims, commitment in MP's writings. 'In combining truth, assertion and commitment Polanyi was in fact drawing attention to the tension between faith and criticism.....I do not think he resolved this - if it is resolvable - but this is because he was firmly on the side of faith.' I would like to see this discussed in *TAD*.

What Is A Biography?

John Puddefoot

Biography tells the story of a life from-outside-looking-in, autobiography the story of a life from-inside-looking-out. But Polanyi's philosophy suggests that biography should be more than this: it requires the biographer to have done more than chronicle a life; it requires him/her to have understood it, to have dwelt in the events that shaped that life, and the actions that life produced, as subsidiaries sufficiently to attain to a focal vision of what it was like to be that subject and to help the reader to understand why that subject was who he/she was and did what he/she did.

Very few biographies rise to this challenge. Most present a narrative of a life with a few speculative suggestions about the connections between events and the person concerned and leave the reader to do the rest; few make any systematic attempt to bring us to understand what the life in question is from-inside-looking-out and why he/she views the world the way he/she does.

The absence of such a connection can have a more serious consequence if the reader comes to believe that the events that happen around a life are sufficient to explain its successes and failures. For example, "He spent his life attempting to earn the approval of his parents, who had always castigated him for being less successful than he could have been, but he never really acquired his own values and ambitions and therefore never really lived his own life at all."

A biographer must be able to intuit the significance of events for his subject. That intuitive power must include a capacity to understand an event as it would impact upon himself. We empathise. We take into ourselves actions, experiences, the expressions of others, in a way that we can understand as if they were happening to us. A putatively exhaustive list of where someone went and what someone did fails to take account of the tacit dimension, of what it is that connects mere facts with integrating insight.

Polanyi (or was it Prosch?) put the matter thus:

The fact is, we know other minds by *dwelling in* their acts – as the chess player comes to know the mind of the master whom he is studying. He does not *reduce* the master's mind to the moves the master makes. He dwells in those moves as subsidiary clues to the strategy in the master's mind which they enable him to see. The moves become meaningful at last only when they are

seen to be integrated in a whole strategy. And a person's behaviour, in general, becomes meaningful only when integrated into a whole mind.¹

In this short passage, Polanyi tells us indirectly what it is to understand a life: we must dwell in the actions and circumstances of that life sufficiently to attain to focal knowledge of that life; and in attaining to focal knowledge of that life the significance of all the actions and circumstances we have dwelt in are transformed by the integrative insight that focal awareness affords. A biography that consists of little more than a series of "this happened and then that happened and then something else happened" has fallen into the trap of reducing the master's mind to the moves the master makes: why is this event worth recording; what significance did it have for the subject; why are we being told this; how did this outside-in affect the subject's inside-out?

Part of the fascination of life arises from the lack of a clear connection between the things that happen to a person and the things that person then does. What look like the same things can happen to two people; one thrives on them by rising to the occasion; another is destroyed by them. Biography should go some way to giving us an account of this difference in response. It seldom does. It more often presents "X happened to Y" and then "Y did Z" as if the two are inextricably linked and the latter requires no explicit connection with the former. But the opposite is the case: what leads Y to do Z is the very essence of what makes it interesting to record that X happened to Y in the first place. Unfortunately, most biographies are strong on the "X happened to Y" and weak on the explanation of what that means or why it is worth recording.

To understand this better we need to be clear about the logic of necessity and sufficiency: to say that X happened to Y and then Y did Z is to say neither that X causes Z inexorably nor, conversely, that Y would have done Z anyway. Yet we frequently find confusion over this in the pages of biography. It may well be that Z would not have happened had X never happened to Y, but that does not mean that X causes Z, only that it is a contributory stimulus in a multi-stimulus nexus. So what the biographer needs to try to tell us is what other stimuli and concerns combined with X to prompt Y to do Z. And this involves saying something about the subjective affective states of Y and how X is received and understood within the broader context of Y's life.

Social influences that dictate the range of possible responses to life's vicissitudes mean that the biographer must cast his net more widely and generally than would be involved in a localised account of the events that impinge upon his subject and so embrace the social *mores* of a time. Does that subject believe that he can make a difference, that she has something to say that can change things, that he is a master or a slave of his life and his time? These are vital questions, yet they presuppose a deep understanding of the subject's background psychology and society. In the spectrum from the most active to the most passive of agents we find manifested attitudes to what is permissible, what is possible, and whether each person feels empowered to make the most of his or her life or to allow others to dictate how it should be lived.

Here again the lessons of the logic of influence must be remembered. Suppose I am an educationalist responsible for a curriculum. I may well have been influenced greatly by, for example, Shakespeare, and I may attribute to the reading of Shakespeare or other literature everything that I currently am. As a result I may be led to wish to make Shakespeare a compulsory part of everyone's education on the premise that what was good for me must of necessity be good for you. But nothing of the sort follows: that Shakespeare was good for me may properly be taken to be an indicator that it may well be good for others, and therefore it will be a strong contender for space in the curriculum over which I have control; but it does not follow either that it will be beneficial or, indeed, that it must of necessity form part of that curriculum. To think otherwise, even for the very best of educational

motives, is to succumb to a logical error and back it up by a piece of educational imperialism.

So we find ourselves led to reiterate the sentiments of “Resonance Realism”²² as an integral part of our understanding of the task of the biographer: his job is to identify those outside-ins that resonated with the subject to such an extent that they transformed and inspired his or her inside-out. And to know that will involve asking about those influences to which the subject returned again and again, whether they be books or music or scientific papers or other people or places or things. These deeply resonant sources will be chosen repeatedly and the subject may exhibit something close to an addiction to them because they will be the founts from which his resonant energy is drawn and in which her inspiration will be found.

And, even if such a subject is unlikely to be chosen for a biography, someone who is drawn to little or nothing, who exhibits no addictions other than perhaps to drink, drugs and nicotine, drinks from no non-alcoholic fountain, and is not drawn to much at all, is exhibiting all the symptoms of one for whom life has lost all meaning. And creative people frequently appear so between their bouts of creativity, taken over by their various black dogs and immobilised by inactivity when nothing interests them and they can raise energy for nothing. To draw together periods both of creativity, frequently manic and sustained, and inactivity verging on a self-destructive depression, the biographer must understand something of the silence that is frequently present in the minds of those worthy of treatment as subjects whose lives merit narrating. The biographer must understand the contribution that fallow ground makes to the harvest. Nobody can be creative endlessly and forever. And Polanyi’s humanity comes through in the Scott/Moleski work perhaps most movingly when it touches upon his frustrations, depressions and occasional despair.

Here again a question of motive arises: why do we write biographies, all this being the case? For some there may be the almost-certainly-forlorn hope that, by understanding the life of another the reader’s life may somehow become better than it is, more creative, powerful, assured. That were we to assemble all the outside-ins that surrounded George Orwell we might write our own very different *Animal Farm*. It is deeply unlikely. Why, then? Perhaps to try to bring us a little closer to the immortals, to be able to understand why the subject could do what the subject did, and so to make ourselves seem a little less mortal by chronicling the warts that inevitably festoon the lives even of the great. Or perhaps for the same reason that we watch professional sport in preference to playing ineptly ourselves: because lives well and successfully, even if perhaps only notoriously, lived are more interesting at second hand than our own at first.

So we find ourselves affirming two apparently opposite positions which are not opposites at all:

- that no account of the influences upon a subject will ever be sufficient to explain the life of that subject, not least because there will always be an incalculably large number of imperceptible influences that not even the subject, let alone the biographer, could chronicle;
- that nonetheless the life of a subject would not be what it was but for at least some of those influences, and certainly the most important ones, and therefore that we must take account of them in their inevitable incompleteness if we are to hope to understand the life of the subject

Setting aside for the moment then the motives of the reader, what are the motives for the subject that the biographer needs to understand and interpret for the reader? In an older philosophy, where truth, reason and knowledge are the icons of all aspiration, we might say the search for the truth is the motive above all motives or, perhaps, with Plato, the search for the Good. But the deepest drives in any life stem from the things that life

values, and therefore strives for, and those strivings are as likely to arise from trying to fill gaps or correct imperfections in the subject of the subject's world as they are to arise from motives of truth, reason and knowledge. In fact, whenever someone claims to be performing super-human acts of determination or bravery in the name of truth it is almost always possible to substitute some other motive based upon a need deep within the agent's psyche.

The biographer needs to weed out the chaff from the wheat and tell his reader what in his judgement constitute the signal influences on his subject that led him to be the man he was. To do this he needs to achieve three things: a deep knowledge of the life of the subject; a clear sense of the motivations that drove the subject from which to be able to infer those things that produced the values that provided focus for those motives; and an understanding of the inside-out subject that makes sense of these first two kinds of information.

If we turn to Michael Polanyi and the Scott/Moleski biography and ask first what the primary motives in Polanyi's life were, we can then assess the adequacy of the biography in helping us to identify and understand them. It is almost inevitable that any list will be incomplete and personal, but to understand Polanyi's life at least the following must be taken into account:

1. A passionate concern for the future of humankind
2. A vision of the role of science in that future
3. An understanding of the importance of freedom of thought and speech for innovation and progress ...
4. ... and a consequential understanding of the importance of dissentient voices in any free society
5. An all-consuming conviction about the importance of passionate involvement in any discipline in which one hoped to make important discoveries
6. A strong sense that the state of the world always teeters on the brink of decay and that only those prepared to fight for a creative positive future stand in the way of that decay
7. A strong belief in the importance of the intuitions that lead us into territory we barely understand, territory for which we have no maps, and yet into which we must venture if we are to advance our understanding, into "the domain of sophistication"
8. An unpopular conviction that the number of people capable of achieving the objectives in point 6 is painfully small
9. A fear that the forces of darkness will usually triumph over the beacons of light (a feature of Polanyi's life that the biography does bring out strongly in its repeated references to his disappointment that his ideas were not more widely appreciated and his cyclical depression)

A key question for the biographer concerns the importance and scope of his capacity for empathy: to what extent does his capacity to reconstruct the inside-out of his subject in some tentative way arise only because he can connect his, the biographer's, outside-in with his own inside-out? In other words, if I am to understand your inside-out, must I first understand my own?

Unfortunately, just here we run into one of the most difficult and controversial aspects of philosophy of mind: whether and to what extent an account of the inside-out experience of a subject is a legitimate, still less necessary, part of understanding her. For some the fact – and it is certainly a fact – that most of us do not understand ourselves other than in that fleeting consciousness that David Hume so famously wrote about, that is seen more through other things than in itself, and therefore for more of us consciousness is little more than – but no less than – a metaphor for the self. To hope to understand your inside-out is on that count hopeless

if I must first understand my own. But are things as bleak as this? The key issue, an issue that surfaced in Turing's famous essay "Computing Machinery and Intelligence"³ in 1950 and has been hotly debated ever since, is whether we need take account of this inside-out at all, even whether there is anything to take account of. Jibes about ghosts in the machine (Ryle) and Cartesian Theatres (Dennett) have accumulated to discredit any sense of the "I" that is "inside looking out". And much of that criticism has been generated – quite rightly – by a concern to rid ourselves permanently of the metaphysics of the soul. But we do not need the soul as a metaphysical "kind of stuff" to retain intelligible and legitimate talk of the "I" as that which is responsible for a sense of self, even if we have to contend with those for whom introspection is impossible and the self no more than a series of descriptions (Rorty *et al*).

As I have put it elsewhere⁴, beings with an inside-out, who have experiences and add to the world an entire species of experiences called *qualia* that are completely invisible to science, do not require the existence of a soul to have those experiences. All they need is *to be* a particular kind of body-with-a-brain: if you are a particular kind of body-with-a-brain, you will be a mind, and being a mind is being a body that has experiences invisible to science; *mind is the world-orientation of body*.

This is something that Polanyi never quite got right. He tended to equate mind with the focal vision that accrued to someone looking from-outside-in who treated the body as a subsidiary and integrated its subsidiaries to that focus which was the mind of the subject. But that isn't quite good enough because it all remains outside-in. The final step is missing, the step through which the knower – the biographer – inverts the focal vision and sees it as something more than the sum of the parts he has chronicled and dwelt in, as more than a mere concomitant of physiology that a scientific analysis of sufficient sophistication could describe. He needs to come somewhere close to the point where he sees the world as his subject sees the world or he has failed in his task.

This is also something that Scott and Moleski do not get right. Perhaps they deliberately shrink back from the kind of bold speculative leap necessary if we are to integrate all these from-outside-ins into an understanding of Polanyi's inside-out; perhaps they leave the reader to make these tacit integrations for herself, not presuming to say in what respect they are to be understood. But perhaps also they fail to see the need for this final step at all. Perhaps like biographers before and since they believe that in telling the story of the events that occurred in Polanyi's remarkable life they have done all that needs to be done and even all that can be done. But in that case I think they are guilty of the error that Collingwood (in, for example, *The Idea of History*) accuses so many historians of committing: of describing the outside of an event as a mere event and leaving out the only thing that is really of interest, such as what was going through Caesar's mind when he made the fateful decision to cross the Rubicon.

Collingwood thought this a vital aspect of history, but few historians or biographers have joined him in trying to write history according to that pattern. Yet when we write the history of a tyrant who is responsible for the deaths of thousands or millions and the misery of countless others, what is the basis of the tragedy in the story we are telling if not that so-many-thousand or so-many-million centres of experience were extinguished and the world made a poorer place for it? To put it at its bluntest: if a human being is just a functional machine with no inside-out of any importance or no inside-out at all, why does the death of a human being matter any more than the turning off of a computer that has served its purpose in the nexus of human life? It cannot be sufficient to say that the death of another is wrong just because it diminishes me (as John Donne observed); others must matter in themselves. Otherwise they simply perform a function or play a part in my life and others' lives without being important in themselves; when the function is no longer needed, or no longer being discharged

with suitable efficiency and effectiveness, on such a view, why keep the body running, the person alive?

Biographers seem sometimes to wish to know less about their subjects than novelists. Novelists tell us how their subjects feel, why they feel as they feel, and what they think of doing about it. Or at least they give us clues to allow us to perform the last step of the tacit integrations necessary to intuit how they feel, why they feel as they feel, and what they think of doing about it. The best of them do this with such subtlety that we may not notice that they are doing it at all: that in reading *Middlemarch* we come to know what it is like to be Dorothea Brooke is one of George Eliot's greatest achievements; that in reading *1984* we come to know what it is like to be Winston Smith is one of George Orwell's. But we seem to be expected to read most biographies without learning anything of the kind as regards the biographical subject. I enjoyed Richard Holmes's detailed biography of Coleridge enormously as a piece of outside-in historical narrative, but it left me with *no idea at all* of what it was like to be Coleridge. I read Katherine Hughes' biography of George Eliot with similar enjoyment but the same deficient outcome. And reading the Scott/Moleski biography has not brought me nearer to an understanding of what made Polanyi tick, still less of what it was like to be Michael Polanyi.

Do I ask too much? Moleski himself, writing in *Tradition and Discovery* (32:3), the journal of the Michael Polanyi Society, makes the point that he excised most of Scott's detailed analysis of Polanyi's philosophy because he felt that Polanyi's own writing expresses and explains it far better than any secondary source could hope to do. That is almost certainly true – almost certainly, that is, a strategy worth pursuing – but it leads to a vacuum exactly where we most need rich content if we are to connect the events, the life, and the work: what was it about all this that led Polanyi to be the man he was, to think and write the things he thought and wrote, and to see the world the way he did? Without that connection at that vital point in the narrative we are left, on the one hand, with “these are [some of] the events that occurred during the life of Michael Polanyi” and, on the other, “these are the things Michael Polanyi wrote” without any suggestions about the connection between one and the other. Yet I am arguing that that connection is precisely and indeed the only reason to write the biography at all other than – and I do concede the importance of this in terms of mere record – to make sure that these oral traditions are not lost in case some later biographer should be able to do far better. To that extent neither Scott's nor Moleski's work is in vain; but neither is it enough.

Which brings me to my principal point. Ultimately the reason for reading Polanyi is to learn from his insights and methods, his values and objectives, in order to apply them along with others gleaned from elsewhere to problems that he had neither occasion nor opportunity to address. To put it otherwise, the purpose of reading Polanyi – indeed, of reading anyone at all – is to hope to receive clues about *how to go on*. We are living our lives into the future and that, in his terms, means that we are always entering the domain of sophistication where the maps are sketchy and the dangers many. His greatest achievement – an achievement far more important than his sketches of a language for the psychology of knowing, although that was part of it; far more important than his identification of the enemies of the free society, although that too formed part of it; far more important than his radical insights into the non-objective character of real science, although that too cannot be ignored – was to articulate the instruments needed in the intellectual toolkit we need if we are to be successful in living our lives into the future. A biography of Polanyi, to be worthy of him and of a life dedicated to often-futile attempts to do something to secure a better future for humankind, needs to further that objective. I am not sure that Scott's exhaustive researches and Moleski's Herculean redactions have done more than lay the foundations for that major future work; but that the narrative history has been secured, both in print and far more extensively in the Chicago archive, is no small achievement, and future generations of Polanyi scholars will be grateful to them for having achieved that.

That so many of those who knew Polanyi personally have now joined him on a distant shore – Bill Scott, Magda, Robin Hodgkin, Drusilla Scott and Joan Crewdson, to name but a few – only adds to the poignancy of the regret that in his lifetime there was, apparently, no-one to play Elisha to his Elijah, and ask for a double measure of his spirit. The world has certainly not become an easier place in which to live our lives into the future since his death, and the need for another with Polanyi’s wisdom and scope, and so for a biography that might enable one who never met him to see things from inside-out as he saw them, is as great as ever.

Endnotes

¹ Polanyi, M. and Harry Prosch, *Meaning*, ed. Harry Prosch, Chicago, 1975, p. 48. Polanyi’s and Prosch’s emphasis.

² Puddefoot, John, “Resonance Realism”, *Tradition and Discovery*, 20:3 (1993-94): 29-38.

³ Turing, Alan, “Computing Machinery and Intelligence”, *Mind*, Volume LIX, 1950, pp. 433-460.

⁴ Puddefoot, John, “Information and Creation”, in *The Science and Theology of Information*, ed. C. Wassermann, R. Kirby and B. Rordorff, Labor et Fides, Geneva, 1992, pp. 7 – 25, especially p. 22.

Provocative Questions, Abbreviated Answers

Martin X Moleski, S.J.

Let me begin by thanking *Tradition and Discovery* for soliciting so many reviews of *Michael Polanyi: Scientist and Philosopher* and for allowing me to respond to them. It is a pleasure to engage with serious readers of the biography. I regret that I cannot go into great detail here, but I assure the reviewers that their questions will remain with me—some, perhaps, as a “thorn in the flesh”—and will, I hope, lead me to a better understanding of Polanyi in the years ahead.

I met Wetherick twice in 1998, once at a conference in Sheffield sponsored by *Appraisal*, then at his home in Edinburgh. He opened my eyes to the atheist reading of Polanyi with humor, charm, and (if I may say so) great grace. I would like to take issue with him about the nature of dogma, the concept of revealed truth, the kind of authority necessary to preserve revelation made in history, and the relationship between theological articulation of a “system of propositions” and the tacit vision of religious reality that gives such propositions sense, but this is not the time or place to delve into those theological issues. I think he is right that Polanyi’s version of Christianity is “only likely to be acceptable among highly sophisticated intellectuals.” It is Christianity without a church, without revelation, without rituals, without Christ. If Polanyi’s view of God and Christianity is correct, then I have chosen the wrong path. While I am willing at least in principle to die for my beliefs, with Wetherick and all such humanists of such good will, I forswear killing people in an effort to change their vision of reality.

I very much regret that I did not meet Gowenlock when I was overseas. Many of the best anecdotes

about Polanyi's work in Manchester come from his correspondence and interviews with Scott. I appreciate his corrections and clarifications about the work Polanyi did in Manchester. In reviewing his correspondence with Scott, I found that he had sent a most revealing letter from Polanyi to Rev. Dr. S. James Knox who was the Minister of Saint Aidan's Presbyterian Church in Didsbury from 1944 to 1949. I don't understand why Scott did not mention this letter in his draft of the biography; it is unfortunate that I found it only after the revised version was published. The letter is dated 10 March 1948 and is hand-written on Polanyi's letterhead for the Department of Chemistry.

Dear Mr. Knox,

I am writing to tell you I have moved out of Didsbury to Hale and have ceased therefore to attend service at St. Aidan's. I wish to thank you very deeply for the benefits which I owe you from the time while I used [to] attend at your church. It has been a lasting influence in my life. Some time ago I used to see you quite frequently at the University and I wondered whether you would care to have lunch with me some day at the Staff House. I should very much like to talk to you before finally severing my relation to St. Aidan's, so as to make sure that we do not drift apart permanently. If you can manage this at all, I would like to make some suggestions for a convenient date.

Yours very sincerely,
M. Polanyi

This is important evidence that, at least for some time in his life, Polanyi found some consolation in churchgoing. In the closing pages of the biography (287-292), I argue that Polanyi was unquestionably "on the side of faith," though it evidently took different forms at different times in his life.

I believe that I met Puddefoot at Polanyi Society meetings in the early 90s, before I became involved in the biography. He corresponded with Robin Hodgkin about the 25th and final chapter of Scott's draft in 1994. I sent him the 1999 draft and received detailed and very helpful comments on the first chapter. I doubt that he was in possession of his theory of what a biography should be back then. My guess is that he worked out "What Is a Biography?" in order to explain his evaluation of the shortcomings of *Michael Polanyi*. I have many conjectures about "what it was like to be Michael Polanyi," but, as a general rule, I left them out of my revision of Scott's manuscript. I did not try to fill in the blanks that Polanyi left in his own account of his self-experience. Polanyi was not very forthcoming about the most intimate details of his life. Magda's reaction to what he shared with Mannheim about his religious experience (194-195) suggests that she thought such disclosures were inappropriate. I have heard from a good source that there are other, more personal letters that may be made available in due course, but neither Scott nor I saw them. When and if they do become available, it will be interesting to see what new dimensions they may open into understanding Polanyi as he understood himself.

I am happy with the work I was able to do on the biography, although I am painfully aware of its limitations. I do not think I am equipped to write the "major future work" that Puddefoot envisages. I hope to reorganize Scott's files to make them more accessible; they will eventually go to the University of Nevada at Reno. There are undoubtedly many more nuggets to be mined from the files like the letter to Knox above. Polanyi was a good man and I am confident that there will be other and better retellings of his life's story.