



MICHAEL POLANYI'S SOCIAL THEORY AND ECONOMIC THOUGHT



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ABSTRACT

This review article continues the forum from Tradition and Discovery 47/1 (February 2021) on Gábor Bíró's book, The Economic Thought of Michael Polanyi (London: Routledge, 2019; 178 pp. Hardback: 9780367245634, £120.00; eBook: 9780429283178, £22.50).

Introduction

Twice in *The Economic Thought of Michael Polanyi*, Gábor Bíró makes kind comments about my scholarly work. I thank him for his acknowledgements and am pleased to have contributed to his academic interest in Polanyi's early phase (outside chemistry) working on economic ideas. This book is a new contribution to Polanyi literature relative to a phase which has not been very much explored and discussed until now. My comments are intended both to stimulate an interesting conversation about *The Economic Thought of Michael Polanyi* and to introduce a broader discussion of Polanyi's economics. I begin with global comments on the book and proceed to more particular criticisms.

There is some confusion in Bíró's book about (1) what Polanyi actually thought and did and (2) what he *could* have said or written—considering his later personal and post-critical philosophy—but *did not*. That is, the book purports to be about the period from 1933 (when Polanyi emigrated to the UK to chair physical chemistry at the University of Manchester) to 1948 (when Polanyi began his activities in his new chair of social studies, which allowed him to prepare his Gifford Lectures [1951 and 1952] and then *PK* [1958]). However, Bíró's book often seems to be primarily an account of Polanyi's “personal economics” (110)¹ that is based on an application of Polanyi's late thought about personal knowledge and its philosophical implications to Polanyi's early thinking about economic issues and particularly his film. This, of course, may be an interesting and perhaps even a promising approach to economics, but it does not accurately reflect Polanyi's way into economics. It is a revisionist approach and this colors most of *The Economic Thought of Michael Polanyi*. I thus think that the account of Polanyi's “economic thought” outlined in the book is misleading

and partial. Also Bíró primarily covers Polanyi's writings about Keynesian public policies (and not Keynesian theory per se) that Polanyi articulates in his film and his subsequent book *Full Employment and Free Trade* (1945, hereafter *FEFT*). Polanyi's writings about Keynesian public policy were primarily a carryover from Polanyi's liberal agenda, which was the primary driver for his social thought.

Polanyi's Economics

Polanyi's economics was always a component of his social theory and was not developed as an objective per se, as I will attempt to show. Perhaps the best account of Polanyi's economic thought is his "Economic Lectures"² delivered in 1948 and 1949 after Polanyi moved from chemistry to his new chair in social studies at the University of Manchester. I suspect Bíró regards these lectures as falling later than the period covered in his book and therefore he does not discuss them. But they cannot be overlooked if one hopes to give a well-rounded and sensible account of Polanyi's economics. In these lectures, he tries to combine his spontaneous order approach with classical equilibrium theory ("spontaneous order is a state of equilibrium"). He does not manage to avoid the mathematical complexity of the equilibrium models and their numerical solutions.³ These economic lectures suggest that Polanyi is attempting to frame an alternative construction of economic theory based on the organizational principles arising from his earlier discussion of "two types of orders" in society. Keynes and Keynesian policies, which had been the main subject of *FEFT*, are never mentioned in these economics lectures.

In his lectures, Polanyi also explores a reformulation of economic science.⁴ He suggests that economic science is more than "the theory of choice between scarce resources" (the classical definition). But otherwise he defines the bearing of economic science on his social theory: "economic science arises from problems of polycentric mutual adjustment and increases in complexity with the variety of adjustments to be made." This concept gives a central role to Polanyi's polycentricity: "economic science studies the manner in which these adjustments are related to the achievement of the overall task, and seeks to improve this relationship." Polanyi also includes management in economic science and discusses the rational purpose of managers (to maximise profit) and the functions of a manager. He even attempts a "mathematical formulation of overall economic purpose" and he aspired to produce a mathematical formulation of "the task of a manager in terms of economic theory."⁵

Postmodern Economics?

Bíró suggests that Polanyi was developing views that might be identified as "postmodern economics." He claims that "perhaps, this account [is] the first book on postmodern economics" (12, n.2); Polanyi's work is an "untold story of giving birth to a *postmodern economics*" (1). There is, of course, an abundant earlier literature about postmodernism (philosophical and cultural) and postmodern economics.⁶ I believe to claim Polanyi offers a "postmodern economics" is a mistake since it implicitly brings into the picture a great many large issues about economics as a social science.

Bíró says that "postmodern" denotes what should come "after 'modern' in Polanyi's view" (12, n.2). He associates this new period with recognition that science, economics and society have gone too far on the road of scepticism and utilitarianism which lead[s] to the moral and economic crisis of his [Polanyi's] time." But there seems to be a certain confusion here: "postmodernism" is most often discussed in the literature as "after modernism" where "modernism" has at least a somewhat clear historical definition linked to the

Enlightenment period. But Polanyi does not think of himself and his philosophical ideas in terms of such a historical shift. It is true that Polanyi sharply criticizes scepticism and utilitarianism and the way in which some Enlightenment values developed, leading to the problematic development of modern science and culture. But Polanyi also seeks to recover and reaffirm some Enlightenment values and sometimes suggests there is continuity between his work and ideas and values in some Enlightenment thinkers.⁷

Polanyi argued for a “post critical” philosophy and justified his meaning for this term very carefully.⁸ “Postmodern” and “post-critical” are not synonymous, although both seek to express dissatisfaction with the consequences of the worldview commonly found in modernity and its arrogance and limitations.⁹ Perhaps Polanyi was a constructivist postmodern philosopher, as Jerry Gill suggests,¹⁰ and his postmodern philosophy of personal knowledge (in my view, a late Polanyi achievement, outside the period discussed in Bíró’s book) may contribute to the formulation of an economic theory based on personal knowledge. Polanyi could have done it, but he did not. I don’t, in sum, think “postmodernism”—even “constructive postmodernism” with its interesting allure—is very useful for understanding Polanyi’s economic thought in its context.

The “What to Believe” Talk and Published Excerpts (1947)

Bíró attributes great significance to “What to Believe,” a little-known, brief talk about scientific, religious and civic knowledge that Polanyi delivered in the spring of 1947, excerpts of which were published a little later.¹¹ He argues this talk is the “missing piece” in Polanyi’s “earlier concept of knowing” (142).¹² Bíró makes it a cornerstone of his argument for a postmodern interpretation of Polanyi’s economics. This reading does not, however, seem warranted.

Polanyi contends in this lecture that “understanding, believing and belonging are in fact three aspects of the same state of mind: of the mental process of knowing; they are its theoretical aspect, confessional aspect and its social aspect” (24). But this linkage was not altogether new in Polanyi: when Polanyi delivered his “What to Believe” talk, he had already published, in 1946, *Science, Faith and Society*.¹³ Here understanding, believing and belonging were extensively discussed.¹⁴ More importantly, in “What to Believe,” Polanyi also notes that “only when we realise the perfect conjunction of these aspects in all forms of knowledge, can we hope to judge rightly whether to accept or reject any particular form of knowledge.” He emphasizes that “all knowledge...relies for its truth on all three [aspects]” (24-25). So this “perfect conjunction” of the three aspects suggests a criterion to evaluate and judge knowledge, both at the personal and collective levels. But Polanyi does not say in “What to Believe” how to realize or operationalize this “perfect conjunction.” That in fact seems to be something Polanyi worked on in later ideas about “subsidiary and focal” attention and his later broader account of tacit knowing.

Bíró justifies his postmodern classification of Polanyi’s economics by arguing, somewhat oddly, that “what makes Polanyi economics postmodern lies with the other two aspects” [of knowing]: believing and belonging” (142). In the closing paragraph of the book, Bíró again says that “Polanyi based his postmodern economics on the three interrelated aspects of personal knowing” (159). But he does not explain why this qualifies Polanyi as “postmodern.” Interestingly, many postmodern thinkers emphasize that they are not rooted in tradition which I link to believing and belonging; they de-emphasize the importance of tradition and this seems at odds with Polanyi.

Bíró suggests that the ensemble of the “three interrelated aspects of personal knowing” (159) in fact “offers new opportunities for the interpretation of economics” (142). Bíró tries to fashion such an interpretation, but Polanyi did not do it. Certainly the link between economics and knowledge was not new

in the literature and it seems to me helpful to acknowledge this. I was surprised that Bíró did not cite here the famous “economics and knowledge” paper by Hayek, delivered in November of 1936, ten years before “What to Believe.”¹⁵ This paper changed the path of Hayek’s scholarly work and was a Eureka moment, as Hayek recognized.¹⁶ Polanyi very likely was aware of this paper.

Bíró claims that Keynesian economics ignores two aspects of knowing, believing and belonging, and treats only understanding (111). He contends that Polanyi’s “postmodern economics was not limited to understanding the economy, an aspect of knowing which, for him, mostly mirrored Keynesian ideas” (111).¹⁷ He adds: “According to Polanyi, knowing the economy always comes with two other aspects of knowing: believing and belonging—matters which Keynesian economics ignored, and matters having a rather qualitative and more artistic nature.” I acknowledge that I simply do not follow what Bíró here means. Is he suggesting that Keynes’s economic ideas undervalue belief while Polanyi’s economic ideas highly value belief? I am not sure this follows. Is tradition (belonging) not important to Keynes? Did Keynes ignore the tradition both of economics and his community, while Polanyi did not ignore these factors? Applying Polanyi’s linked three aspects to economists and their theories seems to me very problematic.

Bíró’s framework emphasizing understanding, believing and belonging seems not to be very operational. The three aspects are interdependent processes embedded and imbricated in the process of knowing. According to Polanyi’s concept of personal knowing, you necessarily rely on a background of belief (also later called the subsidiaries, some of which are not conscious) when you understand the meaning of something. And your believing reflects your belonging, your dwelling in certain traditions in a particular historical-cultural community. There is a kind of hierarchy here: understanding depends on believing (but not necessarily only on believing) and believing is influenced by belonging (but not necessarily only on belonging). This is true both for tacit and explicit knowing. This means that the three aspects are three non-independent tacit processes that can not be made fully explicit at the personal level of the knower. It is quite odd to use these aspects, as Bíró seems to do, as something like descriptors of knowledge.

In my view, Polanyi’s central point in “What to Believe” concerns the links or parallels between scientific, religious, and civic knowing and is not the “three aspects of knowledge.” The general relevance of this lecture is due to the continuing thread of Polanyi’s discussion of the “threat of nihilism” associated with moral scepticism. Polanyi’s account of scepticism later leads to a more comprehensive and deep discussion of moral inversion which is an important and *sui generis* topic in Polanyi thought during the fifties and sixties. I believe that “What to Believe” presents the three aspects of knowing as a tentative idea. He proposes that understanding, believing and belonging need to be seen as a counter to the corrosive powers of doubt undermining science, religion and society. But he does not here provide a detailed and careful analysis. Polanyi was a very intuitive thinker as seems apparent in this talk. He wrote later, “one must shoot first and ask questions afterwards, as I have always done. For better or worse.”¹⁸

Polanyi perhaps was somewhat aware of problems in his framework identifying the three aspects of knowing as described in “What to Believe.” These “aspects” do not re-appear in *PK*, *SM* or *TD*, although Polanyi does develop related ideas about such matters and different kinds of awareness and their roots in personal life in a community.¹⁹ Possibly, we should take more seriously what the editor of *Credere Aude* wrote, in a note at the end of the published excerpts from the talk: “Professor Polanyi asked me to state that the views expressed in it do not represent his final thought on the subject” (page 10). Polanyi apparently wished to qualify his brief statement and this leads me to believe that Bíró’s strong emphasis on “What to Believe” is disproportionate.

There is another more general problem with Bíró's strong emphasis on "What to Believe": it, as well as *SFS*, were published during a transitional period (i.e., 1946 and 1947) for Polanyi. During 1946, Polanyi was entering his transition from chemistry (and the economic parts of his social theory) to philosophy and some of the fundamental ideas later discussed in *PK* began to emerge. During the previous year, 1945, Polanyi began changing the direction of his work, focusing less on social theory and more on philosophy. A kind of tipping point was the preparation of the Riddell Lectures delivered during 1946.²⁰ "What to Believe" comes not long after that and it is an early manifestation of ideas developed more richly later by Polanyi. It seems to have things backward to use this transitional matter as a justification for early Polanyi ideas. For example, nothing in Polanyi's film deals with the three aspects of understanding, believing and belonging, although the film was a primary early achievement of Polanyi in economics. Also, nothing in *FEFT* deals with the "aspects of knowledge" in the economic system.

The three aspects of knowing appearing in "What to Believe" are also the basis for Bíró's argument about "personal economics" (110, 150, 159). His final chapter of the book is even entitled "Towards a Polanyian Personal Economics." However, Bíró does not indicate where and when Polanyi used the expression "personal economics" based on the "personal aspects of knowing the economy" (158). The only reference of Polanyi to "personal knowledge" in social theory or an economics context that I am aware of is in an unfinished article from August 1948 about dynamic order.²¹ Polanyi discusses the impossibility of replacing the dynamic order of science with a centrally planned system and, more generally, he argues that dynamic order can never be replaced by corporate order. Polanyi's argument in this article is based on three points: (1) personal knowledge, (2) speed of self adjustment and (3) the number of relations adjusted. About the first point, personal knowledge, Polanyi wrote: "Mutual adjustment of men to a system of dynamic order is often based on the intimate knowledge of the situation of each man; some of that knowledge may be subjective—as the scientist's consciousness of his own special abilities and the consumer's knowledge of his own tastes—or else largely unconscious, like the knowledge involved in any practical mastery of one's personal affairs. It is not possible to report adequately the contents of such subjective or unconscious knowledge to a superior." But this seems to be far from the context of "personal economics" which Bíró proposes.

Bíró's Threefold Mission and Polanyi and the Liberal Party

In his Introduction, Bíró summarizes his account by suggesting Polanyi's threefold early mission was "to craft a heart for economics, to revitalize liberalism and to save the West from the growing shadow of totalitarian regimes" (1). At the least, I believe that it is important to reverse the order of these elements in order to accurately represent Polanyi from 1933 to 1948. The project of revitalizing liberalism is intimately tied up with avoiding moves toward a totalitarian state. The objective referenced in the phrase "to craft a heart for economics" remains quite ambiguous, although for Polanyi establishing a sensible economic order is bound up with establishing the political or social order that will avoid a slide into a totalitarian state. But Bíró seems to use the phrase to point to a new core based on a new epistemological approach (a "personal," human friendly economics)²² which I have suggested above is a revisionist reading. I don't wish to deny the imagination shown in the discussion of key claims in Bíró's *a posteriori* reading and understanding of Polanyi's economic thought. But in a book intended for scholars interested in the history of economics (as claimed by the author and editor in the book's forematter), I would have preferred a more steadfastly historical perspective.

I acknowledge that I presupposed that a book titled *The Economic Thought of Michael Polanyi* would provide a relatively objective overview of the economic ideas, social theories and political movements of the UK (and other western countries) in the analysed period. However, neglecting this discussion means the much needed broader context is missing and this would have been very helpful to most readers. For the most part, *The Economic Thought of Michael Polanyi* is a collection of essays about individual and bilateral views related to Polanyi's interesting letters found in the Michael Polanyi Papers. The chapters seem at times to be independent essays and their relation is not always clear. The title for the book was perhaps chosen by the publisher. Nevertheless, the present title is misleading. A title such as *Essays Around the Social Theory of Michael Polanyi* would have more accurately advertised the book's content. Bíró does suggest that "this book is intended to shed new light on the history of economics in the 1930's and 1940's and a later historiography of this period" (p. 155). But this "new light" is quite dim, in my view, since he also candidly admits the book "does not provide an objective overview of the economic ideas, social theories and political movements of the UK in the analysed period, nor claims to do so" (1).

According to my reading, Polanyi never pretended to be an economist and his contributions to economics are much more diverse than discussed by Bíró in this book. His concern was politically driven: he wished to understand what had happened to his cherished, free and liberal (central) European pre-World War I society and to understand and counter the subsequent rise of totalitarianism (which includes both fascism and communism). His agenda was not economics per se, but what he called "social theory" (which included economic components of a new, regenerated liberalism with social concerns).

In November 1940, Polanyi wrote a note (to himself) about preparing a talk with his Manchester colleague the economist John Jewkes²³ about an eventual liberal manifesto "to set out the framework of a Good Society." Polanyi noted: "I think it is imperative that Liberal economic thought should summarize its fundamental principles now and announce them without further delay. The statement should be positive and emphatic." Polanyi emphasized the manifesto must "proclaim our conception of the purpose of society and of the technique for pursuing that purpose." Polanyi justifies here his interest in economics as a natural consequence of his fight for a new liberalism: "If, with this broader aim in view, I address myself to economic thought and not to political philosophy, my reason is that the most urgent task and the most decisive one lies in this part of social theory." This statement locates the economic interests of Polanyi as part of his broader social theory and justifies these economic interests along the same lines he did earlier in earlier foundational lectures such as "Visual Presentation of Social Matters" and "On Popular Education in Economics."²⁴ In the aforementioned 1940 letter to J. Jewkes, Polanyi emphasizes these points: "the disruption of political democracy was due to the clashes of opposing economic ideas, arising in a medium of profound confusion regarding economic matters. The source poisoning the social body lies in the sphere of economic thought." The driver for Polanyi's economic thought was not his academic life nor his epistemic views about knowledge but was, instead, his own political practice.

Polanyi's agenda in social theory was very much driven by his relationships with the Liberal Party in the UK during the period discussed in this book. Polanyi not only lectured in many liberal clubs and societies around (but not only around) the Manchester area, especially during the 30's and 40's, but Polanyi's circle of "economist friends" were active in Liberal Party activities. This includes, for instance, Beveridge, Lionel Robbins, Harrod, Hayek, Hicks, Colin Clark, Dodds, Dennison and especially Jewkes (who was Polanyi's early economics mentor at the University of Manchester) and Ernest Simon.²⁵ Later, Sir Ernest Simon (Lord Simon of Wythenshawe, of Manchester), who was wealthy and deeply involved in the affairs of Manchester

University, would be pivotal for the scholarly future of Polanyi's move to become professor of social studies in Manchester. Polanyi's move to a new chair in social studies in 1948 was supported by the Simon Fund.

The involvement of Polanyi with the Liberal Party and its community has not been considered seriously in the scholarship on Polanyi: there is no listing for the Liberal Party in the index of B  r  s new book, but there are also no listings in the indices of the Scott and Moleski Polanyi biography (2005) and MaryJo Nye's *Michael Polanyi and His Generation* (2011). Polanyi was a member of the important "structure of industry" subcommittee of the Liberal Party Reconstruction Committee led by Sir Percy Harris from 1941 to 1943. Some planning was then emerging as acceptable within certain sectors of the Liberal Party. Harris and other members clearly favoured an interventionist form of Keynesianism, although the committee found it difficult to reach an agreement in its final report.²⁶ Polanyi, of course, warned that planning would take the government beyond its legitimate role of establishing and enforcing the rule of law.²⁷

I suggest that this discussion of policy within the Liberal Party was one of the key drivers for Polanyi to write *FEFT* during 1943-1944. His son George's insistence also likely was important. Young George Polanyi was then very active in the Liberal Party, editing a liberal journal (*The Liberal Review*).²⁸ In general, it is surprising how aligned the writings of Polanyi about social theory are with the internal Liberal Party ideological and policy discussions.²⁹ Polanyi's "neutrality principle" for the Keynesian policy offered in *FEFT*³⁰ is his own maneuver to align Keynesian policies (management of aggregate demand through control of the monetary circulation in order to get a full employment economy) with his liberal principles. It saves his liberalism from the left-leaning policies of economic Keynesian control of investments (like public works). There is no economic justification at all for the neutrality principle; there are only ideological reasons (i.e., his political philosophy) for this option in public policy.

I thus suggest that *FEFT* was a book that was targeted (and this was an important motive) for the inside of the Liberal Party as a reaction to the final Harris report; it was not a book written for purely scholarly reasons. During 1943 and 1944, Polanyi interrupted his writing program (begun in 1939 concerning social orders) in order to write *FEFT*, a book intended, as B  r   notes, to make Keynesian economics "much simpler and clearer before they can become the common property of all thinking citizens," to put matters as Polanyi wrote in the Preface of the book (v). And Polanyi also acknowledges there that "this book can not claim substantial originality" (v). But the Liberal Party context of *FEFT* is of importance. Polanyi seems to believe a better understanding of Keynes' ideas will temper some of the left leaning extensions of Keynesianism and the general acceptance of planning in economics.

In general, *FEFT* continues to be a forgotten book in the economics literature; it is the only published book by Polanyi dealing specifically with economics and bearing on his experience with the production of the economics film, but contrary to public perception it is neither Polanyi's only nor his major contribution to economics. Because *FEFT* argues for Keynesian policies, the popular image is that Polanyi was essentially a Keynesian-centered scholar in economics. But this is at least in part a misunderstanding and, unfortunately, B  r   promotes this view (perhaps inadvertently) when he claims that *FEFT* is Polanyi's "economic *magnus opus*" (9). This overstates matters. B  r   covers over the complexity and subtlety of Polanyi's ideas when he emphasizes that Keynesian economics was "one of the most essential sources of the Polanyian understanding of the economy" (111) and that "Polanyi usually framed his economics as Keynesian" (142).

I suggest that Polanyi's social theory was much richer than most economic thought. Social orders theory, not Keynesian theory, is the essential kernel of Polanyi's social thought and his ideas about the economic organization of society need to be discussed under this broader rubric. In a word, B  r  s book does not make

clear that Polanyi's most lasting contribution to economic thought needs to be situated in this broader context as at least some others have recognized. Elinor Ostrom, the first woman to win a Nobel prize in economics in 2009,³¹ and her husband Vincent Ostrom, for example, pioneered the "polycentric analysis" of public governance; they have made important contributions to the economics of institutions for decades. Their inspiration was Polanyi's ideas about polycentricity and social orders, as they acknowledge in several of their papers.³²

Nye and the Sociology of Science and Technology

Bíró emphasizes the importance of Mary Jo Nye's book on Polanyi and his milieu in UK science and society discussions. He also sees his own book as a contribution to studies in the sociology of science and technology (SST). Nye's book likely has somewhat contributed to greater visibility of Polanyi's thought in the SST domain. And Nye's book is a valuable contribution to Polanyi scholarship, but it is a book that contextualizes Polanyi in the broad framework of the history of ideas which includes the history of philosophy of science as well as science and technology studies but not so much the history of economics. *Michael Polanyi and His Generation* is primarily relevant to SST insofar as it shows the influence of Polanyi on the discussions of social constructionist views of science. But it should be clear that Polanyi is not a social constructionist, although he certainly is keenly attuned to (and discusses) changes in scientific ideas in the history of science. Bíró's enthusiasm for SST seems a bit uncritical for one who understands Polanyi's later "post-critical" perspective.

It is also not quite accurate to suggest that Nye's book is a pioneering book which "put Polanyi on the radar in the sociology of scientific knowledge and social constructivism" (1). Polanyi was already on the SST radar before the publication of Nye's book because he articulated ideas about tacit knowledge. Polanyi was influential for early writers in the SST movement, perhaps especially Harry Collins and Trevor Pinch. Collins, foundational 1974 SST paper³³ "rediscovered" Polanyi and his tacit knowledge as the key to understanding that practice is central to science and this is the reason why it is very difficult to articulate what a scientist is doing. Later, Collins developed his own path around tacit knowledge that is influential in SST. Trevor Pinch³⁴ has recently recalled the influence of Polanyi's tacit knowledge on the Collins works and also on the popular 1971 book by Ravetz³⁵ about social processes of science. Pinch argues that the tacit-based notion of craft practices and the actual practices of scientists made an important contribution to the initial SST methodologies. Later in Bíró's book (135), he calls the popular 1998 book by Collins and Pinch "a masterpiece of philosophy of technology" (135). This may be an interesting and influential book, but I cannot agree it is a book about philosophy of technology rather than sociology of technology.

Processes, States and the Fluid Hydraulics Background

Bíró argues that Polanyi's "visualizations of economic realms mostly focused on processes rather than discrete states" (99). He seems to suggest that "processes" are dynamic entities, as opposed to discrete states. There is here a technical confusion between processes and states: a process can be continuous or discrete (in time), and both continuous or discrete processes can be modeled in transition mode (dynamic models) or stationary mode (sometimes also called equilibrium state).

Later (99) Bíró rejects the notion that Polanyi's model of economics is based on fluid dynamics. But, of course, Polanyi's film is a nice and early example of visualization of "hydraulic Keynesianism,"³⁶ following

up his previous efforts to create a model of macroeconomics in his lab devising an analog model using glass devices and connections with a fluid (water) flowing along the circuit.³⁷ Bíró's arguments about the incompatibility of fluid dynamics with some of the initial visualizations in the film (inspired by Neurath's isotypes) only shows the limitations that Polanyi found in this kind of visualization when applied to the dynamic of continuous processes. His "abstract" visualization³⁸ is itself very much inspired and similar to the traditional diagrams of the flow of fluids used in hydraulics and chemical engineering.³⁹

Finally, as a closing note, let me comment on the odd bibliography at the end of Bíró's book. The publisher may have required the rather strange organization here. Polanyi gets credit for writings that have been authored by others. The usual practices of referencing archive materials (mainly unpublished) versus published books, reports and papers are not followed. It requires work to make Bíró's rich bibliography useful.

ENDNOTES

¹Bíró considers Polanyi's economics traditional (154), although he also claims that Polanyi's economics mirrors the Keynesian account (111). If there is something less than orthodox in Polanyi's economics, I contend it is Polanyi's interest in social orders and polycentricity rather than his Keynesian views. See the discussion below.

²Regenstein Library, University of Chicago, Polanyi Collection (henceforth RPC), folder 31, item 14, Economic Lectures, 1948. Polanyi had serious health problems (exhaustion and insomnia) and "he attributed his health problems to the strain of lecturing in an area which he was not qualified" and this led the University to release him from his lecture course obligations in order to concentrate on the preparation of the Gifford Lectures (Scott and Moleski, 2005, 211-212).

³In an elaborate argument, Polanyi discusses suboptimal solutions of these equations and its implications: to produce a dynamic order as a relative optimum of "aggregate advantages" ("2nd lecture").

⁴See his "3rd lecture" in the initial version of the economic lectures, RPC (31,14).

⁵See the "7th lecture."

⁶For instance, see Ruccio and Amariglio (2003); Cullenberg, Amariglio and Ruccio, eds. (2001). See also Amariglio (1990).

⁷This was a hot topic of discussion after Polanyi presented his "Beyond Nihilism" at the 1960 conference in Berlin organized by the Congress of Cultural Freedom. See part I of Jelenski (ed.) (1962) and also Polanyi's postscript at the end of this book (185-196).

⁸*PK*, 265-266, 322. See also the unpublished version of "The Scientific Outlook: Its Sickness and Cure," a lecture delivered in Austin in 1958 after the release of *PK* (RPC [33,11]). Polanyi published a paper in *Science* (1957) with the same title before *PK* was published, but it has a different content.

⁹Jerry Gill's book *The Tacit Mode. Michael Polanyi's Postmodern Philosophy* (2000), suggests Polanyi is a "constructive" postmodernist. David Griffin, the editor of the SUNY series on "postmodernism," distinguishes "constructive" and "deconstructive" postmodern thought (*op. cit.*, ix-xxiii).

¹⁰Gill's book, not cited by Bíró, would be helpful if Bíró's objective is to offer a view of economics based on Polanyi's postmodern philosophy. See also Prosch, H., *Michael Polanyi. A Critical Exposition*, (1986), chapter 13 ("The Free Society") and Prosch's (2015) 1991 Kent State address recently reprinted as a TAD essay about Polanyian economics, free society and society of explorers, also not cited by Bíró.

¹¹"What to Believe" was recently published in *TAD* 46:2 (21-28) accompanied by a discussion of the brief talk's general context by Phil Mullins as well as comments by Bíró and Marty Folsom. Page numbers of this Polanyi talk are cited internally.

¹²Bíró claims that the lecture "has remained quite unnoticed in the depths of his archival materials" (142), but this is not exactly the case. A two-page summary was published in 1947 and there is a bibliographic reference in the Polanyi bibliography included in Scott and Moleski (2005, 342, reference 1947). A copy is also included in Richard Gelwick's collected articles and

papers of Michael Polanyi, available on the Polanyi Society website (polanysisociety.org). There is also an alternative one page typed summary of the lecture with a different organization and text in RPC (31,10).

¹³There is no citation of *SFS* in the Bíró book, although his book includes a chapter entitled “Correspondence on the spirituality of science and economics” (chapter 5). The title of the chapter may be misleading: it may suggest economics is not a (social) science.

¹⁴“Beliefs” and related words appear 63 times on 26 different pages of *SFS*. “Tradition” (the usual Polanyian term for belonging) appears 65 times on 24 pages.

¹⁵Hayek, F., “Economics and knowledge,” *Economica* (New Series) vol. 4, 1937, 33-54.

¹⁶“I had suddenly the one enlightening idea which made me see the whole character of economic theory in what to me was an entirely new light”, *The Collected Works of F. A. Hayek*, Volume 9: *Contra Keynes and Cambridge* (University of Chicago Press, 1995), 62.

¹⁷Polanyi’s economics includes much more than his Keynesian book (*FEFT*). Bíró’s statement does not make much sense: how can economics not be limited to the understanding of the economy? Is he suggesting a metaphysical based economic science? Is such a thing possible? Is this a new definition of economics, including politics or religion, for instance?

¹⁸RPC (38,8), Contribution to “Midcentury Authors”, 20 July 1966. The manuscript has the comment handwritten by Polanyi: “Autobiography by M. Polanyi”. It was published almost a decade later: Polanyi (1975).

¹⁹Two other “aspects” of knowledge are discussed in *TD* (7 and 11) but with completely different meanings.

²⁰On 28 May 1945, Polanyi hand wrote a note in an unfinished essay (RPC [30,2]). “I am abandoning this work today in order to turn to the preparation of the Riddell Lectures of 1946.” And later he would write that 1946 was the year when he had discovered his true vocation: “the pursuit of a new philosophy to meet the need of our age” (Polanyi [1975], 1152). In a 1946 letter to Mausl, Polanyi wrote that “the crisis of my life is over” and he suggested that his task was now clear (Scott and Moleski, 200).

²¹RPC (31,11) Dynamic Order, 23 April 1948.

²²Bíró seems to suggest this in the last chapter of the book.

²³RPC (26,5) Notes for talk with prof. Jewkes, Nov. 1940.

²⁴See “On Popular Education in Economics” (1937) and also “Visual Presentation of Social Matters” (1936), published by *TAD*: Polanyi (2014) and Polanyi (2016).

²⁵In his preface to *FEFT*, Polanyi acknowledges T. Ashton, J. Jewkes, J. Hicks (future Nobel prize, 1972), S. Dennison and Lionel Robbins for their help and advice (vi).

²⁶See P. Salmon, *The Liberal Party and the Economy, 1929-1964* (Oxford University Press, 2015), 144, 145.

²⁷Polanyi’s contribution to discussion of the Harris report is available in RPC (28,3), in his comments on the “draft memorandum on a planned economy,” 22 January 1943.

²⁸Scott and Moleski, 187

²⁹For instance, the controversial policy issues about monopolies and patents, or the inheritance laws, are themes that may surprise but are found in the Polanyi agenda and writings of the 40’s.

³⁰*FEFT*, 29. Polanyi’s neutrality principle states that policies for management of monetary circulation should “be carried out in a neutral form, i.e., in a way requiring no materially significant economic or social action to accompany it.”

³¹Her Nobel Lecture was titled “Beyond markets and states: polycentric governance of complex economic systems” (8th December, 2009).

³²For instance, in V. Ostrom, “Polycentricity (part1)”, chapter 2 in M. McGinnis, *Polycentricity and Local Public Economies. Readings from the workshop in Political Theory and Policy Analysis* (University of Michigan Press, 1999): “I shall draw upon the work of Michael Polanyi.” She cites the relevance of Polanyi’s concept of polycentricity for “understanding patterns of behavior in

market organizations and judicial decision making” (56). A good review is P. Aligica and V. Tarko, “Polycentricity: from Polanyi to Ostrom, and Beyond,” *Governance: an International Journal of Policy, Administration and Institutions* 25 (2012), 237-262.

³³H. Collins, “The TEA set: tacit knowledge and scientific networks,” *Social Studies of Science* 4:2 (1974), 165-185.

³⁴S. Tosoni and Trevor Pinch, *Entanglements. Conversations on the Human Traces of Science, Technology and Sound* (MIT Press, 2017), 9-10.

³⁵J. Ravetz, *Scientific Knowledge and Its Problems* (Harvard University Press, 1971).

³⁶The term was coined forty years later, in the seventies by Alan Coddington (1976). Coddington dates its origins in the 40’s and 50’s with the Hicks IS/LM diagram, but not with diagrams of money circulation (Beira, 2013). See also Morgan, M. and M. Boumans (1998).

³⁷See Scott and Moleski, 163-164. Polanyi’s dissatisfaction with the results of his analog models (including an electromechanical one) was a main driver and inspiration for the alternative “diagrammatic film” model.

³⁸In the film, Polanyi spends around four minutes introducing progressively and very carefully the transition from the first pictorial scenes of the film (reel #1) to the abstract model of continuous flows in the monetary circulation (reel #2: from figures to symbols). For a transcription of the audio track of the film, see Beira (WP121b). Translations are available in Hungarian (Bíró, 2013), Spanish (Rota, 2018) and French (Beira, Fernandes and Festré, 2017).

³⁹In an unpublished note from 1941, Polanyi extensively uses an hydraulic system as an analogy to the flows of savings and investments: “take a bathtub with a partly open outlet. Open the tap wide. To begin with, more water flows in than out. The water rises. ... “ RPC (27,2) Money and unemployment, notebook no. 2, 1941. In *FEFT*, Polanyi extensively uses the idea of two pumps, one for “sucking” and another for “squirting” money from and to the money belt (monetary circulation). This terminology is from Polanyi himself, not from Keynes, and it is clearly the terminology of a chemist intimately familiar with hydraulics.

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