

Projecting the Light of Democracy: Michael Polanyi's Efforts to Save Liberalism Via an Economics Film

Abstract

This paper examines how visualizing and saving a kind of liberal economics were connected in the sociotechnical visioning of Michael Polanyi in the period after the Great Depression. The focus is on how Polanyi sought to make societal effects to save liberalism and democracy through reforming what was being taught in economics and how it was being taught. The first part of the article traces the origins of Polanyi's film project and his related economics book, *Full Employment and Free Trade*, along two strands. First, my discussion shows how Polanyi was doing boundary work against both extreme liberalism and socialist planning. He was proposing a new kind of economic liberalism with social consciousness, and social consciousness was central to the *raison d'être* of his sociotechnical vision. Second, similar projects aimed to give visual physical analogies to economic laws in the 1930-40s are analyzed with an aim to disclose whether and how they might have influenced Polanyi's visual method in his film. The second part explores Polanyi's endeavors to embed his sociotechnical vision in different communities. Interactions with economists, film experts, economics tutors and others are analyzed here, giving a glimpse into multiple social worlds. The third part seeks to discover whether Polanyi's vision became a full-fledged sociotechnical imaginary in the Jasanoffian sense. The article concludes by showing how and why Polanyi made attempts to develop his economic thought to appear more as economic theory and less as economic policy.

Keywords: visual representation; sociotechnical imaginaries; boundary work; visualization in economics; Michael Polanyi; liberalism; democracy

1. The origins of Polanyi's sociotechnical vision

There seems to be little tradition left of sober and considerate agreement, and only the desire left to deal a blow. Such is my profoundly sad impression today (Polanyi 1941a, p. 1).

Michael Polanyi is mostly known by his work in physical chemistry and philosophy. What is less known about him is that he corresponded with John Maynard Keynes, Friedrich August von Hayek, Lionel Robbins, Joan Robinson, Richard Hicks and other leading economists, and made considerable contributions to the *corpus* of economics himself in the two decades after The Great Depression. Polanyi managed to be seen both as a member of the Keynesian and the laissez-faire camps when being or seen as a member of both was generally thought to be inconceivable. He was a friend of Hayek, a founding member of The Mont Pèlerin Society and a wholehearted liberal. And, at the same time, he was among the firsts to write a Keynesian coursebook and was a pioneer in popularizing Keynesian ideas for the masses. Polanyi sought to save liberalism when it faced both internal tensions (e.g., the Keynes-Hayek debate) and external threats (Socialism, Fascism). And he imagined doing this through a film.

Polanyi developed a sociotechnical vision he concisely summarized in a letter of 1935 as "democracy by enlightenment through the film" (Polanyi 1935b, p. 1). He imagined that "from centres where our model [his economics film based on Keynesian economics - my addition] would be exhibited and studied a calm light would spread out" (Polanyi 1936, p. 4) saving liberalism, and our society. Such

light was a metaphor for economics education, which Polanyi thought might eliminate the popular fallacies in public understanding of economic ideas by raising the social consciousness of the society. Polanyi cultivated his vision strongly connected to the development of an economics film because he thought that "fundamental features of economics could be made widely appreciated by the public only by discovering an adequate visual symbolism for their presentation" (Polanyi 1940d, p. 1). His economics book (*Full Employment and Free Trade*) sprang from his film project, and was, in a sense, an experiment both to call attention to his earlier film, and, for finding a new vessel for his sociotechnical vision. After the outbreak of World War II, Polanyi thought that his film could "facilitate the education of an enlightened post-war opinion" (Polanyi 1942a, p. 3) too. This would not approach problems "in the spirit of despair which endangers the stability of free institutions" (ibid), but looking for concrete, intelligent steps. Polanyi developed his sociotechnical vision because the world was seen "in severe need to be able to manage its fate based on knowledge and not mindless passions" (Polanyi 1938a, p. 1). With his economic thought mirrored in his film and book, Polanyi intended to fight extremities in economics and economic policy, and argue for a new kind of economic liberalism based on social consciousness.

1.1. Polanyi's boundary work for a new kind of economic liberalism

In his frequently cited article, Gieryn argued that the aim of certain practices of scientists is usually to preserve or enlarge material and symbolic resources for a specific group sharing ways of seeing, doing and being, or to defend their professional authority or to attack the professional authority of others (Gieryn 1983). He identified situations in which boundary work is likely to happen: expansion of authority or expertise to the domains of others by heightening the contrast between them and us, monopolizing such authority or expertise by excluding others as outsiders or protecting the autonomy by putting the blame on people from outside.

Some of Polanyi's practices can be seen as doing boundary work of the first and second situation. Polanyi was doing boundary work against both "extreme" (Polanyi 1940e, p. 24), "crude" (ibid, p. 24), or "orthodox" (ibid, p. 26) liberalism based on "classical Free Trade doctrine" (Polanyi undated, p. 2) and "complete laissez-faire" (Polanyi 1940e, p. 26), and against "economical collectivism" (Polanyi undated2, p. 1) or a "planned economy" (ibid, p. 6) of "Socialist teachings" (Polanyi undated, p. 2). I explore how he set these "two most pernicious extremes" (Polanyi 1943c, p. 4) against Keynesian theory by heightening the contrast between them and the Keynesian ideas, how he made efforts to penetrate to the domains of these, and even to monopolize the expertise of putting an end to the economic downturn without taking unnecessary collateral damage on freedom. The first part of this subsection shows Polanyi's boundary work against "extreme liberalism" (Polanyi 1940e, p. 24), and the second focuses on how he was drawing boundaries against the "planned economy" (Polanyi undated2, p. 6). The subsection concludes by exploring how he was drawing joint boundaries against these two "extremes" and how he was framing his Keynesian "third way".

1.1.1. Drawing boundaries against extreme liberalism

Polanyi considered himself a liberal but this did not impede him from being critical towards the "*classical Free Trade doctrine*" (Polanyi undated, p. 2) or policies of "complete laissez-faire" (Polanyi 1940e, p. 26) even in the 1930-40s when clashes between liberal and socialist ideas were seen as particularly sharp-edged. In one of his early public lecture, *On Popular Education in Economics* (Polanyi 1937b), Polanyi claimed to identify four mistakes of utilitarians, whom he seemed to identify with promoters of orthodox economic liberalism, as the following: "they failed to see that the just reward of the factors of production did not lead to a just reward of the people disposing of these factors" (Polanyi 1937b, p. 4), "they failed to produce an idea as the limits to which human affairs should be regulated by buying and selling" (ibid, p. 5), "gave no reasonable account of the trade cycle" (ibid), and made "self-seeking the supreme principle in economic life" (ibid) assuming "that people will be happy in seeing their blind acquisitiveness transformed into a maximum efficiency"

(ibid) without making "the community conscious of and responsible for its economic life" (ibid). These "*mistakes*" (Polanyi 1937b, p. 4) or "inabilities" (ibid, p. 6) were revisited in a couple of his earlier economic writings and used to enhance the contrast between "crude liberalism" (Polanyi 1940e, p. 24) and the Keynesian theory in favour of the latter.

Regarding the first weakness, Polanyi thought that Keynesian economics avoids such failure, moreover that it is compatible with multiple "standards of economic justice" (Polanyi 1948, p. 146). He believed that "the economic machinery can be operated in conformity to any standards of economic justice" (ibid), so our further "task is to clarify our sense of economic justice and to establish sufficient agreement with regard to its demand" (ibid). Such agreement of people was seen as an achievement which could and should be reached through social reconciliation.

Polanyi considered the second weakness of the utilitarians to be that they "overestimated the idea of free market" (Polanyi 1937b, p. 5) since they "thought it to be applicable to all human relations" (ibid). He believed that there was "an element of superstitious fear in the idea of orthodox Liberals that the market takes revenge on society for any interference with its mechanism by inflicting on it the cure of unemployment" (Polanyi 1940e, p. 26). He disagreed with this fear and suggested that

[t]he alternative to the planning of cultural and economic life is not some inconceivable system of absolute laissez faire in which the state is supposed to wither away, but that alternative is freedom under law and custom as laid down, and amended when necessary, by the State and public opinion (ibid).

The power of buying and selling was not seen as without its limits, but as taking effect in a social and legal framework established and modified by the State and public opinion when it seems necessary. This corresponds to one of Polanyi's main messages in *Full Employment and Free Trade*. Keynesian economic policy needs a social agreement, a kind of socio-economic social contract, in order to be able to function in a completely democratic and constitutional way. Keynesianism is compatible with multiple possible social agreements. People need to choose from these. If they do not, others will choose instead of them, in a less democratic way. Polanyi's vision aimed to enlighten the public to see that a decision is needed, and, to help laypeople carrying it out.

By stating that "the work of Keynes has brought an understanding of the trade cycle" (Polanyi 1937b, p. 12) Polanyi seems to be suggesting that Keynesianism avoids what he called the third mistake of utilitarians, and by doing this further heightened the contrast between Keynesianism and "orthodox liberalism". The latter Polanyi said to be unable to address and handle economic cycles. He also stated that "the working of the economic machinery and, in particular, the mechanism of the trade cycle must be made accessible for a wide popular discussion" (Polanyi undated3, pp. 1-2), which leads us to what he deemed the fourth mistake of the utilitarians, that is, the inability to raise social consciousness in economic issues.

Polanyi warned that "liberal economics and democratic political life, already restricted to-day to a minor part of Europe might be destroyed altogether in another few years" (Polanyi 1937c, p. 2) unless liberalism developed a "conscious spiritual power" (ibid, p. 17). Polanyi thought that the political and ideological milieu and the social thought of the 1930s was clustered around a "historic force", the need for social consciousness which will be "more fundamental for the present century than even the national idea and that the struggle for it will dominate public life until it has found reasonable satisfaction" (Polanyi 1937c, p. 32). He thought that the successful spread of socialism might be explained by its effective handling of such social consciousness, that is, it was able to plausibly explain the social implications of everyday life for the masses. Polanyi did not view the contemporary battles between liberalism and socialism as a separable historical episode but an instance of the "permanent rivalry between the individualist and collectivist patterns of social life" (Polanyi 1941c, pp. 7-8).

He thought that the balance between these patterns of social life "is ever shifting to and fro" (ibid, p. 8), thus the most important task ahead is "to ascertain the just mean between these two most pernicious extremes, to draw correctly the line which divides those cases in which it is the duty of the

State to interfere, from those cases in which it is the duty of the State to abstain from interference" (Polanyi 1943c, p. 4). Polanyi thought that economic liberalism could and should be reformed to develop a kind a social consciousness, and that it is the only way to counter the growing influence of socialist planning.

Polanyi thought that "democracy can satisfy this craving for economic consciousness" (Polanyi 1937b, p. 11) too by "creating a popular understanding of economic matters" (ibid). He saw this as "the only way to obtain economic consciousness while preserving freedom of thought" (ibid) by other means than "dictatorial regimentation" (ibid, p. 10). His approach was "to elaborate the new economic ideas and at the same time to simplify their outline so as to make them comprehensible to the intelligent layman" (ibid, p. 12) and by doing this raising social consciousness without limiting freedom. He seemed to undertake the task to revamp economic liberalism himself with the development of his Keynesian economic thought and film.

According to Polanyi, the time had come for "Liberalism to return to the charge, with the fervour of its early intransigence, which it professed up to about seventy years ago, before beginning to give way to the growing claims of collectivist ideas" (Polanyi 1940e, p. 24). In his view, "extreme liberalism in all its crudity is a source of material and moral blessings when it serves to release society from medieval fetters or from paralysis by State imposed restrictions of trade" (ibid). Polanyi believed that by "wiping out"(ibid) the collectivist structures "along with a few hundred tariffs and exchange regulations" (ibid) even crude liberalism could have improved the situation of the economy, in a sense. But, as Polanyi phrased it: "a liberalism which believes in preserving every evil consequence of free trading, and objects on principle to every sort of State enterprise is contrary to the very principles of civilisation" (ibid). He did not only accuse extreme liberalism with the negligence of such need for social consciousness, but with working against it and by doing this unwillingly helping economic collectivism:

The protection given to barbarous anarchy in the illusion of vindicating freedom, as demanded by the doctrine of laissez faire, has been most effective in bringing contempt on the name of freedom; it sought to deprive it of all public conscience, and thereby supported the claim of Collectivism to be the sole guardian of social interests (ibid, p. 25).

Polanyi believed that "liberalism was misled to extremism mainly by its failure to understand unemployment" (ibid). Polanyi was not satisfied with the liberal economists of the Great Depression. He believed that free trade is not enough in itself to avoid unemployment, and that liberal economists were wrong in claiming that "all measures reducing the income of the rich and increasing that of the poor must produce unemployment", and that "most of the other proverbially dismal and inhuman conclusions of economic science arose from this central error" (ibid).

Polanyi also pointed out that extreme liberalism had not realized that certain economic phenomena have different meanings and values for the individual and for the community and therefore had not developed a common scheme of economic value. He thought that Keynesians, unlike extreme liberals, realized this and developed their ideas accordingly. Polanyi expressed this idea himself most clearly in his *Full Employment and Free Trade* (1948) regarding the nature of money, he claimed that "the main point to understand is that the possession of money is not the same, or even remotely similar, value to a nation as it is to the individual" (Polanyi 1948, p. 1). But he did not think that Keynesians were alone in recognizing this need for a common scheme of economic value.

1.1.2. Drawing boundaries against socialist planning

Polanyi stated that the socialists claimed to establish such a common scheme of economic value, but it was "far from being able to summarise the essence of an economic situation independently of the autonomous exchanges which go on in the course of marketing, and to replace their operations by a comprehensive scheme of its own" (Polanyi 1940e, pp. 20-21). According to Polanyi, eventually "the Government must recognise that it has no comprehensive set of alternative valuations to replace" (ibid) the individual valuations arising from the exchanges of economic agents. Going into the details,

Polanyi reflected on some of the findings of Colin Clark's *A Critique of Russian Statistics* (Clark 1939). In Clark's book, it had been revealed that "anomalies of Russian valuation which even within one group of articles of consumption amount to more than tenfold distortions of relative values" (p. 20). Polanyi wanted to show the inadequacy of such economic valuation by using the following simile:

[T]he compilation of statistics on objects consumed, comprising the number of handkerchiefs, spectacles, prayer books, and countless other kinds of merchandise, are as meaningless from this point of view as would be the valuation of the National Gallery by square yards of canvas or pounds of paint (ibid).

Polanyi claimed that socialist economic theory propagated the "just reward of the people" (Polanyi 1937b, p. 4) in its rhetoric similarly to extreme liberalism but the source of such "justice" was not seen coming from the market but from "rule of the people by the people".

Polanyi saw another weakness of socialist planning in its inability or unwillingness to develop an idea on the economic role of prices and profit. In such a system, the central direction of prices and the elimination of profit dominated the ideology and the respective theories. Despite, as Polanyi pointed out, the fact that the influences of the "evil powers of the market" (Polanyi 1940e, p. 26) were officially denied, they reappeared from time to time and were increasingly taking effect.

According to Polanyi, proponents of socialist planning recognised the existence of trade cycles, and claimed that a centralised direction of economic life could and should fight these in favour of the people. It was also presumed that such a fight can be won - that is, collectivist planning can smooth economic fluctuations.

Polanyi claimed that "the demand for social consciousness in economic life has only started on its way in history" (ibid), and that we might find multiple "attempts to achieve economic consciousness" (ibid, p. 31) in the Soviet planning, German Fascism and Roosevelt's policy. He thought that socialist teachings gave "an example of a new life in which the daily work of all is conscious of a common purpose" (ibid), but he also realized that this did not come without its side effects on freedom.

Polanyi's rhetoric was more belligerent against socialist planning. In his reflections, he wrote about the "phantasy of "planning"" (Polanyi 1947, p. 5), a "pathetic illusion" (ibid, p. 7), and a plethora of "errors" (Polanyi, undated, p. 2). He thought that socialist planning had "fanatical hatred" (Polanyi 1940e, p. 22) against the market which "spells disaster" (ibid) by realizing the "prophecy of salvation" (ibid) with the market's "final destruction" (ibid).

1.1.3. Drawing joint boundaries against extreme liberalism and socialist planning

Polanyi thought that "*errors both of Classical Free Trade doctrine and of Socialist teachings have done a great deal to confuse people and to undermine their confidence in modern society*" (Polanyi undated, p. 2). He pointed out that a common point in their rhetorics was the implication that there is no third way to handle or order economic affairs. He suggested that "instead of accepting this joint view [seeing the other as the sole alternative] of orthodox liberals and collectivists" (Polanyi 1940g, p. 26), a new kind of liberalism with social consciousness should be developed and disseminated. He considered that during their attempts

[t]o oppose each other the social and individual interests of man seems to have separated two essentially connected elements and formed a pair of evil principles which tend to disintegrate society by pulling in the economic collectivism on the one side and of blind self interest on the other (Polanyi undated2, p. 1).

Elsewhere Polanyi went more into the details pointing out that

[t]he orthodox Liberals maintain that, if the market is limited by the fixation of some of its elements, then it must cease to function, the implication being that there exists a logical system of complete laissez faire, the only rational alternative to which is collectivism. That is precisely the position which collectivists want us to take up when asserting that none of the

evils of the market can be alleviated except by destroying the whole institution root and branch (Polanyi 1940g, p. 26).

In Polanyi's view, a form of Keynesianism was "destined to restore the decency and vitality of the capitalist system" (Polanyi 1941c, p. 2) as the third way, therefore more scope should be given to its "social significance" (ibid) to bring its "vital message" (ibid) into "wider circulation" (ibid). He emphasized that

[p]lanning is not the only method of ordering human affairs, and that the alternative method is Supervision, which is almost the opposite of planning, in that it ultimately relies on the multitude of individual initiatives which planning would subordinate to a central will (Polanyi 1940g, p. 3).

He conceived that "the public is left unaided in its perplexity: equally repelled by the recollections of the pre-war depression and by the systems of economic control, by which totalitarian countries use to ensure full employment" (Polanyi 1941c, pp. 2-3).

Polanyi realized that the justification of inequalities in income is basically the same in the two systems. He wrote that in a planned economy "If a manager gets the income of thirty workers, it is only because his work is thirty-times more valuable. Therefore there is no: exploitation. But this is exactly the same reason which liberal economy gives for inequality of incomes" (Polanyi 1937c, p. 28). He was also concerned that "the extent of social injustice could become about equal in both systems" (ibid, p. 29) and that even the "system of capitalistic enterprise can be made to conform to any standard of social justice on which society is sufficiently agreed" (Polanyi 1946a, p. 8). Thus, members of the society shall be adequately informed about the economic ideas to help them reach an agreement on a standard of social justice.

Polanyi thought that both socialist planning and extreme liberalism failed to produce an idea on the limits of buying and selling. But, unlike orthodox liberals who deemed its power limitless, promoters of socialist teachings thought it does not have power at all. Both caused much trouble for their supporters because, as Polanyi pointed out,

[s]tarting from the principle that production is to be decreed by the state, the Soviets have, out of necessity, submitted more and more to the guidance of prices and profits. The development in the Western countries was just opposite: While continuing the traditions that prices and profits should be the basic principle of business life, they have, out of necessity, admitted a wide range of restrictions and subsidies by the State (Polanyi 1937c, p. 29).

Polanyi believed in the power of buying and selling, but thought that it is necessary to establish limits by the State and public opinion. Such limits were not seen as unchangeable and set once and for all, but continuously changing. According to Polanyi, the balance between individual and collectivist patterns of social life "is never at rest, and every historical force, all rival interests and ideas deflect its position in one way or another" (ibid, p. 8). Polanyi wrote that

[C]ommunism, arising in the middle of the 19th century, attacked utilitarianism at all the weak points to which I have referred. It demanded that exploitation, marketing, the trade cycle should be wiped out and the acquisitive system replaced by a community consciously working for its common needs (Polanyi 1937b, p. 6).

Polanyi believed that a "correct Keynesian policy should regenerate free competition and re-establish capitalism on renewed foundations" (Polanyi 1948, p. xvi). At the end of his *Full Employment and Free Trade* (1948), he made it clear that "in the controversy between Laissez Faire and Planning my outlook leans distinctly towards the former" (p. 149). By going into the details, he stressed that he "wholeheartedly accept[ed] the guidance of the 'invisible hand' for the mutual adjustments of productive units" (ibid) and "repudiate[d] the mood of millenist planning" (ibid), but also reminded his readers that the Keynesian theory revealed that "tariffs and price agreements do not create mass unemployment, and that their abolition [in itself] would not restore Full Employment" (ibid, p. 148) either.

Polanyi thought that "mistakes" (Polanyi 1937b, p. 4), "weaknesses" (ibid, p. 6), "inabilities" (ibid), and "fallacies" (Polanyi undated, p. 2) of both laissez-faire liberalism and economic collectivism could and should be avoided. He claimed to find the solution with his Keynesian "third way" which he thought could put an end to the economic downturn and decrease the influence of economic misconceptions without inducing collateral damage to freedom. According to Polanyi, no tradeoff could be justified between economic progress and freedom, and everyone claiming that freedom shall be curtailed in order to be able to achieve the fastest economic progress is on a wrongful track that eventually leads society to disintegration and cultural collapse. He promoted his new kind of economic liberalism in his early economic writings (1933-1948) and his economics film, *Unemployment and Money: The Principles Involved* (1940f). So far, these have generally been seen as loosely connected fragments not really worthy of study on their own merit and unrelated to his later philosophy. However both of these claims are wrong because Polanyi developed a consistent sociotechnical vision of "democracy by enlightenment through the film" (Polanyi 1935b, p. 1) in these writings, and this vision might be seen (Mullins 2010) as connected to the social vision found in Polanyi's *The Growth of Thought in Society* (1941b) and *Personal Knowledge* (1958).

Polanyi thought that lack of social consciousness was the "greatest deficiency" (Polanyi 1937b, p. 11) of the prevailing liberal economic system and he was on a mission to improve public understanding of economic ideas to establish an "enlightened public" (ibid, p. 12) capable of directing its own economic life and to reach agreement on a standard of social justice. For his mission to reform liberal economics based on Keynesian insights, he needed to find ways to reach out for the wider public. One of these ways he claimed to find was the development of popular economics films. This subsection has focused on presenting the *raison d'être*, aim and content of Polanyi's sociotechnical vision which was clustered around the development of economics films. The next component explores the origins of visualization in his film *Unemployment and Money: The Principles Involved* (1940f) by making a comparison with similar visual physical analogies of economic laws which might have influenced Polanyi in the 1930-40s.

1.2. Visual physical analogies of economic laws in the 1930-40s

Polanyi was not alone in developing visual physical analogies of economic laws in the 1930-40s. He knew at least three similar projects by Angell, Mooney, and Neurath. In a letter of 24th November 1935, Oscar Jaszi wrote to Polanyi that "another partial experiment in this field is a board game designed and patented by Norman Angell (I did not see it), and which illustrates the circulation of money and the distribution of gold stocks. Maybe it would be worth seeing..." [my translation from Hungarian] (Polanyi 1935a, p. 1). Jaszi's letter did not include the name of the game, but it seems highly probable that he suggested Polanyi to check Norman Angell's *The Money Game*. The latter was first published in 1928 by J. M. Dent & Sons Ltd. (London), five years before the economist Angell won the Nobel Peace Prize in 1933. The full title of this board game was *The Money Game: How to Play it: A New Instrument of Economic Education*, and it was mainly concerned with teaching the fundamentals of banking and finance for those without any related formal training. The 'newness' of this instrument was its emphasis on the visual presentation of economic matters by using thematic illustrated cards. The relation between the (re)presented (e.g., a coal mine) and the (re)presentation (e.g., the visualization of a coal mine) was focused around by their visual similarities.

The second project that possibly inspired Polanyi was James D. Mooney's, who was the president of General Motors Overseas between 1922 and 1940. Mooney patented a series of inventions concerning the development of visual physical analogies of economic laws in the 1930-40s (Mooney 1934; 1941; 1947; 1948; 1949). His *apparatuses* included visualizations of the law of supply and demand in cases of a single and of multiple commodities, economics of households and of national economies, etc. In a letter of 21st January 1937, Charles Sale, an official of the Rockefeller Foundation informed Polanyi about Mooney's project, and even sent him an extract of Mooney's letter of 15th December 1936. In this letter, Mooney wrote to Sale that "I feel that motion pictures of

the apparatus, accompanied by synchronised spoken explanation, and reinforced if necessary by simplified charts and diagrams in "moving cartoon" style, offer the best means of large-scale presentation" (Polanyi 1937a, pp. 2-3). On the archival copy of this letter, there is a hidden sketch apparently by on the back of one page. The sketch was probably influenced by what Polanyi had just read in Sale's (and Mooney's) account. Also the style and the medium of the visual presentation suggest that it was created shortly after Polanyi received the 21st January letter from Sale. This is not to suggest that Polanyi borrowed Mooney's idea about an economics film. As far as we know, Polanyi was playing with the idea of making such a film by 1929, therefore Mooney's parallel project might have only influenced him in the developmental phase in the second part of the 1930s.

The third similar project Polanyi knew about, and the only one he referred to, was Otto Neurath's ISOTYPE. Polanyi was aware of the "'unit symbol' method of Neurath" (Polanyi 1937a, pp. 3-4) or the "'Neurath figures'" (Polanyi, 1937d, p. 4) used in the Austrian press and schools. Some (Orosz 2014) have even claimed that Polanyi was the creator of the "animated infographic" (ibid) by using ISOTYPE with moving picture in his *Unemployment and Money: The Principles Involved* (1940f). It seems safer to say that Polanyi was playing with the method as some elements of his visual representation of social matters might remind us of Neurath's method, while others are unlike anything in Neurath's visualizations. The social visions related to the visualizations of Neurath and Polanyi also showed differences. The aim of Neurath's Vienna method was to establish "one international picture language (as a helping language) into which statements may be put from all the normal languages of the earth" (Neurath 1936, p.17), that is, a kind of debabelization effort. Polanyi, on the other hand, thought that "various versions of these films will have to be prepared for the different levels of academic and popular instruction" [Polanyi 1938d, p. 4], and planned a related manual for each "suggesting the arguments which can be based on the film" [ibid]. His aim was "the establishment of a library of economic films, amplified by slides and manuals which would be available for instructional purposes" [ibid]. His intention to diversify the film and the related arguments suggests that adaptation to the audience was more important for him than the aim of a single coherent visual régime. Polanyi's vision regarding his film embraced the idea that the "real hope lies in convincing the English speaking world" (Polanyi 1943b, p. 1) which was unlike the 'debabelizing' element of the Neurathian agenda cutting through traditional language barriers.

The first version of Polanyi's film titled *An Outline of the Working of Money* premiered in 1938. It had a screening at the Walter Lippman Conference in Paris where Hayek, Mises, Röpke and a few other economists saw it. Polanyi developed his film further and two years later released a new version titled *Unemployment and Money: The Principles Involved* (1940f). In the first six years, Polanyi "demonstrated and explained" his film to nearly a hundred popular audiences, and many more screenings were organized (mostly by the Rockefeller Foundation and the Worker's Educational Association) where the film was demonstrated by others (usually by university professors or economics tutors of the W.E.A.). The next section explores Polanyi's attempts to embed his sociotechnical vision in different communities. Interactions with economists, film experts, economics tutors and others are to be discussed here with a special view to how they saw and treated the film differently, and how they might be seen as sharing or not sharing Polanyi's sociotechnical vision of "democracy by enlightenment through the film" (Polanyi 1935b, p. 1).

2. Economics enlightenment at the crossroads of multiple social worlds

2.1. Struggles to reconstruct the eye of economists

Polanyi needed *allies* both for developing and disseminating his film, for writing an economics book as a non-economist, and for realizing his sociotechnical vision. He sought to embed his vision in a couple of communities in order to be able to extend it to a full-fledged *sociotechnical imaginary*

(Jasanoff - Kim 2015). Polanyi made attempts to embed his vision in the community of economists. Two screenings were particularly important in this respect. First, the screening of the first version of his film at the Walter Lippman Conference in Paris in the August of 1938 where Hayek, Mises, Röpke and a few other economists and liberal social thinkers saw and discussed it. Second, a screening of the second version at New York in the November of 1940, where Condliffe, Loewe, Marschak and Morgenstern participated. The first could be seen as an attempt to embed Polanyi's sociotechnical vision to the community of economists in Europe, the second as doing the same in the US. While the "economists have, on the whole, approved the film" (Polanyi 1938d, p. 3) they have offered "criticisms of details" (ibid) and warned Polanyi about the "danger of over-simplification" (ibid). Polanyi knew that he needed to convince leading economists to breach the resistance of the expert community, and he reached out for one of the most known: John Maynard Keynes.

In a letter of 6th February 1940, Polanyi wrote to Keynes that

I am inclined to agree with Jewkes [John Jewkes, an economist and a friend of Polanyi at University of Manchester] that something quite important might be done now by a novel and striking popular illustration of elementary monetary facts. I am not suggesting, of course, that this is certain to be feasible by my method but I see a good chance for it, and I believe therefore that I am justified in putting this matter before you (Polanyi 1940a, p. 1).

He also asked Keynes' advice and offered to present him the newest version of the film which, he hoped, they could discuss. The answer from Cambridge was short and straightforward: "I have much else to do and I must, therefore, regretfully reply to your letter that I cannot spare the time to take an interest in your film" (Polanyi 1940b, p. 1). A few days later another fragment arrived from Keynes: "Though I was not able to take an interest in your film, may I say how much I liked your recent letter to the *New Statesman*" (Polanyi 1940c, p. 1). Economists in general, and Keynes in particular, were not really concerned about using visual notation in economics. Keynes, for example used only one diagram in *The General Theory of Employment, Interest and Money* (1936), and this diagram was not even created by him but by R.F. Harrod who convinced Keynes to include it in his *magnum opus* (O'Donnell 1999).

While Keynes did not use diagrams extensively in his economics, he considered them useful for presenting economic ideas for the masses. As Giraud pointed out, Keynes thought that diagrams are part of

[t]hat elegant apparatus which generally exercises a powerful attraction on clever beginners, which all of us use as an inspirer of, and a check on our intuitions and as a shorthand record of our results, but which generally falls into the background as we penetrate further into the recesses of the subject (Giraud 2010, p. 284).

Keynes seemed to be conscious about the problem of public understanding of economic ideas and thought that diagrams could help "clever beginners", but was seemingly not so much compelled about using film technology for similar purposes. Polanyi did not give up his efforts to make Keynes a powerful ally to his sociotechnical vision. He continued to develop his vision further in his Keynesian interpretational book, *Full Employment and Free Trade* (1945), and, once again, reached out for the genius of King's College.

In this book, Polanyi emphasized that he "is not concerned with elaborating the Keynesian theory further, but with its conversion into a matter of common sense" (Polanyi 1948, p. v). He drew a parallel to the atomic theory of chemistry of John Dalton (1809) and the work of Cannizzaro (1858) who "set out the whole matter once again - without any important addition - in a new, more straightforward fashion" (ibid). He wanted to do the same with the Keynesian ideas. In a letter of 20th December 1945, Polanyi wrote to Keynes about this "slight attempt at expanding economic and social policy on the basis of your work" (Polanyi 1945e, p. 1), and stated that as his recent book is "too obvious" (ibid) Keynes should only read the "chapter on Russia and the story of John Dalton and Cannizzaro in the Preface" (ibid). While Keynes was informed about such a *grandeur* parallel with the

acknowledged natural scientists, he refused to see himself as the Dalton of economics and did not embrace his parallel Cannizzaro either.

2.2. Approaching the focal point of film experts

In addition to economists, Polanyi made attempts to embed his vision in the community of film experts. In a letter of 1938, R. S. Lambert from the British Film Institute gave Polanyi an account on one of the earliest screenings:

Everyone was exceedingly interested in the experiment, the original nature of which was much appreciated. In the main, the audience was inclined to be critical of the slow movement of the film, not perhaps realising that, had this been accompanied by a lecturer, they would not have noticed the repetition of the movement of the figures, etc. I noticed that although the audience seemed to find the film slow, they did not observe some of the finer points of the film, which I think justifies you in your method of repetition, to drive home points. Several keen film enthusiasts seemed to think - and I rather agree with them - that from the technical point of view G.B.I. did not acquit itself very well: the movement of the model figures might have been less jerky, and the lettering was not always photographed distinctly. Mr. Beales, of the London School of Economics (who was in the Chair) and I were greatly impressed with the way in which you built up your theme from a simple beginning, to a complicated yet lucid climax. For myself, I think the latter part of the film is most effective - i.e. the parts which we had not time to show (Polanyi 1938b, p. 1).

Figures, lettering and slowness were the key points in Lambert's account. He was an official of The British Film Institute, not an economist, and not a tutor or a student of economics. He treated Polanyi's film as an application of film technology, a work of art which was to be seen in terms of standards of contemporary film technology. Techniques of making the film (not photographed distinctly, less jerky movement of model figures) and the mode of the storytelling (slowness, repetition, complicated yet lucid climax) dominated his account from a "technical point of view" (ibid). No words can be found at all about the adequacy of the economic content or about how the audience attempted to understand the elaborated economic ideas and what difficulties they had, if any. The screening was held at the London Film School, so probably the audience was also more concerned with it as an instance of using film technology for educational purposes than as a way of visually representing Keynesian ideas. A similar account came from Oliver Bell, the Director of the British Film Institute who saw the film more as a "visual notation" (Polanyi 1938c, p. 2) supporting the audience in understanding economic ideas. He emphasized that as students in adult education are not the most "accustomed" (ibid) to "verbal or numerical notation" (ibid), they would probably "benefit considerably" (ibid) from a visual one. Bell primarily treated Polanyi's film as a new method of teaching which shall be used "in association with the more customary methods of teaching" (ibid).

2.3. Seeing is knowing and knowing is seeing: An attempt to revisit expertise of economics tutors

Polanyi did not just organize "demonstrations" (Polanyi 1938d, p. 3), but conducted "complete educational experiments" (ibid). For the latter work, he needed allies like Harold Shearman from the Worker's Educational Association. Shearman became the middleman between Polanyi and the economics tutors using the Polanyian film during these experiments, collecting and summarizing feedback and giving advice on the further development of the film and the related teaching method. Raybould, an economics tutor wrote to Shearman that a

[s]ingle showing I think is useless - or worse than useless; confusing. Even several showings are not much use. I think, unless steps are taken, such as I attempted by means of questionnaires, to get students to spot and understand every single step in the quite complex argument (Polanyi 1945b, p. 1).

Raybould claimed to know why the film had not been more widely used: "too much intensive study of it - not merely looking at it - is required to get out of it all that's in it" (Polanyi 1945c, p. 1) He thought "that Polanyi's film is quite essentially austere, so to speak, in its dependence on sheer diagram, and in its very closely-knit structure" (ibid) which he did not identify as a weakness, but an uncommon trait of instructional films.

Another tutor, Hughes Lewis, wrote that it was not an "unqualified" (ibid) success, but he did not consider the trial "a fair test" (ibid) because he was not able to attend himself and the deputy "had only the briefest pre-view to familiarise himself with the line taken" (ibid). He wrote that it took the deputy tutor "all his time to follow it himself" (ibid) and that "it was well above the level of intelligence and knowledge of the audience and they went away mystified" (ibid). This experiment was taken with a class studying economic history. Lewis planned another one with a class "which had spent some time in the study of Monetary Theory" (ibid), and therefore had more related knowledge of the major topics of the film which would probably help them to understand its argument.

A third tutor, G. D. H. Cole, expressed his displeasure about the film's pre-made argument. He wrote that

I know I should strongly dislike having my argument made for me, and I should have thought that most Tutors - at any rate when they had got past the novelty of experiment - would also dislike having their course shaped for them in this way. This, of course, would not apply, where the subject was non-controversial in the sense that competent Tutors would agree about the substance of what needed saying; but comparatively few economic questions belong to this category, and I see a considerable danger in any standardisation of economics teaching, such as the wide use of this type of film would seem to involve (Polanyi 1943a, p. 1).

This "danger" (ibid) was being considered "much less if silent rather than sound versions were used" (ibid) but was not seen "altogether eliminated" (ibid). It seems that, in Cole's opinion, the pre-made argument of the film was undesirable for at least two purposes. First, it left out of consideration that most of the subjects involved are of a controversial character, therefore such degree of standardization would have created tension between what the film "says" and what the tutor demonstrating the film would have to say. Second, the sound version relegated the tutors to forced silence, curtailing their freedom and authority to decide what and how to teach in their classes. Polanyi's film was seen here as a threat to the authority and expertise of economics tutors.

The embedding attempts in the community of economics tutors through the W.E.A. did not seem to be very successful. Much criticism was formulated on the film (excessive degree of standardization, that is, closely-knit structure and pre-made argument in case of controversial subjects; requires previous knowledge; forced silence of the tutors), but neither of the tutors mentioned the desirable possible social effects mirroring Polanyi's sociotechnical vision of "democracy by enlightenment through the film". On Polanyi's request Shearman shared his opinion with him on the "reason for the lack of extensive use of the film" (Polanyi 1945a, p. 1). He wrote that "generally speaking our tutors, and the profession in general in this country has not yet become interested in visual aids to any important extent" (ibid). Thus Shearman discerned a slow development which he saw "handicapped by the difficulty of getting equipment in wartime" (ibid). He also told Polanyi about similar American experiments with films on other topics (e.g., collective bargaining, problems of race prejudice), but stated that "the technique they were using was, however, very different from yours, and was more related to the Disney Cartoon" (ibid, p. 2).

Polanyi realized that a change was needed in his strategy to extend his sociotechnical vision. He made attempts to get his film and his recently published book, *Full Employment and Free Trade* (1945f), to be viewed as strongly connected. Polanyi informed Shearman about publishing the latter and stated that he had "made some use of the film symbolism in the illustrations to this book and have mentioned the film itself as a reference" (Polanyi 1945d, p. 1). Polanyi hoped that "this may possibly reopen the issue of a wider use of the film for economic teaching as distinct for the use as a

background for elementary talks" (ibid). The next section focuses on the resistance impeding the extension and the realization Polanyi's sociotechnical vision.

3. Obstacles of the Polanyian enlightenment

Polanyi perceived that some of the resistance to his film (and indirectly against his vision) was due to its Keynesian flavour. He thought Keynesian economics "has not yet been sufficiently absorbed" (Polanyi 1942a, p. 2) by economics tutors because of the "highly abstract approach which was the original form" (ibid) given to it by Keynes. Polanyi emphasized that tutors got "insufficient help from authoritative economists" (ibid) for at least two reasons. First, the latter were not interested in or were unwilling to extract certain issues they had taken for granted. And second, most of the economists were "fully occupied with Government work and cannot do anything outside it" (ibid, p. 3). Polanyi was aware that he was "not able to give prospective users of the film the authoritative assurance concerning its argument which they fail to receive in the proper form from other quarters" (ibid, p. 2.), because he was not an authoritative figure and not a "professional economist" (ibid). He tried to get such authoritative backing from Keynes, Richard Hicks and others, but did not succeed. Interestingly, his attempts to remake economics for the masses did not make him more popular in the eye of economists who perceived Polanyi's endeavours more as a threat decommissioning their expertise than as an opportunity to raise the visibility and the popularity of their discipline.

Another perceived source of resistance was an imagined one without any supporting evidence. Though, I argue, that this is of high importance in exploring the development of Polanyi's vision because it represented an alternative sociotechnical vision not leading to the desirable future state Polanyi imagined but an undesirable one. And that was the hypothetical vision of the Army. In a brief letter of 20th June 1942 by Basil A. Yeaxlee to Harold Shearman, we witness the beginning of the discussions about whether Polanyi's film or some version of it could or should be included in the Army programme of the War Office: "from recent conversations I have held at the War Office I rather think there might be a place for a simpler form of the film in the Army programme in the future. It might be as well not to get too far in with the M.O.I. for the time being" (Polanyi 1942d, p. 1). A few weeks later Arthur Koestler, Polanyi's childhood friend, joined the discussion by establishing a contact between Shearman and Arthur Calder-Marshall:

After consultation with Shearman I have established contact between him and Arthur Calder-Marshall of the Ministry of Information Film Division, and the last I heard from Calder-Marshall was that he was waiting for arrangements to see the film and then see what could be done about it. But you probably know this already as Shearman told me that he is keeping you au fait (Polanyi 1942e, p. 1).

In a letter of 18th April 1944, Polanyi wrote to Professor Jewkes what he thought about making a film for the government:

I would be delighted to assist the Government in using my film or a new film based on a similar technique to explain its intention for the prevention of general unemployment. There is a standard size sound print available in London which could be shown at the theatre of the Ministry of Information and I would be delighted to come down to London and take part in the discussion. My next visit to London otherwise would be on or around the 19th and 20th of May, but I can come earlier if desired for the purpose in question. I have thought over the possibilities connected with the film and it seems to me that the best success would be obtained from a new version based on the first three reels, but considerably simplifying and abbreviating the material. It is possible that the representation could be reduced to only two reels even though it would include a demonstration of Governmental intervention which is now absent.

Such two reels I believe could certainly be distributed widely to non-theatrical audiences, and there is just the chance that theatres could also be included if the technique could be touched

up to a somewhat higher degree of potency, for example by the introduction of colour which is not quite commonly used for cartoon films (Polanyi 1944a, p. 1).

Polanyi did not seem to be afraid of the cooperation with the government in wartime. He rather saw it as an opportunity to develop further his film, and to realize his related sociotechnical vision. Polanyi expressed his desire to "simplify and abbreviate the material" (ibid) and to add new parts demonstrating "Governmental intervention" (ibid). These might be considered to be done because Polanyi wanted to react to the feedback of his peers. On the one hand, "slowness" (Polanyi 1938b, p. 1) and "repetition" (ibid) in certain parts of the film was raised by film experts. The lack of the representation of governmental intervention, on the other hand, was something economists might have called to his attention, and also it was something the Government should have been asked for if a new version was to be made. In a letter from Shearman to Polanyi, including some earlier remarks from Raybould, one can find a brief comparison of Polanyi's film and films of the Ministry of Information, as well as a few suggestions for further development based on contemporary economic policies:

I've done very little with them since I finished school teaching, when I used Empire Marketing Board films and so on a good deal; but my impression, from looking through catalogues occasionally and seeing M.o.I. films now and again, is that Polanyi's film is quite exceptionally austere, so to speak, in its dependence on sheer diagram, and in its very closely-knit structure. I don't think these are defects - on the contrary; but if film-minded tutors come to 'Money and Unemployment' [correctly: Unemployment and Money] expecting it to be understood in the shorter time and with the less amount of active analysis and thinking required in many documentary and semi-instructional films, I can imagine that they'll be disappointed.

"As to possible developments from the basic idea: all that I can suggest at present is that in view of the greater interest in employment policy which has appeared in the last two or three years, it might be useful to make a popular film concerned not with diagnosis but with prescription. I should think it might be possible to devise a film based on the notion that the basic cause of past fluctuations in employment has been fluctuations in total expenditure, arising primarily out of the instability of investment, and that in principle the way to stability of employment is through stability of total expenditure, towards which the Government might contribute either in the White paper way by offsetting slumps in private industry, or in the Beveridge way by maintaining a high Government demand, or in the Socialist way. It should be possible in such film to combine graphs illustrating the fluctuations of investment and employment with shots of people doing the kinds of jobs which the Government might commission or commence to maintain employment in the future."

I have told him that we did approach the Ministry of Information and they would not bite.

They might be responsive to the idea of "filming the White paper". But I am afraid it would be propaganda for their policy (Polanyi 1945c, pp. 1-2).

Raybould seemed to suggest developing films based on the White Paper or the route Beveridge proposed. Polanyi was probably not supportive of these suggestions because he was explicitly against these economic policies and thought that they were not useful to ease the economic downturn. At the end of the letter, Shearman expressed his worries about the intentions of the Army and the Government with the film. He thought that the inclusion of the film in the Army programme would have transformed it into merely a tool of propaganda with the aim of convincing the public about the adequacy of contemporary economic policies. He seems worrying not so much about Polanyi's film but his sociotechnical vision to be replaced by another one leading to a less democratic and less liberal future.

4. Sociotechnical visioning as a surrogate for doing politics

Polanyi's boundary activities and sociotechnical visioning were embedded in a tense political-ideological milieu. He thought that the outbreak of World War II and the growing influence of the Fascist and Socialist ideologies aroused suspicion about foreigners, even in the United Kingdom. He wrote to one of his friends in 1942 that "I must be very careful not to appear to intervene in public affairs. During a crisis of this kind the nation's family feelings are stronger than ever and they are anxious to listen undisturbed to the voice of their own tradition" (Polanyi 1942b, p. 2). In another letter, Polanyi envisioned a dichotomy of thought and action, by describing what he meant by both and how he thought these polarities are perceived by the English:

[N]o contributions to thought are resented by our English friends, however widely they may roam; but I think our friends would resent any contributions by us to public action, unless these are demanded by strict professional responsibility. Thus I think any serious intellectual effort, however far-reaching its practical implications, even though touching upon the most decisive questions of international or economic life, would be well received; but a comparatively small active participation in public life, as by opposing the government of the day, or the Regional Commissioner, or even the Vice Chancellor, would probably be felt as an intrusion" (Polanyi 1942c, pp. 1-2).

Polanyi even underlined the two key words to denote their significance. Polanyi's economic thought was rich in policy-related elements. His sociotechnical vision of "democracy by enlightenment through the film" (Polanyi 1935, p. 1), his plan to establish a "nucleus of educated people" (Polanyi 1937b, p. 13) in centres of economics education from which a large-scale social change might be launched to save liberalism and society suggests that this might also have been proposed as a couple of interrelated public policies. Thus, Polanyi had the chance to influence how others perceive his economics and he restrained himself to the abstract field of "thought" in order to be able to make societal effects without taking personal political risks.

What lessons can we learn from the story of Polanyi's sociotechnical vision? I argue that, there is a very important one about the entanglements of democracy and expertise. A *grandiose* mission of epistemic empowerment of the masses could not be launched without at least successfully tinkering with, and perhaps, without severely reimagining the expertise to be democratized (or decommissioned). What is usually framed by experts as their internal private business could have serious social concerns. And, what is generally framed as 'purely' democratizing and disseminating expertise usually shakes certain structures of authority, power and trust. The lesson here is to be attentive to both of these. Democratic movements should cultivate an epistemic consciousness, experts should cultivate democratic and social sensitivity.

5. Conclusions

This article has shown that there is a consistent sociotechnical vision emphasizing "democracy by enlightenment through the film" in the early economic writings of Michael Polanyi. The opening section has explored the origins of Polanyi's sociotechnical vision from two different angles. First, I examined how Polanyi was doing internal boundary work against both extreme laissez-faire liberalism and socialist planning and for a new kind of economic liberalism based on social consciousness. Second, three similar projects of visualizing economic laws by physical analogies (Angell's, Mooney's, Neurath's) in the 1930-40s were introduced. Polanyi was acquainted with all three thus they are relevant in the analysis of the origins of Polanyi's visual method. A comparison was being made between the visual methods and the related social visions.

The second section focused on the embedding attempts of Polanyi's vision for "democracy by enlightenment through the film" (Polanyi 1935b, p. 1). First, I have shown how Polanyi struggled to reconstruct the eye of economists, that is, how he wanted to change how economists see economic phenomena and the role of visualization in economics. The second part of this subsection explored

how film experts saw his film, and, related to these seeing practices, how they failed to see his sociotechnical vision. Finally, I showed how Polanyi's instructional film and sociotechnical vision had implications about what economics tutors could and should do, that is how it got entangled with the questions of authority and expertise of economics tutors.

The third section clustered around the resistance against the Polanyian sociotechnical vision. I traced how the knowledge deficit of economics tutors, the difficulties in getting film equipment in times of war, and a hypothetical alternative sociotechnical vision of the Army impeded the further development of Polanyi's vision to become a full-fledged sociotechnical imaginary in the Jasanoffian sense and to affect the related public policies due to the lack of institutional stabilization.

Last, but not least I have shown that Polanyi perceived his personal situation to be rather sensitive. He thought that to be involved in politics as a foreigner on English soil during World War II was a delicate and potentially dangerous position. By making efforts to present his economic thought more as economic theory and less as economic policy, he thought he could make important societal effects without taking personal political risks as an outsider in the United Kingdom.

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