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INTRODUCTION

Assumptions of rigid authoritarianism and malign intent to workers have often placed serious limitations on scholarly analysis of scientific management. In recent years these assumptions have been questioned, as scholars have re-evaluated Taylorism through examination of primary documents and through evaluating the protagonists of scientific management in the context in which they operated. By such analysis, these scholars have shown that the heart of the scientific management movement, the Taylor Society, reflected many of the Progressive ideals that pervaded the first decades of twentieth century America. Indeed, such was the spirit of critical analysis and debate within the Taylor Society that, while most practitioners and intellectuals who were members of the society were liberals, individuals whose ideological commitments were more radical also belonged to the Society.[1] That an outspoken and avowed Marxist such as Walter Polakov could find a place in the Taylor Society attests to its ideological pluralism.

This paper thus aims to show that far from being an anathema to a socialist such as Polakov, scientific management offered a vehicle which could minimise the deleterious effects on workers in the transition from capitalism to socialism. As has been shown elsewhere, scientific management also offered the opportunity for broader applications at the sectoral and national levels, an aspect well known to many scientific managers. A further objective of this paper is to highlight that investigation of less well-known but active scholar-practitioners emphasises the rich tapestry of ideas, a far cry from the flat portrayals often found in the historical analysis of business ideas.

While much economic history has moved away from a focus on the stars and large scale successes, this has been less the case in the analysis of business ideas, and management philosophies. Studies of scientific management for example have traditionally ignored the breadth of the work of Frederick Winslow Taylor and those who followed him who spelled out his philosophy more articulately. Instead, there has been considerable emphasis on his personal peculiarities or his earliest experiments.

Moreover, as much focus has remained on Taylor's early work, so that of his adherents has remained hidden. There are two issues here – first Taylor's work has remained frozen a few efforts, despite the fact that like many scholars and practitioners, his work developed beyond his first (in)famous experiments. In many respects Taylor regretted the infamy of these. (Brown, 1954, 14) Secondly, the long-standing and rigid focus on aspects of Taylorism has marginalized or eliminated consideration of other elements of the movement which evolved from World War One. The Bulletins of the Taylor Society attest to the evolution of scientific management and the richness therein.

The kinds of elision arguably evident in many analyses of social science investigations into scientific management emphasise the significance of scholarly investigation, and the centrality of applying a critical eye to unquestioned assumptions. They also illuminate patterns of transmission of ideas in scholarly disciplines. In cases such as this, the continuing uncritical acceptance of old "truths" may have proved a barrier to scholarly progress and rigour. Investigating a modern unknown, especially one as prolific as Polakov, enables scholars to reconsider their unquestioned assumptions.

The paper is in three sections. In the first section, a brief discussion of scientific management delineates some of the differences in the conceptualisation of Taylorism or scientific management. There are evident differences between the views held by the movement's detractors and those held by the members of the Taylor Society. In the second section the life and times of Polakov are briefly explored, focusing on his involvement in the Taylor Society, while in the third part the nature and extent of Polakov's socialism is surveyed and assessed in order to show that it was inextricably bound up in his scientific management.

SCIENTIFIC MANAGEMENT: Definition and Context[2]

A difficulty in much of the literature on scientific management is that analysts commonly begin with the assumption that the Taylorists held negative intent towards workers. This assumption then prefigures the investigation that will follow. Scientific management is thus frequently defined as depending on some form of time and

motion study, by which management or employers strive to increase control over work through deskilling and degrading work. It is through such 'black-box' reductionism that the unquestioned assumptions of anti-unionist and relentless managerial exploitation are upheld. (see e.g. Kanigel 1997, Nadworny, 1955) Even recent publications on the history of management have shown the limits of effectiveness of their scholarship when authors base their ideas on the *a priori* assumption that the system of scientific management

> …was based upon breaking a job down into its constituent elements. Unnecessary motions were dispensed with and each element was timed by means of a stopwatch.[3]

As the originator of scientific management, Frederick Winslow Taylor argued in the face of similar assertions, the traditional managerialist reasoning confuses the tools for the essence or philosophy.[4]

The narrow process of defining and "examining" scientific management has been reversed in the last decade or so as Taylorism has been revisited by a number of scholars who have investigated scientific management unencumbered by these kinds of value laden *a priori* assumptions.[5] Drawing most notably on the original material of the Taylorists in the Taylor Society,[6] these scholars have shown that the Taylorists can be marked off from what they called the cheap shams and 'stunt peddlers'. Moreover, close analysis of Taylor Society documents and the writings of Taylorists such as Morris Cooke and Harlow Person show how different the committed Taylorists were from those kinds of capitalists particularly favoured by the movement's detractors (and most modern textbook writers in business and social sciences). Many designated themselves scientific managers, but then invoked only a few 'shortcuts', rather than the whole method or philosophy. A commitment to the whole philosophy of scientific management is most clearly apparent in the Taylor Society, founded by those who knew Frederick Taylor and sought to emulate his philosophy and implement his ideas *in toto*. Taylor Society members reserved their strongest language for those who operated thus in the name of scientific management. The usually restrained Harlow Person, founding president and later managing director of the Taylor Society, for example, expressed the general view when he argued that:

> Just as there were fake physicians and shyster lawyers when medicine and law were young professions, so we have at present, fake organizing engineers. They do as much damage in the plants by which they are engaged as the fake physician did to the health of the patient. I wish it were possible ... to abolish these fake and damaging self-styled organizing engineers.[7]

This is not to say that the definition of scientific management of the Taylor Society members was an absolute. The members of the Taylor Society were products of their time, when ideas of progress prevailed over static norms. Thus while their normative assumptions did indeed cover a variety of perspectives, the scientific managers of the Taylor Society were generally activist or progressive social democrats,

in an era dominated by widespread commitment to a passion for social progress ... [and the need to] make politics more democratic, business more responsible and society more moral and more just.[8]

These ideas came under the banner of Progressivism, generally described as a "pervasive but diffuse political movement" which was aimed against the corrupt big business and the politico-economic system which worked for the rich and against the poor. To remedy this, Schachter argues the Progressives typically promoted "planned progress towards a better system".[9] Just what these ideals meant and how to achieve them was a source of major debate in the first quarter of twentieth century America and the organisations such as the Taylor Society can be shown to contain as much intellectual ferment as in the wider society.[10]

Despite the shared commitment to scientific management as an holistic system, there was nevertheless a considerable array of perspectives. Where views differed among the scientific managers these were on the level of emphasis as to which tools of measurement were most effective, and how scientific management could enhance economy and society. Their views on trade unions for example ranged from a belief that the development of an effective national trade union movement was essential to the view that shop committees were a more potent means of ensuring efficiency and fairness at the workplace.[11] There was also debate on how far Frederick Taylor's principles were inviolate. This was particularly contentious area, because it brought the Society's commitment to critical analysis and progress into conflict with members'

beliefs that what distinguished the 'real' Taylorists from the short-cut opportunists was unequivocal support of the principles of Frederick Taylor.[12] Perhaps the clearest example though of capacity of the 'true' scientific management to contain both Progressive and left-wing ideologies is to be found in the activities of Walter Polakov.

WALTER POLAKOV: TAYLORIST

Walter Nicholas Polakov, a Russian immigrant, was educated in Moscow and then, around the turn of the century in Dresden, at the same time as Rosa Luxemburg was editing the SPD journal *Sachsiche Arbeiterzeitung* amidst the Revisionist controversy. Polakov's personal papers are so far untraceable, but given that he often quoted Luxemburg and like-minded fellow revolutionist, August Bebel, it seems possible that Polakov became aware of Luxemburg when he was an engineering student in Dresden. After Dresden, Polakov undertook further postgraduate study in industrial hygiene in Moscow and was possibly working at Tula Locomotive Works around the time of the 1905 Revolution. He arrived in the USA in 1906 with his wife and daughter, and set about learning English, a language over which he had considerable command within five years. He obtained work as an engineer with the American Locomotive Company, where he met Henry Laurence Gantt, whose devoted follower he remained for the rest of his life.[13]

Evidence that Polakov was a scientific manager is apparent in three ways. First, he was a full member of the Taylor Society from October 1915, joining in the same month as later luminaries in the Society, John Otterson and Keppele Hall.[14] To gain membership of the Taylor Society was a demanding process, with rigorous standards for qualification as a full member. These included both qualifications and experience, as signified by age - an applicant had to be at least 30 years old and to demonstrate involvement in, and commitment to, scientific management. Polakov's engineering degree from Dresden and his graduate study in Moscow prior to emigrating to the USA, together with his work with Gantt and as a consulting engineer, provided fitting qualifications for membership. As a respected power engineer, (Wren, 1976a) Polakov worked primarily on increasing power plant efficiency at a time when there was a proliferation of small power stations for manufacturing plants, as well as the

many privately owned power stations for domestic and commercial consumption. His commitment to science in industry included technological improvements, so that in years to come Polakov would be seen by some as "an internationally known electrical engineer who had pioneered the development of remote control instrument boards".[15]

Secondly, Polakov was an active participant in the Taylor Society until about 1921, and again in the 1930s after the Society merged with the Industrial Management Society. While membership records of Taylor Society are quite incomplete, there is a gap of about ten or so years from the early nineteen-twenties, when Polakov is not reported in debates and did not present any papers to the Society. He is certainly not in the list of members in 1929. This gap of ten years ties in with an apparent break between Polakov and executive members of the society around 1923 which appeared to centre round around Polakov's belief that Henry L Gantt was superior to Frederick Taylor.[16] While Polakov always paid homage to Taylor, his tribute was always muted or qualified by comparison with his views on Gantt.

It seems likely that Polakov was also personally devoted to Gantt. Polakov first came to Gantt's attention when the former was employed as an engineer at the American Locomotive Company. In 1910 he joined Gantt's consulting firm, although he left two years later to join the consulting firm of Charles Day who was later to become Vice-President of the Taylor Society. Remaining firm friends with both Gantt and Day, Polakov formed his own consulting business in 1915, and during World War I he worked closely with Gantt coordinating ship production for the Emergency Fleet Corporation at a time when American ships were sustaining considerable damage in naval battles after the USA entered the war in 1917. As well, Gantt and Polakov, and other scientific managers such as Horace B. Drury, were employed to bring scientific management techniques to fleet deployment for the US Shipping Board.

The biographer, Alford, cites one of those who gave a eulogy at Gantt's funeral, and who remembered that Gantt indeed encouraged a group of younger men to become involved in his work. "To work with Gantt was a great deal more than working for him, and in this relation he placed a confidence in his men which called for the best that could be given."[17] That Gantt and Polakov were not only joint signatories in the

breakaway group from American Society of Mechanical Engineers which called itself The New Machine, but that they also worked together on the numerous Navy projects attests to a close working relationship until the Gantt's death in 1919.[18] Polakov's break with the Taylor Society in the early 1920s seems to have been a result of a disagreement between Polakov who wanted greater honours for Gantt, and the Taylor Society officers who gave primacy to Taylor.

Nevertheless, Polakov's commitment to, and conception of, scientific management was similar to other members of the Taylor Society. His definition of scientific management contained the same emphases on the scientific method, on thorough investigation, measurable outcomes and efficiency in effort and resources at plant level and beyond. He also had the same horror of what he called the 'stunt peddlers', and the same commitment to scientific management as an holistic practice.

> What we mean here [by scientific management] ... is of course not an agglomeration of short cuts, stunts and universal remedies for this and that industrial ills and waste, but an organically whole philosophy of industrial cooperation carried out for a common good. [19]

The third basis for identifying Polakov as having the same commitments to scientific management as those Taylorists noted above, is found in the fact that Polakov was an earnest practising scientific manager who wrote extensively on scientific management, in general and also specifically on power production.[20] He began publishing prolifically on scientific management from five years after immigrating to the USA, an impressive feat for someone who had arrived with little or no English. His first recorded publication in the USA was one of the early publications using the term 'scientific management', entitled "Power Plant Betterment by Scientific Management" in *Engineering Magazine*.[21] It was in fact a series of articles totalling about sixty pages and dealing in great detail with methods of increasing productivity in electricity production through the implementation of scientific management. In these writings as well his publications on aspects of fuel conservation and technocracy, Polakov's ideas were ground in his beliefs in both Marxism and scientific management. His first paper before the Taylor Society "Planning Power Plant Work", is unreconstructed workplace Taylorism.[22] It uses twenty-seven charts and figures to describe

production and work redesign in meticulous detail. While many of his later writings frequently took a broader focus, one of Polakov's central interests remained in the areas of industrial management based on scientific management principles. He made considerable use of Gantt charts and although outside the time frame of this paper, it is worth noting that much of his life's work was aimed at publicising the Gantt charts, including taking them to Russia in 1929-31 where he was apparently the only American engineer working as a consultant on Stalin's first five year plan.[23]

Although his ideological beliefs meant that Polakov always held a fairly wide and economic determinist view of society, the experience of the effectiveness of scientific management during the war, heightened Polakov's awareness of the potential for scientific management well beyond the plant and workplace, as it did for most of the scientific managers. This is apparent in Polakov's writings, which prior to World War I had been almost exclusively on aspects of workplace scientific management in power plants, albeit almost always with the expressed view that the capitalist employment relationship was essentially exploitative.

By 1922 he had published two books and about 20 scholarly articles on aspects of scientific management. In his writings, Polakov never ceased to emphasise the impact and importance of electricity as a technical and social benefit to society, but for him these benefits were greatly mitigated by the wastage that occurred as a consequence of sloppy production and the anarchic effects of the market. Both of these were anathema to the Polakov, offending his vocation as a meticulous engineer and his ideology as a Marxist. While much of his writing centred on the methods and benefits of scientific management for power production, they were as much a vehicle for his economics and his political beliefs, as for his passions for scientific management and engineering. This is encapsulated in the first sentence of the Preface to his largest and arguably best work, a book of over 400 pages, entitled *Mastering Power Production*.

> Efficiency in mastering the production of power received little attention under a regime aiming merely at the accumulation of profits rather than at rendering essential service for it was comparatively simple to transfer the cost of inefficiency and waste to the consumers through price increases.[24]

POLAKOV AS A SOCIALIST SCIENTIFIC MANAGER

Taylor Society debates were rich in innuendo and lively argument. It was in these discussions that Polakov offered his first recorded comments to the Society in December 1915. These are worth quoting more or less in full since they demonstrate the inextricability for Polakov of his commitments socialism and to scientific management. In it Polakov was responding to Robert Valentine's paper on collective bargaining, "The Progressive Relation Between Efficiency and Consent" [25]

> In his attempt to reconcile the methods of increasing productive efficiency with the consent of the workmen, Mr Valentine ignores the very basis of the economic form of our society. It is not the opinion of the individual workman or of workmen's societies, but of the class of wage earners, of the proletariat that we have to take into account. Modern society economically is composed of two classes, those who produce and those who give them the facilities to produce, of owners of physical energy to be sold for a living and owners of means of production such as natural resources, machinery and capital. The interests of these two classes of our society are diametrically opposed. Wage earners want to sell their labour at as a high a price as they can force the employer to give them. The employers want to sell the commodities produced by workmen for as high a price as they can get. Consumers as an economic class do not exist. They belong to both classes. Numerically however, the working class is not only to secure high wages as this automatically raises the price of commodities they produce, but also to reduce or at least stop the increased cost of commodities, that is, cost of living, which at present and in the past always increased in advance of and as a rule faster than the wages. The working class through their world-famous spokesmen scientifically analysed these aims of the working class and little, if anything remains to be said after the works of Carl (sic) Marx, Friedrich Engels, August Bebel and others were published.

To underline this last point, Polakov completed his contribution with a quote from *Women under Socialism*

> The working class does welcome advance of science as applied to industries inasmuch as with increased speed of production made thereby possible, it is possible to reduce working hours to eight, six or even four per day, for education, for home life and for social activities." Here we have the consent to increase the productive efficiency and this consent comes not from casual association of individual workmen with demagogic politicians, but from the class conscious scientifically founded party that does represent the interests of the working class.[26]

These words and quotes of Polakov's are not stray ideas - Polakov repeated them in different forms and using different quotes for much of his life, though he sometimes masked the sources of his ideas to make them more palatable for his readers. Nor were Polakov's ideals merely rhetoric well-removed from practice. At the same time as Polakov was quoting Bebel to the Taylor Society, he and Gantt were part of a breakaway group of ASME, known as the New Machine, which was a forerunner of the Technocrats of the 1930s. The New Machine aimed to give substance to the idea that engineers, who they believed, were alone in understanding production, should take political action in order to achieve a better society. While it was partly Progressivist in its orientation, attacking as it did the financiers and bankers who controlled industry 'merely for profit', the New Machine included a number of engineers who became closely allied with the socialist group of Technocrats which made a meteoric appearance in the 1930s. The New Machine faded from existence after Gantt's death in 1919, but Polakov remained a technocrat and joined the ill-fated Technocratic movement after his return from Russia in 1931. [27]

Polakov's socialism is difficult to categorise. He was committed to the labour theory of value, and to the end of capitalism and rise of socialism as an inevitable outcome of the contradictions of capitalism, including the falling rate of profit. His books in particular demonstrated a thorough working knowledge of Marx's ideas, especially *Capital,* although he very rarely quoted *Capital* directly. Rather he would convey Marx's ideas by citing American heroes like Benjamin Franklin or Abraham Lincoln, or the British idealist Tory Lord Leverhulme. At times too, Polakov also promoted the concept of a cooperative commonwealth, and evolutionary socialism through

government ownership especially of utilities. Stabile would argue these views reflected the right-wing socialism of early twentieth century America, which had its source in the ideas of the revisionist Bernstein.[28] The evidence is greater however, that Polakov was not a revisionist but rather a strict Marxist who was more than usually cautious about proclaiming his beliefs, perhaps because he was a Russian immigrant.

Certainly some of those he knew perceived Polakov as a Marxist. Harold Loeb, an activist and analyst who had at one time had a close working relationship with Polakov, is reported as having stated in an interview in the 1950s that Polakov had read only one book in his life, Marx's *Capital*.[29] Polakov identified his debt as a scholar to Marxist analysis in his research and writings. All his major works began with historical analysis of the ideas and events which he was seeking to elucidate, and he continually emphasised the debt to generations before. As a necessary corollary Polakov always gave credence to the labour theory of value. Thus:-

> The foundation of our economic, industrial and business system lays in the service rendered by all the preceding generations. A sewing machine is capable of increasing the productivity of its operator, not only by the amount of labour worked into it by the mechanic but the integrated services of all the scientists philosophers, artisans etc. and of all those who directly served to make their life and work possible back from the ages of primitive man. ... No man can today further develop the technique of production unless he is helped by this vast amount of knowledge which was accumulated in all countries and in all ages..... [30]

These techniques of modern production have labour embodied in them, asserted Polakov, and the quantity of labour time is what gives the product, be it a pair of shoes or a kilowatt of electricity, its value. It is not because labour has a choice but because "we work to live". That work is essential in any society is, of itself, not a problem for Polakov, nor indeed was it for Marx, but two further points need to be made. The first is that under capitalism, capital takes part of the value of labour for itself. As long as the means of production is privately owned and production is carried out for profit, rather than need or service, then the relations of production are

unjust and class struggle is inevitable. Moreover, argues Polakov, what capital has done has been to encourage enormous wastage of human effort and natural resources. As long as profit and not production for the 'common weal' is the focus of economic activity, then capital will be uncaring of what is wasted.[31]

Given that differential pay rates were central to the scientific managers, it is useful to note how Polakov, the socialist scientific manager deals with this issue. He does this by starting from the premise that the value of the commodities is contained in the labour provided by the worker. He then raises the question of whether the inequality of labour values through differential efficiency "must fetch different labor-price (wages) and if so, whether this inequality of earnings endangers social equality and democratic principle".[32]. Following from Marx, Polakov has no problem with skill differentials, since for both of them, different degrees of skill produce different values, and the value and therefore the wage of skilled or efficient labour is simply the value of the socially necessary labour-time required to produce a commodity multiplied by the level of skill or efficiency. Consideration of both skill and efficiency are well within the confines of the labour theory of value for Polakov, who draws on his distaste for wastefulness in justifying differential wages for the more efficient worker. Taking the example of an inefficient fireman shovelling coal into the furnace, in order to produce electricity, Polakov argues that not only is the labor-power of the inefficient worker worth less than that of his efficient work mate, but he also

> ... destroys the results of the work of miners who dug out the coal, of railroad men who that brought it in, of mechanics that built and repaired the machinery used in mining and transportation and scores of other men and women whose work was directly and indirectly needed to get to the boiler-room the coal which ... he sent up the chimney.[33]

The labour of the more efficient worker thus has greater value, of its own account, and on account of all the past labour-time. Consequently "different values of laboring power *must fetch different wages* ...". It is important to note here that Polakov was most scathing of terms like 'bonus plans' since for him they imply a gift or something that is given, rather than what is earned.

In responding to the question of equality from what Polakov calls the 'pseudo-democrats', he is similarly unequivocal, but here he calls his scientific management into play. He does this by arguing that not only is it true that "the right of the producers [earnings] is proportional to the amount of work they furnish ..", but also that "*the equality consists in that the labour is measured by an equal standard*" (italics in original). Thus, argues Polakov, scientific management provides a method and a principle for the application of the labour theory of value.[34]

From the same traditions of analysis Polakov drew his belief in the inevitability of socialism, since the stage of capitalism would give way to 'a higher stage' which he argued was already revealing frailty, just as feudalism had given way to capitalism. This was evident, *inter alia*, in the tendency for the average rate of profit to fall, which, Polakov asserts, comes from the demands of competition. Such demands lead to a need to invest capital in better machinery and equipment, which in turn develops the tendency of the rate of profit to fall **unless** production is intensified and output of commodities grows. However, the necessity for higher investment develops a contradiction with the tendency: to limit the supply in order to maintain high prices and consequently, insists Polakov,

> such a policy causes a large proportion of expensive machinery to stay idle and accumulate burden, which being shifted on the shoulders of consumers in the form of price added to the goods manufactured with the balance of equipment works again toward the unbalancing the whole structure limiting the buying power of society.[35]

But as Polakov notes, this means that the intensification of labour must be increased as a means of confronting the tendency of the average rate of profit to fall.[36]

However, while he sees the potential for scientific management as enhancing this intensification of labour, for Polakov this means reducing effort, and increasing the creativity and enjoyment of work.[37] Moreover, scientific management as Polakov portrays it is a necessary means of paving the way for socialism. It has the potential to do this in several ways. It focuses on production, rather than profit. It develops the practices of planning and recording efficient production for workers at all levels, and it provides a working environment and working conditions which are based on

fairness through scientifically defined goals jointly set with the workers. These attributes of scientific management become clearer if they are seen in the context of the inevitability of socialism. For in the new order of things to come,

> The principal thing to ascertain is the number of and the nature of the forces that are available, the quantity and the matter of the means of production. The next thing to ascertain is the quantity of supplies that are on hand ... If for instance the demand is statistically established for bread, meat, shoes etc. and the productivity of the respective plants is equally known, the average daily amount of socially necessary labour is thereby ascertained and ... point out where more plants for the production of a certain article may be needed or where such may be discontinued ... or turned to other purpose. [38]

For Polakov, who saw scientific management as fulfilling these requirements, the new order was imminent. Not only had the Bolshevik revolution occurred, an event he is generally careful to couch in the most general terms, but also in the USA the need during the war to organise production for the sake of national need, rather than profit, was a self evident lesson in the worth of the national need as the basis for production.

However, even if the new economic order was not immediately near at hand, Polakov believed that scientific management, as practised properly, and not by charlatans and 'stunt peddlers', was an inevitable and necessary set of principles in order to ensure efficiency and improvement of both production and the working environment.

> The economic evolution of society goes in a definite direction and it is not within anyone's power to divert or retard its progress. All that can be done is to choose the means to reduce the pains and sufferings caused by the transition period.[39]

It is important to note that as well as a scientific manager and Marxist, there is no doubt that Polakov was also unrelentingly an engineer. His journal articles and books up to 1922, and indeed beyond, are those of one who is trained and committed to making the machines work better. He goes into immense detail about engineering matters in all of his publications, and as noted previously, in some circles his fame

rested on his role as a significant developer of instrument control systems. He was also undoubtedly a Technocrat, who believed that the engineers, above any other profession could superintend the social, economic and physical aspects of production, and not only at plant level. All of his ideals, as engineer, scientific manager and Marxist are focussed on waste. Polakov abhorred waste, whether it be wasted human effort, wasted natural resources, or unnecessary labour, in the form of advertising agents and salespersons. To his mind this dissipation had its foundation in capitalism and competition for profit, albeit sometimes couched quite cautiously, just as his references to Marx are nearly always concealed.

Despite his caution, Polakov never concealed his Marxism within the Taylor Society debates, and even in his writings though he uses sources that might have been more palatable to his reader, his debt and commitment to Karl Marx are apparent to those with any familiarity with Marx's writing. What makes Polakov's open expressions of his beliefs in his books and in his recorded comments at Taylor Society meetings up to 1921 more piquant, was that these were said or written at a time when the 'red scares' were at a peak, and a young J. Edgar Hoover was developing his skills. For example, Polakov was writing his book *Mastering Power Production,* at the time of the famous night of January 2, 1920 when 10,000 people were arrested for being 'liberal' or socialist or Bolshevik, and when a common tactic was to 'redball' every 'liberal' who believed in municipal or government ownership'.[40] At the same time the Federal Commissioner of Education was speaking for many in high places when he was reported as saying that,

> there was altogether too much preaching these damnable doctrines of Bolshevism, anarchy, communism, and socialism, ... if I had my way, I would not only imprison but would expatriate all advocates of these dangerous un-American doctrines. I would even execute every one of them - and do it joyfully.[41]

Ignoring the difficulties inherent in simultaneously imprisoning, expatriating and executing such perpetrators, the sentiments expressed in such views were widely disseminated through the newspapers. The history of the USA, especially after the Bolshevik revolution, is replete with examples of the concerted and extensive efforts

to rid the nation of socialism. That Polakov proclaimed these damnable doctrines in Taylor Society meetings quoting Marx, Bebel or Luxemburg, is not only further evidence of the breadth of views apparent in the Taylor Society, but also evidence of the ways in which true scientific management was eminently compatible with ideologies beyond the predominantly social democratic Progressivism.

Polakov's caution in his written work, which can give the appearance that he may have been an evolutionary socialist, was perhaps determined by the very predominance of these views. As a migrant, a resident of New York, and a Russian, he was no undoubtedly aware of the very famous 'expatriation' of Emma Goldman. And he was undoubtedly faced with this possibility if he did not stay within the bounds of acceptability. On the other hand, this may well have been because, rather than a fear of expatriation, he felt he could be more effective as a practitioner-intellectual. As Luxemburg's biographer Nettl, has argued, when analysing the dissonance between practice and preaching of Rosa Luxemburg in her responses to Lenin around the turn of the century,

> The difficult relationship between ideology and pragmatic action has been identified as a continuing problem for all political parties, irrespective of their ideology - but the more intense the ideology the greater the difficulty. Where does the relevance of ideological assertions for practical politics end, and mere functional symbolism or ritual for purposes of ensuring unity or legitimacy begin? [42]

The Russian immigrant who was publishing widely and who had found his place within the societies of managers and engineers may well also have decided that the forum closer to the centre was more effective than to be at the margin.

CONCLUSION

At least during the second and third decades of the twentieth century, the Taylor Society was an organisation for those who believed in a philosophy and practice of management founded on the scientific method, as inherited from Frederick Winslow Taylor. Inherent in the 'pure' Taylorist philosophy were teamwork, planning and a

production focus that saw industry as dynamic, rather than static. Although the Taylorists were mainly of social democratic or Progressivist persuasions, none of these foci of themselves required a particular ideological stance. As any reading of the debates of the Taylor Society reveal, the Society was avowedly plural in its membership and in the openness of its debates, even to the extent that socialist idealism could be expressed and recorded in the journal of the Society at a time when media and governments were attempting to outlaw such idealism in any way possible. This is apparent in the place of Walter Polakov, a Marxist and dedicated scientific manager.

In the Taylor society he was not a significant personage in that he never held office, and indeed gave up his membership for over a decade. Nevertheless he was a registered member and participant until the early 1920s, and his writings always promoted the significance and worth of scientific management from a socialist perspective.

Polakov was not a great luminary like Morris Cooke, for example, yet his research and accounts of practice were of sufficient standard to be published in major engineering journals. Moreover, to understand a philosophical movement or indeed, an academic discipline, it is important not only to examine the work of the 'stars' but also those who are the foot-soldiers, the less stellar, but core scholars. This is particularly important in the history of business ideas, where there are multiple and often competing perspectives. An important role of the historian is to explicate and amplify the voices less heard, for then we are practising rigorous scholarship to which we all aspire.

Given the evidence in this paper through the analysis of the life and work of Walter Polakov, continuing re-evaluation of Taylorism seems to be justified.

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[1] Rather than the purist Lockean sense the term "liberals" is used here in the American sense of giving higher priority to issues such as social justice, equity and fairness, than those who would presume that the wants of business and the market are paramount.

[2] This section is an abbreviated discussion of a much more extensive analysis of Taylor Society debates

[3] C. Wright, The Management of Labour, (Melbourne, OUP, 1995) p.26; see also D. Stabile, Prophets of Order, Boston, Southend Press, 1964) and D. Collins, D. Organizational Change: Sociological Perspectives, (London, Routledge 1998), for the fragmented view of scientific management from the broader social sciences. Historians such as Kanigel, 1997 and Merkle, 1980 provide lengthy scholarly discussions, yet still failed to move beyond the time-and-motion interpretation.

[4] It is curious that attacks on Taylorism or scientific management frequently draw upon the doubtless eccentricities of F. W. Taylor, beginning with his problematic experiment with "the dumb ox worker Schmidt", yet recollections of the personal habits of other management innovators from Mayo to Deming rarely, if ever, feature in analysis of their philosophies or experiments.

[5] See especially D. Nelson, 'Scientific management and the workplace, 1920 - 1935' in Jacoby, S. M. (ed.) Masters to Managers: Historical and Comparative Perspectives on American Employers, (NY Columbia University Press; 1992); C. T. Nyland, Reduced Worktime and the Management of Production, (NY, Cambridge University Press 1989); Nyland, C. (1995) "Taylorism and hours of work". ***Journal of Management History,*** 1(2), pp.8-26; Nyland, C. (1995) "Taylorism, John R. Commons, and the Hoxie report" ***Journal of Economic Issues***, 30, (4) pp.985 - 1017 E. Tsunoda, 'Rationalizing Japan's political economy: The

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[6] Originally called Society to Promote the Science of Management. In the 1930s after mergers it was called the Society for the Advancement of Management (S.A.M.), which organisation is still active.

[7] H. S. Person, 'Scientific management', Bulletin of the Taylor Society, 2, 3 October, 1916, p.21; see also H. S. Person, 'The manager, the workman and the social scientist: their functional interdependence as observers and judges of industrial mechanisms.' Bulletin of the Taylor Society, 3, 1, 1917 pp.1-7. (hereafter BTS

[8] R. H. Hofstadter, W. Miller, and D. Aaron, The American Republic, Volume Two Since 1865, (NJ, Prentice-Hall, 1959) pp.354-360

[9] Schachter 'Frederick Taylor' p.5*1ff*

[10] See Bulletin of the Taylor Society (BTS) , the journal of the Society which presented not only papers of members and invited speakers, but also transcripts of parts of the debates which followed presentations. See e.g. Discussion, of R. G Valentine's paper 'The progressive relationship between efficiency and consent' Bulletin of The Taylor Society, 2, 1, January 1916, pp.13-20

[11] See BTS, 1916-1919, especially Discussion following Cooke's paper, 'Centralization of Administrative Authority; Cooke, Morris L, Samuel Gompers and Fred Miller (eds.) (1920) 'Labor, Management and Production'. The Annals, v. XCI, September; see also Person 'manager workman';pp.1-3; F. W. Taylor, 'Scientific management and labor unions'. Bulletin of the Society to Promote the Science of Management, 1, 1, December, 1914, p.3; R. G. Valentine,. 'The progressive relationship' pp.11-13 and records of 'Discussions' of these papers in BTS

[12]. Schachter notes that Taylor bluntly refused to join the Efficiency Society because he claimed it was full of shortcut merchants.

[13] The sources for this section D. A. Wren, 'From the management of production to the management of society', The Conference Board Record Vol. XIII, No 6, 1976a pp.40-2; D. A. Wren 'Scientific management in the USSR, with particular reference to the contribution of Walter N Polakov', Academy of Management Review, Vol 5, January, 1976b pp.1-11; H. Elsner, The Technocrats: Prophets of Automation Syracuse, Syracuse University Press, 1967; W. N. Polakov, W N., 'Power Plant Betterment by Scientific Management'

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[14] Bulletin of Society to Promote the Science of Management, Vol. 1, 6, 1915, p.1

[15] Elsner, Technocrats: p.60

[16] Communication, H. Person to Cooke; Morris Cooke Papers - Correspondence

[17] W. E. Pulis, cited in L. P. Alford, L. P. Henry Laurence Gantt: Leader in Industry, American NY, Society of Mechanical Engineers, 1934 p.242

[18] Alford, in Gantt 1934, pp.251-99; See also Wren, 'From management of production' p.41

[19] Polakov, MPP p.42

[20]. The bibliography only cites a very few of Polakov's writings, mainly 1911-1922. Polakov was writing until well into the 1940s, when he was Engineering Director of United Mineworkers of America

[21] Polakov, 'Power plant betterment'

[22] Polakov, 'Planning' pp.1-23

[23] Polakov, Power Age; Polakov, 'the Gantt chart'; The Gantt charts remained central to Soviet economic development. See also Wren, 'Scientific management, Russia '

[24] Polakov, MPP p.ix

[25] Valentine,. 'The progressive relationship' pp.11-13

[26] Bebel, cited by Polakov in Discussion, of R. G Valentine's paper pp.16-7

[27]. Polakov's links with technocracy are also evident from a long acquaintanceship with Howard Scott, the leading technocrat. It was apparent from Polakov's contribution to the discussion of Hugh Archbald's presentation on mine management at the December 1919 Taylor Society meeting that he and Scott had discussed their respective comments prior to the meeting. It was perhaps no coincidence that Scott and Polakov attended this meeting together. Both of them had deeply admired Gantt who had died quite

unexpectedly less than a month previously. Polakov also had links with the technocrat, Walter Rautenstrauch, of Columbia University

[28] Stabile, Prophets of Order

[29] Elsner, Technocrats

[30] Polakov, MPP pp.173-4

[31] Polakov, Man and his Affairs; Polakov, 'making work fascinating';

[32] Polakov, MPP, p.212

[33] Polakov, MPP, p.212; Compare for example with K. Marx, (1954) Capital Volume I, London Lawrence A Wishart, 1954 pp.567-9

[34] Polakov, MPP, pp.211-3

[35] Polakov, MPP, pp.9-11

[36] K. Marx, Capital Volume III, Moscow, Progress Publishers, 1959, pp.211-31

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[40] P. C. Sexton, The War on Labor and the Left: Understanding America's Unique Conservatism, Boulder, Westview Press, 1991 p.134; See also P. S. Foner, The Bolshevik Revolution: its impact on American radicals, liberals, and labor: a documentary study, New York, International Publishers, 1967

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[42] J. P. Nettl, Rosa Luxemburg, Oxford, Oxford University Press, Oxford (abridged edition) 1969, p.197