Industrial Psychology at Rowntree's Cocoa Works, 1922 to 1939.

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Introduction

At Rowntree's Cocoa Works, the labour manager, C. H. Northcott, wrote in the first annual report of the Labour Department, compiled in 1924, that it was 'a department where much is intangible', and in which 'the factors that demand attention are human attitudes and feelings'.[1] How was the practice of labour management to account for the 'intangible', the 'human attitudes and feelings' that were so inextricable from the world of work? This was the same question that Seebohm Rowntree himself had posed in his book, *The Human Factor in Business*, in which he detailed the methods already employed at the Cocoa Works and set out a vision for what industry - once it had taken account of the 'human factor' - should be. The 'intangible' and the 'human attitudes and feelings' were packaged as 'human factors', and as the opening quote indicates, the 'human factor' was to become the key organisational concept at the Cocoa Works under Seebohm's chairmanship. Indeed, it was in the concern for the 'human factor' that a way was paved for the establishment of a Psychological Department at the Cocoa Works in 1922.

Rowntree was a family-run firm established in the mid-nineteenth century, which manufactured various kinds of chocolate and other confectionery products. It was one of the three major Quaker-led confectionery companies in Britain at the turn of the twentieth century, the others being Cadbury and Fry's. Seebohm Rowntree became the chairman in the immediate years after the First World War, after serving for a period as a director. The interwar period saw the proliferation of ideas about management, industry, and about work more generally. The resultant tapestry of terminology of 'welfare', 'health', 'efficiency', and 'fatigue', reconfigured ideas about management and set the scene for new forms of intervention. One of these new schemes was industrial psychology. Industrial psychology was explicitly concerned with the 'human factor' and the worker 'as a subjective being with instincts and emotion'.[2] Thus, the question at hand is an open one: in what ways did the Psychological Department become a part of labour management at the Cocoa Works?

Historiography

Two of the principal figures in the historiography are Nikolas Rose and Matthew Thomson. In both *The Psychological Complex* and *Governing the Soul*, Rose detailed how psychology, through 'a combination of representing and intervening' produced 'a new entity' in 'the psychological subject'.[3] The point of intervention was subjectivity and, in an industrial context, the 'subjectivity of the

[1] Borthwick Institute, University of York, R/DL/L/2, 'Labour Manager's Report', Annual Reports of the Labour Manager, 1924.
[2] Nikolas Rose, *Governing the Soul*: *The shaping of the private self,* (London, 1990), p.69.
[3] Nikolas Rose, *The Psychological Complex: Psychology, politics and society in England*, *1869-1939*, (London, 1985) 13.

worker' and the representation of this subjectivity came in industrial psychology as well as 'a range of somewhat ill-defined and overlapping subdisciplines and specialities', such as 'occupational psychology [...] organizational behaviour, vocational guidelines, ergonomics, human engineering, and so forth'.[4] His analysis is fundamentally a Foucauldian one, which seeks to illuminate how, now 'the psychological subject' was visible, this individual could be assimilated and incorporated into 'networks of power'.[5] In this, he calls to *Discipline and Punish*, and to Foucault's argument that 'discipline produces subjected and practised bodies [...] it dissociates power from the body', thus, 'disciplinary coercion establishes in the body the constricting link between an increased aptitude and an increased domination'.[6]

Thomson, on the other hand, develops a more rounded, inclusive story of psychology, one in which 'psychology provided a language and topography of self to access these hidden levels and harness them towards ethical, social, and sometimes spiritual ends'.[7] As such, invoking E. P. Thompson, he argues that 'psychological subjects were present at their own making' as opposed to the inanimate subject which Rose describes.[8] This point is emphasised by the heterogeneity suggested by the plurality of psychological 'subjects' in Thomson's account. For Thomson, there is a need for the study of 'a more varied and widespread culture of psychological thinking than has been hitherto recognized'.[9] Thomson's account spans the 'practical' to the 'popular', enveloping both a 'high' culture of psychology and enlightening what he describes as a 'low culture of popular psychology'.[10] Of the industrial variant of psychology, Thomson concludes that it 'may have gone some way in humanising scientific management, but it never found the channels, the language, or the ideas to capture the imagination of the worker'.[11] While this may be the case in the broader perspective, it does not necessarily follow that it then does not merit further study. Particularly in the case of Rowntree, where industrial psychology was afforded more space to elaborate itself than in almost any other scenario in Britain during this period, there remain ambiguities as to what aspects of labour management were articulated to be *psychological*. Moreover, in the wake of such an assessment, an appreciation of industrial psychology as a marginal practice in management may indicate new interpretations of industrial relations and the world of work.

Where Thomson and Rose both speak broadly about the emergence and the status of psychology in industry, the aim here is to underline the validity of each perspective through a closer

[4] Rose, *Governing the Soul*, 56.
[5] Rose, *Governing the Soul*, ix.
[6] Michel Foucault [trans. Alan Sheridan], *Discipline and Punish: Birth of the Prison*, (New York, 1995 [1977]) 138.
[7] Matthew Thomson, *Psychological Subjects: Identity, Culture, and Health in Twentieth-Century Britain*, (Oxford, 2006) 8.
[8] Thomson, *Psychological Subjects*, 8-9.
[9] Thomson, *Psychological Subjects*, 2.
[10] *ibid*, 17.
[11] *ibid*, 150.

examination of one case study. Of Rose, Thomson's charge is that by holding focus on 'aims, ideas, and even practical tools of the professionals' there is 'sometimes a tendency to assume their influence'.[12] He describes such an analysis as running the risk of becoming a 'story of intention', one which does not take account for 'messy politics, competing interests, and economic realities'.[13] Certainly, in the case of Rowntree's Cocoa Works, Thomson's concerns are quickly visible. That is not to say, however, that Rose does not make an invaluable contribution to an understanding of how industry and psychology became enmeshed in the early twentieth century. Here, the story of intention is explored through the ways in which the psychological was articulated in the work of the Psychological Department. Yet, the practicalities, 'the messy politics' of its implementation within labour management are also recognised.

While there have been a number of general histories of Rowntree which have mentioned the introduction of industrial psychology in management, the clearest account of this event is provided by Wendy Hollway in her article 'Efficiency and Welfare', which mirrors a chapter of her more extensive publication, *Work Psychology and Organizational Behaviour*.[14] Hollway advances two key arguments in this article. First, she argues that 'the use of psychometric tests for vocational selection took over from fatigue studies as the practice that could claim to unite the demands of welfare and efficiency'.[15] Second, that industrial psychology in the British context 'arose independently' and 'was fashioned by the strength of the trade unions and by the industrial welfare tradition which were particular to Britain'.[16] These two arguments are both invaluable to the study at hand. Crucially, however, they are not developed in the detail - neither in contextual terms, nor historiographical - which is described here. Similarly, the archival material examined here contains more detail about the intricacies of the work of the Psychological Department at Rowntree's Cocoa Works, thus allowing for a closer inspection of *what* psychological work entailed. Furthermore, the third chapter extends the discussion of the everyday role that the Department acquired in selection, training and transfer, to its intervention as a mediative measure against a troublesome area of the factory.

More broadly, the analysis of industry and psychology calls to the work of Franҫois Guéry and Didier Deleule, which elucidates a link between Karl Marx and Michel Foucault.[17] In their account

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[12] *ibid*, 7.
[13] *ibid*, 7.
[14] Two accounts that deal with general history of the company at length are: Asa Briggs, *Social Thought and Social Action: A Study of the Work of Seebohm Rowntree*, *1871-1954*, (London, 1961); Robert Fitzgerald, *Rowntree and the Marketing Revolution, 1862-1969*, (Cambridge, 2006)
[15] Wendy Hollway, 'Efficiency and Welfare: Industrial Psychology at Rowntree's Cocoa Works', *Theory & Psychology*, 3:3 (1993) 303-322, 304.
[16] *ibid*, 308.
[17] This point is raised by Philip Bernard and Steven Shapiro in their introduction to: Didier Deleule and Franҫois Guéry [trans. Steven Shapiro and Philip Barnard], *The Productive Body*, (Winchester, 2014 [1972]) 31. Barnard and Shapiro reflect on the way in which Deleule and Guéry re-examine Marx (specifically in: Karl Marx [trans.

of the creation of 'the productive body', which they argue is a result of the way in which capitalism has overhauled the 'social nature of work' ('the social body') and replaced it with an 'individualised "biological body".[18] This is the point of intervention for psychologist and for the discipline of psychology. As such, they see psychology as being made possible by the 'productive body' and by capitalism itself.[19] Guéry and Deleule argue that 'the task of modern psychology' is 'to proceed in such a manner that the living machine, it its ordinary functioning, becomes as adapted as possible to the social mechanism into which it is, in fact, integrated, so that its productive act develops in optimal conditions and its gears don't grind too loudly'.[20] This point will be developed by the analysis in chapter two and three, where the metaphor 'gears don't grind too loudly' helps to illustrate the way in which the Psychological Department intervened in the organisation of labour at the Cocoa Works. In terms of the broader argument, Steffan Blayney has expertly interweaved the notion of 'the productive body' to expand on the work of the HMWC.[21] While this notion is not used as the centre of the analysis here, it does inflect a number of the conclusions made about the use and the significance of psychology in the factory.

Methodology and sources

The bulk of the archival material that is utilised comes from the Rowntree company archives. The principal sources are the various annual reports compiled by Northcott, the labour manager, between 1924 and 1932, and the records of the Labour Research Enquiry. The records of the Enquiry amalgamate a number of different reports and records of communication within the Labour Department, which will be marked in the referencing. Similarly, the annual reports bring together the work of the various departments under the header of the Labour Department, however, it is unclear at times who is the author of a particular section. As such, where there is ambiguity, they will simply be referred to as 'the reports of the labour manager'. While internal to the company, each of these sources accounted for the possibility that they may be published in the future (or at least would have some relevance internally). As the opening quotation continues to note, '[...] it is

Ben Fowkes], *Capital: a critique of political economy, Vol.1*, (London, 1990 [1867])) and theorise 'the productive body', a concept which establishes a link between Marx and Foucault's notion of biopower (Michel Foucault [trans. Robert Hurley], *History of Sexuality, Volume 1: An Introduction*, (New York, 1978 [1976])). While this thesis does not examine this concept at length, it indicates a possible course for further development.

[18] Barnard and Shapiro, 'Editors' Introduction to the English Edition', in Deleule and Guéry, *The Productive Body*, 14.

[19] Deleule and Guéry, *The Productive Body*, 105.

[20] *ibid*, 94-95.

[21] Steffan Blayney, 'Industrial Fatigue and the Productive Body: the science of Work in Britain, *c*. 1900–1918', *Social History of Medicine*, (2017) 1-19.

inevitable that much will afford light and guidance in the future will be lost unless recorded'.[22] Indeed, the Labour Research Enquiry was presented by the Psychological Department to be an opportunity to carry out publishable research. Consequently, there has to be a sensitivity to the way in which certain elements, particularly concerning the response of the workers to the work of the Psychological Department, in a qualitative analysis of these sources.

These sources are supplemented by a variety of minor material: letters between personnel in the Labour Department and external correspondents; memoranda about particular events in the factory; information files for trainees. They punctuate a rich amount of unexplored material in the company archive, much of which has not been examined in any previous studies. Further to the primary source material, the work of various contemporary figures in the nascent field of industrial psychology are examined.[23] In particular, the volume *Industrial Psychology* edited by Charles Myers, provides an interesting in-field perspective of what industrial psychology presented itself to be. Myers was the founder of the National Institute of Industrial Psychology and an important figure in British psychology during the interwar period. By looking at this literature, it is possible to articulate the space between theory and practice.

This material, however, does present some limitations to the subject at hand. Chiefly, material containing explicit mention of the Psychological Department is fairly limited. As such, by explicitly searching for and selecting material pertaining to the role of the Department, there is a danger that its role is overplayed. Without comprehensive statistical records of amount of work the Psychological Department was engaged in, it is difficult to quantify its impact across the factory. However, by showing the ways in which the Department competed to secure a particular role at the Cocoa Works, it helps to temper any assumption that its presence simply equated to influence. Indeed, that the work of the Department tended to be most secure in the employment and movement of employees (selection, transfer) indicates that it had more influence at the margins of the world of work.

Finally, *the psychological* should not be assumed to be a transhistorical object. In tracing the work of the Psychological Department, chapter two and three are simultaneously detailing the process of the *making of the psychological*. This calls back to Rose's argument that 'the psychological subject' is produced through 'a combination of representing and intervening'.[24] Indeed, a question of

[22] Borthwick Institute, University of York [hereafter abbreviated to BI], R/DL/L/2, 'Labour Manager's Report', 1924.
[23] Guy Montrose Whipple, *Manual of mental and physical tests: a book of directions compiled with special reference to the experimental study of school children in the laboratory or classroom. Part I, Simpler Processes*, (Baltimore, Warwick & York, 1914); Guy Montrose Whipple, *Manual of mental and physical tests in two parts. Part II, Complex Processes: a book of directions compiled with special reference to the experimental study of school children in the laboratory or classroom*, (Baltimore, Warwick & York, 1915); Charles S. Myers (ed.), *Industrial Psychology*, (London, 1929); B. S. Rowntree, *The Human Factor in Business*, (London, 1921).
[24] Rose, *The Psychological Complex*, 13.

whether a history of the psychological is even within the capability of the historian has generated a lively debate.[25] When referring to 'psychological' interventions, methods, or work, quotation marks are used to account for this process of *making of the psychological*. Thus, the question 'in what ways did the Psychological Department become a part of labour management at Rowntree's Cocoa Works', also reflects the way in which an idea about what constituted 'psychological' work was established.

Chapter outlines

Chapter one provides a thematic overview of the wider processes in which the establishment of a Psychological Department at Rowntree was enveloped. It explores the role of the Health of Munitions Workers' Committee during the First World War, the spread of American 'scientific management' into British industry, welfare initiatives, psychology - both in industry and more broadly - and industrial politics. Chapter two then turns to the everyday work of the Psychological Department during the interwar period. It emphasises how the Department came to establish itself in work in selection, transfers, training and in consumer research and, as such, marked the key areas of 'psychological work' in labour management at the Cocoa Works. Chapter three develops on the survey of the Department detailed in chapter two by examining the Labour Research Enquiry conducted between 1930 and 1932. The Enquiry focused on a particular room at the Cocoa Works, thus allowing for a closer analysis of the language and practices of industrial psychology. It also points to the way in which the Department adopted different management initiatives, like 'human relations' into its repertoire.

Chapter one

By the end of the First World War, a concern for worker welfare was embedded in the management of industrial workers. The fusion between welfare and management was fostered by the establishment of the Health of Munitions Workers' Committee (HMWC) during the war. While the link between welfare and management existed prior to the HMWC, in Britain it was in the work of the HMWC that it acquired the articulation that would last the interwar period. The increased employment of women in the munitions sector during the war played a part in this articulation, too. More broadly, however, the division of labour in industrial work and absence of a union infrastructure for women comparable to the powerful male trade union movement workers shaped interwar management initiatives. In the case of psychology, it was not simply limited to its industrial

[25] For some reference to this broader debate: Roger Smith, 'Does the history of psychology have a subject?', *History of the Human Sciences*, 1:2 (October 1988) 147-177; Graham Richards, 'Of What is History of Psychology a History?', *British Journal for the History of Science*, 20:2 (1987) 201-211; Kurt Danziger, 'Does the History of Psychology Have a Future?', *Theory & Psychology*, 4:4 (1994) 467-484.

variant in the interwar years. It encompassed both the 'popular' and the 'practical'. Although Rowntree does not command the total attention of this chapter, Seebohm Rowntree was an important figure in both the work of the HMWC and, latterly, both the Industrial Welfare society and the National Institute of Industrial Psychology. As such, it should come as little surprise that the company had formally established its Psychological Department by the end of 1922.

The Health of Munitions Workers' Committee

It was in the work of the HMWC that the notion of worker welfare came to be an explicit concern of management in industry. The HMWC was established during the First World War by David Lloyd-George, who was the minister for munitions and would later become the Prime Minister. The committee was to be headed by Seebohm Rowntree, though it employed a staff with diverse interests and expertise, which ranged from medical inspectors to trade unionists and physiologists.[26] The creation of a committee devoted to 'health' was linked to the influx of women workers into jobs in heavy industry. This process, called 'substitution', was brought into action in order to cover the jobs vacated by men as they were conscripted into the armed forces, and had led to an increase of around 1.3 million women in employment between 1914 and 1918.[27] Moreover, it was accompanied by a suspension in the primary protective legislation for workers in industry, the Factory Acts, during the war, which meant that 'women in munitions often worked night shifts and 12-hour shifts'.[28] These 'long hours took their toll on women's lives', Holloway argues, 'especially those who had the double burden of paid and domestic work to contend with'.[29] The concern for the welfare of women in industry was not especially new. However, rather than a philanthropic or paternalist concern, in the work of the HMWC it became inextricable from productivity. As such, it reflected the primary aim of the HMWC - to increase production to aid the war effort.

The work of the HMWC was largely based on physiological investigations of the worker. This reinforced the perception that, for the many women workers, munitions work was 'too difficult and heavy for them'.[30] The investigations sought to uncover the effect that changes to working conditions had on the body of the female worker. In these investigations, change was comprehensible through the medico-scientific notion of fatigue. Fatigue underpinned much of the discourse around welfare, health and production from the late-nineteenth century through the

[26] Blayney, 'Industrial Fatigue and the Productive Body', 11.
[27] Gerry Holloway, *Women and Work in Britain since 1840*, (London, 2005) 134; Joanna Bourke, *Working-class cultures in Britain, 1890-1960*: *Gender, class and ethnicity*, (London, 1994) 102.
[28] Holloway, *Women in Work*, 141.
[29] *Ibid*, 77.
[30] Wendy Hollway, *Work Psychology and Organization Behaviour: Managing the Individual at Work*, (London, 1991) 37.

interwar years. At the end of the nineteenth century, 'fatigue', Rabinbach writes, 'represented the legitimate boundary of the individual's physiological and psychological forces beyond which the demands of society became illegitimate or destructive'.[31] However, fatigue was felt more acutely on the continent, where there was a well-developed 'science of work' already by the outbreak of war. The work of the HMWC not only compensated for the lack of a 'science of work', the like of which had flourished in Europe, but such was its success that it 'soon made Continental observers envious'.[32] In the process, the preoccupation with fatigue took on a new form: 'industrial fatigue'.[33] The significance of this seemingly minimal change, Blayney remarks, was that in 'affixing a socioeconomic descriptor to a medical category' it 'collapsed the two in a single stroke', thus it subsumed the 'biological body' in favour of a productive one.[34] Indeed, the prescription of 'industrial fatigue' presaged similar constructions, such as 'industrial psychology', which developed out of the work of the HMWC.

Consequently, welfare and health as they appeared in the work of the HMWC were both understood purely in terms of productivity and output. Each was rewired in relation to production and to the productivity of the workforce. In the work of the HMWC, Long argues, the HMWC 'interpreted its remit as being concerned with health and preventive medicine'.[35] 'Health' was understood in physiological terms and the 'physical health' of the worker was represented as the 'fundamental basis or key ingredient in successful industrial production'.[36] Blayney extends Long's argument further, expressing that 'health' was not simply a 'key ingredient in industrial production', but that 'health' was only comprehensible through work. 'Health' in relation to the industrial physiology practised by the HMWC, '*meant the health of the worker only insofar as he or she was a worker*'.[37] Crucially, then, the work of the HMWC set the foundation for the way in which welfare and health would be elaborated in management initiatives in industry after the war. It also reinforced the particular concern for the welfare of women in industrial work. While the concern for women's welfare had a longer history, the work of the HMWC marked its integration into newer forms of scientific management.

Taylorism and Bedaux

[31] Anson Rabinbach, *The Human Motor: Energy, fatigue, and the origins of modernity*, (New York, 1990) 22.
[32] Rabinbach, *The Human Motor*, 275.
[33] Blayney, 'Industrial fatigue and the Productive Body', 3.
[34] *ibid*, 3.
[35] Vicky Long, *The Rise and Fall of the Healthy Factory: The Politics of Industrial Health in Britain, 1914-1960*, (Basingstoke,2011) 26.
[36] *ibid*, 26.
[37] Blayney, 'Industrial Fatigue and the Productive Body', 17. Emphasis added.

Prior to the First World War, Taylorism had been 'hotly debated' in Britain as a model for management.[38] Principally, Taylorism was concerned with producing increased output and lacked the welfare element which distinguished the work of the HMWC. At its core, Taylorism detailed a number of techniques and processes, heavily centred on observation and measurement of certain aspects of factory work, which aimed to enhance efficiency, hence the description of 'efficiency engineering' with which it became associated. As Charles Maier has noted, 'what was novel about Taylorism was the application of the supposedly machine-oriented discipline of engineering to labour relations [...] it therefore implied a revolution in the nature of authority: the heralded utopian change from power over men to the administration of things'.[39] The centrepiece of Taylorist methods was time study. Time study proved to be the most persistent component of Taylorism and was adopted in practice at the Cocoa Works in the early 1920s. Time study detailed the time taken for a worker to complete a specific task, this calculation could then be used to determine the efficiency of the individual worker in said task. The changes to work processes were traceable by stopwatch and, as such, it was also utilised in conjunction with the training of workers.

The work of the Psychological Department in both training and selection made use of time study and motion study in the interwar years. After it became standard practice in 1923, a process not without contestation between workers and management, time study underpinned much of the work of the Labour Department and was used in tandem with 'psychological' methods.[40] It was noted that, at the Cocoa Works, 'the Time Study we know to-day first made its appearance in America in the year 1881, and was introduced by F. W. Taylor, a foreman in a machine shop of the Midvale Steel Company of Philadelphia', where 'Taylor used a stop watch to get facts on which to base the piece rates that were to be set in his shop'.[41] The rationale for the use of these practices is neatly encapsulated by the information file for new trainees. It remarks that 'the trend of modern thought is in favour of a policy of using the every available help to production, such as better and newer equipment or processes, psychological selection and training of workers, motion study and time study'.[42]

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[38] Kevin Whitson, 'Worker Resistance and Taylorism in Britain', *International Review of Social History*, 42 (1997) 1-24, 2.

[39] Charles S. Maier, 'Between Taylorism and Technocracy: European ideologies and the vision of industrial productivity in the 1920s', *Journal of Contemporary History*, 5:2 (April 1, 1970) 27-61, 30-32.

[40] BI, JRF/RCO/6/2/1, 'Information File for Trainees', Information file concerning different departments and their functions, c.1930. The implementation of time study more widely was subject to negotiation between the workers and the management: 'The firm determined, therefore [*after a drop in the piece rates*], to have the whole factory time-studied, and to put time-studied rates in wherever practicable, as soon as possible after October 1, 1923. At the same time agreement had been reached with the workers concerning the methods of Time Study. The workers submitted to considerable loss in earnings, and agreed to the institution of Time Study, as a method for measuring output, subject to guarantees concerning the representation of labour in the process of rate-setting'.

[41] BI, JRF/RCO/6/2/1, 'Information File for Trainees', c.1930.

[42] BI, JRF/RCO/6/2/1, 'Information File for Trainees', c.1930.

As one of the newer forms of scientific management which spread from America, Taylorism received a mixed reception in Britain. Indeed, in relation to the HMWC, Taylorism and the 'efficiency engineers' were charged with 'presenting a simplistic, reductive, mechanical view of the worker, offering crude one-size-fits-all solutions', lacked an appreciation for both worker welfare and health.[43] Between the wars, Taylorism and Taylorist methods continued to be a focus of worker and union suspicion. At the Cocoa Works, too, explicit reference to Taylorism was carefully managed by management. A related initiative, the Bedaux system attracted wide criticism, notably from Northcott, the labour manager at Rowntree.[44] The work of the Bedaux company was also fiercely resisted by women workers in other industries in Britain.[45] Spearheaded by work by Elton Mayo, a more workable American import was the concept of 'human relations'. Human relations would enter the language of the Psychological Department at the Cocoa Works in 1930, as it began an investigation of the workers in the Enrober room.

The factory

The mechanistic drive of Taylorism also seeped into infrastructural projects and influenced the way in which the transformation of the factory was imagined in the early twentieth century. 'The modernist architects', Mauro Guillén declares, thought of 'buildings as machines, embraced the ideas of waste reduction and order' and 'used such notorious efficiency techniques as time-and-motion study'.[46] Crucially, they 'strived to turn architecture into a science driven by method, standardization, and planning'.[47] While this transmutation of Taylorism into a vision of the built environment appeared in the twentieth century, a more holistic attitude to the factory environment began to develop. Long has succinctly encapsulated this attitude in the term 'healthy factory', which she contends was the ideal to which industry aspired.[48] The 'healthy factory' was a broad notion, one which encompassed a vast array of ideas and groups. Long traces the impetus of the movement to the First World War, during which the HMWC had overseen 'a far-reaching investigation into how lighting, heating, ventilation, nutrition, rest breaks, working hours and recreational facilities affected workers' productivity and health'.[49] The 'ideal of the healthy factory flourished in the interwar years', led by 'professional groups, trade unions and employers'.[50] In the

[43] Blayney, 'Industrial Fatigue and the Productive Body', 14-15.
[44] Fitzgerald, *Rowntree and the Marketing Revolution*, 268.
[45] Selina Todd, '"Boisterous Workers": Young Women, Industrial Rationalization and Workplace Militancy in Interwar England', *Labour History Review*, 68:3 (December 2003) 293-310.
[46] Mauro Guillén, *The Taylorized Beauty of the Mechanical: Scientific Management and the Rise of Modernist Architecture*, (Princeton, 2006) 1.
[47] *ibid*, 1
[48] Long, *The Rise and Fall of the Healthy Factory*, 2.
[49] *ibid*, 3.
[50] *ibid*, 18.

work of the HMWC, seemingly, the crudely functional, skeletal concern for the worker was overhauled and a transformed vision, punctuated by ideas about worker welfare and the 'healthy factory', came to the fore.

Seebohm Rowntree had his own visions of what the factory environment could and should be. These visions were not wholly original, but an elaboration of earlier ideas that gained traction at Rowntree in the shape of industrial betterment. In *The Human Factor*, he wrote that 'in planning a factory, I suggest that we should aim at some degree of beauty'.[51] Rowntree made the distinction between the 'material environment' and the 'personal environment', which he believed underpinned working conditions.[52] The 'material environment' pointed to the built elements of factory: the buildings, the workrooms, and the colour of the room walls. While the 'personal environment' referred to the conditions of an individual's work: their role and their wage. To take an example of the former, Rowntree stressed the necessity of 'good colour schemes for walls and ceilings' and that 'whitewash with a tinge of blue is not prescribed by law!'.[53] The internal re-decorating of the factory was mirrored by changes to external surroundings, in which flowers, plants, and gardens were cultivated. An interest in the aesthetics of the factory was not held by Rowntree alone. Other factories had also begun to make changes to their interior decoration and, 'by 1930, inspectors explained similar initiatives in the new language of industrial psychology'.[54] An interest in aesthetics was held by prominent psychologists in Britain, too. For one, Cyril Burt, notes Thomson, 'conducted significant research on the psychology of aesthetics'.[55] Consequently, ideas about the factory environment took on a psychological hue in the interwar period, even if they were anteceded by similar initiatives. This likely reflected the new status of industrial psychology in Britain after the First World War.

Psychology

The HMWC gave way to the Industrial Fatigue Research Board (IFRB) and the National Institute of Industrial Psychology (NIIP) in the aftermath of the war. These two organisations thus became the cornerstone of scientific management. The NIIP, established in 1921 by Charles Myers and John Henry Welch, would play a crucial role in the establishment of the Psychological Department at Rowntree. Prior to the Second World, it was the chief employer of psychologists in Britain, reflecting

[51] Rowntree, *The Human Factor in Business*, 55.
[52] *ibid*, 54.
[53] *ibid*, 56.
[54] Long, *The Rise and Fall of the Healthy Factory*, 65.
[55] Thomson, *Psychological Subjects*, 68.

the still limited appeal of psychology in universities and its relative strength in an industrial context.[56] Almost a decade on from the establishment of the NIIP, Myers wrote in the introduction to *Industrial Psychology* that

> Its [industrial psychology's] aim is to discover the best possible human conditions in occupational work, whether they relate to the best choice of vocation, the selection of the most suitable workers, the most effective means of avoiding fatigue and boredom, the study and provision of the most valuable incentives to work, the causes of and remedies for irritation, discontent and unrest, the best methods of work and training, the reduction of needless effort and strain due to bad movements and postures, inadequate illumination, ventilation and temperature, ill-considered arrangements of material, or defective routing, layout, or organization.[57]

Not only did this vision point toward a diverse and eclectic remit for industrial psychology, it also indicated the assimilation of older concerns of management into the new industrial psychology. Indeed, while 'the best choice of vocation' and 'the selection of the most suitable workers' had become firm fixtures in the repertoire of industrial psychology, a concern for 'the most valuable incentives to work' and a need to reduce 'needless effort and strain due to bad movements and postures', in addition to the environmental factors, mirrored earlier initiatives, such as industrial betterment, which Joseph Rowntree had enthused. Nonetheless, there were innovative elements to industrial psychology, particularly with respect to the selection of workers. It is perhaps unsurprising, then, that selection and transfer were the aspects of labour management in which the Psychological Department established itself at the Cocoa Works in the interwar years. Furthermore, that Myers had retained the bold and extensive vision for industrial psychology that he had projected in the early days of the Institute, hinted at the persistence of the new language of psychology in management discourse.[58]

Underneath the vision which Myers sets for industrial psychology was the notion of 'individual differences'. Central to the notion of individual differences was the idea that 'human impulses, emotions and passions' needed to be accounted for in any intervention.[59] This idea is clearly echoed in the opening quote, in which the labour manager characterised the nature of the work of the Labour Department. 'The worker', Rose remarks, in the light of the psychology of

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[56] Geoffrey Bunn, 'Introduction', in Bunn, G. C., Lovie, A. D., and Richards, G. D., (eds), *Psychology in Britain: historical essays and personal reflections*, (Leicester, 2001) 1-29, 4.
[57] Myers, 'Introduction', in Charles S. Myers (ed.), *Industrial Psychology*, (London, 1929) 7-15, 9.
[58] The claims of industrial psychology are noted by: Hollway, 'Efficiency and Welfare', 310; Thomson, *Psychological Subjects*, 140.
[59] J. Drever, 'The Human Factor in Industrial Relations', in Myers (ed), *Industrial Psychology*, 16-38, 19.

individual differences, 'was to be individualized in terms of his or her particular psychological make-up and idiosyncrasies, the job analysed in terms of its demands upon the worker, and human resources were to be matched to occupational demands'.[60] In effect, it sought to understand how individual difference 'modified behaviour' and, in doing so, it pushed back against 'efficiency engineering' and a "one best way" approach'.[61] In Britain, the psychology of individual differences was crucial to how the role of the psychologist developed in industry.

Away from the industrial context, new routes for the professionalisation of psychology opened up in the second half of the nineteenth century. In Germany and in the United States, the growth in the provision of technical education in this period fostered the emergence of psychology as a *scientific discipline*. Hearnshaw contends that 'the main component in the transmutation of psychology from a philosophical to a scientific discipline was [...] the outcome of the marriage between philosophy and physiology in the universities of mid-nineteenth century Germany'.[62] Similarly, Rabinbach highlights the growth of polytechnic universities and technical colleges, most fiercely manifest in the United States and Germany, which had opened up new avenues for the professionalisation in industrial science.[63] Indeed, the emergence of a 'science of work' in Europe was perhaps a by-product of these new avenues for study, experimentation and employment.

By contrast, in Britain there had been a slower uptake to the need for technical education and it was not until the turn of the twentieth century, entwined with a discourse of 'national efficiency', that it began to develop an infrastructure comparable to that of Germany and the United States.[64] 'National efficiency' was, in the wake of the Boer War, a 'diagnosis of what had gone wrong with Britain, but also a skeletal plan of campaign, a rough description of the direction reform would have to take, if the country were to escape future disaster'.[65] 'National efficiency' merged into the ever-present language of efficiency, which moved seamlessly between a simple task in industry and the health of the nation. Even despite this heightened concern for technical aptitude of Britain, Mitchell Ash notes, 'in Britain and France, psychology remained [...] weakly institutionalized from the 1920s to the 1940s'.[66] That said, there were, by the start of the First World War, a number of journals and societies dedicated to psychology, such as the *British Journal of Psychology* and the

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[60] Rose, *Governing the Soul*, 67.
[61] Matthew Thomson, 'The Psychological Body', in Roger Cooter and John Pickstone (eds), *Medicine in the Twentieth Century*, (Amsterdam, 2000), 291-306, 293; Hollway, 'Efficiency and Welfare', 311.
[62] Leslie S. Hearnshaw, *The Shaping of Modern Psychology*, (London, 1987) 140.
[63] Rabinbach, *The Human Motor*, 276.
[64] See for example: Linda Simpson, 'Imperialism, National Efficiency and Education, 1900-1915', *Journal of Educational Administration and History*, 16:1 (1984) 28-36; David Noble, *America By Design: Science, Technology, and the Rise of Corporate Capitalism*, (New York, 1977); David Edgerton, *Science, technology and the British industrial 'decline', 1870-1970*, (Cambridge, 1996).
[65] Geoffrey R. Searle, *The Quest for National Efficiency: A Study in British Politics and Political Thought, 1899-1914*, (Oxford, 1971) 2.
[66] Mitchell G. Ash, 'Psychology', in Theodore M. Porter and Dorothy Ross (eds), *Cambridge History of Science*, (Cambridge, 2003) 251-274, 265.

British Psychological Society. The latter self-enabled a growth in membership from around 100 members to over 600 between 1918 and 1920, a result of a relaxation of the restrictions on membership for non-professionals.[67] This reflected 'high' psychology: a psychology only present in academic and professional spaces and practices.[68]

It was not only the 'high' discussion of the mind or in the exclusive corridors of the British Psychological Society that psychology appeared in the early twentieth century. Away from the institutional setting, psychology also came to have a significant popular appeal in early twentieth century, particularly in the form of self-help literature or personal psychology. Thomson emphasises that there was a 'low culture of popular psychology' in Britain evident between the wars, typified by Pelmanism.[69] Pelmanism was, in effect, a kind of brain training created by William James Ennever in 1899, which was practised through correspondence with the Pelman Institute in London. While it was mostly a middle-class exploit, which 'combined common sense with a little basic psychological theory, and hard work through practice with a missionary zeal and at times a millennial ambition', it underlines that there was a popular audience ripe for an accessible means of psychology.[70] That there was a popular audience for psychology is also emphasised by the widespread emergence of local and regional psychological clubs and small publications in the immediate years after the First World War.[71] Psychology, then, was not limited to its industrial variant, nor was it simply an academic or intellectual practice. Instead, it had a broad appeal to people in Britain in the twentieth century as a pathway to self-improvement.

Rowntree

Presently, mention of the uniqueness of Rowntree as a company has come through reference to Seebohm Rowntree. Especially in terms of welfare initiatives for workers, from the final decades of the nineteenth century into the twentieth century, the company began to take an active role in the lives of its employees. In the 1890s, Rowntree had first employed a 'social helper', who was tasked to oversee and to supervise the lives of the younger women employed in the factory.[72] The broad remit of the social helpers encompassed the inspection of the health and behaviour of the women both at work and at home.[73] Indeed, welfare work at Rowntree was oriented primarily towards women, which reflected both assumptions about the vulnerability of women workers to the

[67] Bunn, 'Introduction', 3.
[68] Thomson, *Psychology Subjects*, 1.
[69] *ibid*, 17.
[70] *ibid*, 24.
[71] *Ibid*, 33-34.
[72] Briggs, *Social Thought and Social Action*, 103-104.
[73] *ibid*, 103.

demands of industrial work and the fact that the majority of the workers in the factory were women. A sketch of the employee population confirms the latter point. In 1913, for example, the break-down of the employee population was 3,077 women and 1,999 men.[74] Toward the end of the 1920s, these numbers had evened out. In 1926, there were 3,491 women and 3,005 men recorded in employment, however, by 1931, there were only 2,347 women and 2,152 men employed in the factor - the large reductions were largely in 'factory operatives', the lowest skilled workers at the firm.[75]

A welfare initiative directly oriented toward women workers was the introduction of music at the Cocoa Works. That it was solely focused on women workers reflected 'assumptions about the psychology of women', which 'positioned them as "sensitive" workers, susceptible to the harsh industrial environment' and, as such, 'women were implicitly identified by the proponents of industrial welfare as most likely to benefit from measures to combat monotony in the workplace'.[76] Music was understood to have 'benefits [...] for the spiritual and moral well-being of their workforce', however, it also had a disciplinary underside as a means of preventing excessive conversation between work.[77] The reference to a psychological effect of music reiterates the comment that, like in the idealisation of the factory environment in *The Human Factor*, a language of psychology oozed into diverse aspects of labour management. Indeed, Myers himself worked to foment a connection between psychology and music.[78]

The welfare initiative at Rowntree did not start with Seebohm Rowntree, but took a clear shape from the work of his father, Joseph Rowntree. Similarly to the interest that Seebohm would later show in the factory environment, Joseph's marquee welfare initiative took the form of what would be the model village of New Earswick - a marker of industrial betterment. Located on the outskirts of York, a short distance from the Cocoa Works factory, New Earswick 'comprised 150 acres of flat and scenically uninteresting land separated from York by a "green belt" and was a thoughtfully planned space characterised by a grouped rather than terraced houses and public facilities like churches and a swimming pool.[79] Both Joseph and Seebohm had a particular concern for housing and poverty, and Seebohm accumulated relative fame from his investigations into poverty in York. While the concept of a model village was not new at the time, Rowntree was one of the few firms in Britain who ever constructed one. A notable parallel being Bournville, the creation of another Quaker-led confectionery company, Cadbury.

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[74] Fitzgerald, *Rowntree and the Marketing Revolution*, 248.
[75] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[76] Emma Robertson, Marek Korczynski and Michael Pickering, 'Harmonious relations? Music at work in the Rowntree and Cadbury factories', *Business History*, 49:2 (2007) 211-234, 213.
[77] *ibid*, 215.
[78] Thomson, *Psychological Subjects*, 68.
[79] Briggs, *Social Thought and Social Action*, 96-97.

In developing New Earswick, Briggs asserts that Joseph 'did not seek to play the part of an enlightened philanthropist', but instead 'wanted people to stand on their feet'.[80] Indeed, there are echoes of this sentiment in Briggs characterisation of Seebohm: 'Just as the impact of his investigation of poverty was all greater for its absence of sentimentality, so his approach to industrial relations was all the more effective for its lack of philanthropic paternalism [...] he began with facts not with theories'.[81] Fitzgerald concurs, fundamentally, with Briggs' assessment, acknowledging that 'Rowntree practised an employee-centred, non-authoritarian style of labour management', which 'fitted easily into the Quaker ideal'.[82] To characterise the approach to business taken by Rowntrees' as 'philanthropic', 'paternalist' - or even 'philanthropic paternalism' - , or simply product of Quakerism understates the myriad interests and concerns which were enveloped in everyday practice at the firm. Especially with regard to Seebohm's interest in scientific management, Rowntree as a company operated with a more complex attitude to the worker.[83] To make such a distinction, then, adds little to the analysis.

Industrial betterment, with its emphasis on welfare, continued to be traceable in Myers' vision for industrial psychology. Welfare work in practice appeared to operate in a similar space to that of industrial psychology. As such, it was acknowledged that there was a certain amount of crossover between the two and, in Myers' *Industrial Psychology*, there is a chapter dedicated to the possibility of crossover between welfare work and industrial psychology. The author, Sheila Bevington, questions: 'Industrial psychology and welfare work: Does overlapping occur?'.[84] Bevington's conclusion seems to present an uneasy situation for industrial psychology, insofar as it did not seem to provide a clear advancement to welfare work. She writes that 'the cause of worker' (and so of employers') welfare is better served by the simultaneous, co-operative work of the welfare supervisor and the industrial psychologist than by either of these individuals functioning solely and separately as independent units'.[85] In the shape of New Earswick and the various welfare initiatives, industrial betterment and welfare work, then, were already established at Rowntree by the interwar years. Both were key to the company's reputation before the war and, in the work of the Psychological Department, they were partly repackaged with a new air of science and psychology.

Industrial politics

[80] *ibid*, 95-96.
[81] *ibid*, 86.
[82] Fitzgerald, *The Marketing Revolution at Rowntree*, 275.
[83] Michael Rownlinson, 'The Early Application of Scientific Management at Cadbury', *Business History*, 30:4 (1988) 377-395. Rownlinson makes a similar point about Cadbury.
[84] Sheila Bevington, 'Industrial Psychology and Welfare Work', in Myers (ed), *Industrial Psychology*, 205-218, 205.
[85] Bevington, 'Industrial Psychology and Welfare Work', 218.

Another pillar of Rowntrees' reputation was the infrastructure of industrial democracy at the works. This infrastructure consisted of work councils and committees dedicated to particular aspects of work, which reported to provide the workers with a voice in decisions made by management. One example of industrial democracy in practice was the reconfiguration of the working week, which, in 1919, had been reduced to forty-four hours per week. Briggs notes that 'it was left to a ballot vote of the employees to decide whether the forty-four hours should be worked in five days or five and a half days', despite management expressing a preference otherwise.[86] This example demonstrates that such an infrastructure afforded the workers - whether they took it or not - the opportunity to negotiate the process of management. Whereas Rose groups such 'schemes of industrial democracy' as a part of development of a 'network of relations between worker, the employer and the state', which sought 'to mitigate the antagonistic possibilities in the employment relation', the reality of these 'schemes', and industrial democracy more generally, meant that they could not be used for such totalising ends.[87] Indeed, Rose highlights the example of Whitleyism - the practice of forming joint councils comprising workers and management - which did not come to great success.[88] The practice of industrial democracy was something which clearly mattered at Rowntree and Seebohm championed his own good relations with the trade unions.

The trade unions were a powerful force in the industrial politics throughout the interwar period. Their power had been accumulated over the course of the nineteenth century and, at the turn of the twentieth century, they were a 'force in society despite fluctuating numbers'.[89] The influence of the trade union movement in British industry between the wars also had implications for industrial psychology. The male-dominated trade union movement continued to express opposition to particular management initiatives, thus channeling them toward more vulnerable groups of workers, like women in the emergent assembly-line industries, and reinforcing the attitude that these women were the appropriate subjects of such initiatives. At Rowntree, as Fitzgerald notes, it was the strength of the unions which meant that 'scientific management' was initially confined to 'an experiment in a single department'.[90] For women, there was a considerable lack of unionisation for women workers across industry. In the half-century before the First World War, trade unionisation for women had been notoriously weak and, even with the increased number of women in work stimulated by the war, it remained so throughout the interwar years. The first tentative steps towards a comprehensive protective infrastructure for women workers had been initiated in 1874, with the formation of the Women's Protective and Provident League (WPPL). The

[86] Briggs, *Social Thought and Social Action*, 234.
[87] *ibid*, 62.
[88] *ibid*, 73-74.
[89] Asa Briggs, *A Social History of England*, (London, 1983) 199.
[90] Fitzgerald, *Rowntree and the Marketing Revolution*, 264.

WPPL became 'a mixture of a friendly society and trade union' with 'the aim [...] to educate working women in the benefits of union solidarity'.[91] However, it was unsuccessful in forming or shaping a practical, working women's union. Despite this, it signalled that there was a nascent interest in the idea of greater women's representation in the workplace.

The case of the WPPL illuminates that there had been for many decades an interest and, perhaps, a demand for a union infrastructure for women workers. Why this did not develop into something more substantial by the interwar period points to a closer emphasis on how gender structured industrial relations in the factory, but also industrial politics more broadly. Cynthia Cockburn has remarked that 'the struggle over skill, technology and trade unionism is part of the process in which men and women can be seen as defining each other as genders'.[92] To this end, Miriam Glucksmann has noted that, in the assembly line sector, 'most unions ignored women or only took a token interest in them'.[93] Whether the attitude of most unions to women workers could be best characterised as indifferent or obstructionist is difficult to deduce. However, taken together, Cockburn and Glucksmann indicate that there was something to gain for men by suppressing - actively or passively - the growth of a women's union. Indeed, it was down to the lack of unionisation that the ground was cleared for the industrial psychologists to interject in aspects of factory work typically staffed by women. Thomson contends that 'if they [industrial psychologists] really were welcomed, this may have been because the workers at these sites had little choice or were so insecure that their conditions could only have improved'.[94] As such, industrial psychology was subject to negotiation within the existing framework of industrial democracy. This is important because it meant that the subjects of intervention in industry were, by and large, women workers.

Summary

From the final decade of the nineteenth century to the end of the First World War, then, the shape of labour management had already undergone significant transformation. This was a transformation in the way in which management was framed, influenced by both past models of industrial betterment and by the scientific management which had arrived in Britain from America. Especially in terms of industrial betterment and a concern for worker welfare, Rowntree was already a unique place of work by the outbreak of war. Seebohm Rowntree's seeming omnipresence when it came to questions of welfare and management, illustrated by his work in the HMWC, set the tone for his chairmanship of the company between the wars. In the work of the HMWC, these ideas were fused

[91] Holloway, *Women and Work*, 59.
[92] Cynthia Cockburn, *Brothers: Male Dominance and Technological Change*, (London, 1983), 7.
[93] Miriam Glucksmann, *Women Assemble: Women Workers and the New Industries in Inter-war Britain* (London, 1990) 224; in Holloway, *Women in Work*, 160.
[94] Thomson, *Psychological Subjects*, 147.

together into a form that would persist throughout the interwar period. The space in which this form of management would intervene in the ensuing years was produced by the pre-existing attitudes about women in industry and in work more generally. Such was the relative weakness of protective infrastructure for women workers, the nascent field of industrial psychology found its ideal subjects. Psychology, too, began to make its presence felt in the aftermath of the war in its industrial, 'popular', and 'practical' variants. It is the industrial variant, however, that is at the heart of the following chapters.

Chapter two

At the Cocoa Works, the formal appointment of a psychologist in 1922, and the subsequent establishment of the Psychological Department later that year, secured industrial psychology within the framework of the Labour Department. The Labour Department was broken down into seven functions: employment, selection and training, employee services, wages, industrial relations, health and safety, time-keeping and education.[95] By 1930, the Psychological Department was staffed by 7 personnel, led by Dr. Victor Moorrees who was assisted by Miss Stevenson, Miss Patricia Hall, three technicians and a clerk. Here, the roles which the Psychological Department came to adopt in labour management during this period are explored. In particular, in the process of selection, training and transfer, industrial psychology found its surest footing as a part of labour management. Thus, these areas came to represent the 'psychological' terrain at the Cocoa Works, a notion comparable to how psychology 'mapped and remapped a psychological body'.[96] A detailed outline of what each of these areas of work entailed follows, before it turns to a question of how the work of the Psychological Department was received generally in the factory. The application of 'psychological' tests certainly aroused suspicion among workers and trade unions, and it faced opposition from those, such as older workers, whose work it called into question.

Before it became an established department at Rowntree, the appointment of a psychologist had been subject to the agreement of the Central Works Council, which constituted the centrepiece of industrial democracy at the factory. This did not pass without creating concern amongst the workers representatives.[97] Yet, before the end of 1922, there were instances of 'psychological' intervention in the factory by an outside team of investigators. This work was coordinated by the NIIP and led by Bernard Muscio, who was a notable figure in the nascent field of industrial psychology.[98] The work concluded that "under the new method here described, output increased by over 35% and the workers were unanimous in their appreciation of a considerable saving of fatigue

[95] Fitzgerald, *Rowntree and the Marketing Revolution*, 271.
[96] Thomson, 'The Psychological Body', 291.
[97] Hollway, 'Efficiency and Welfare', 313.
[98] *ibid*, 312.

at the end of the day, spontaneously expressing to the investigators their gratitude".[99] The note that the 'psychological' intervention in a particular work process was well received by the workforce was repeated in later examples. Furthermore, Hollway does not outline the detail of the work, but it appears to have taken the form of training, one area in which the Psychological Department sought to establish its presence.

Training

The Psychological Department continued to argue for a greater involvement in the training of workers. As Myers' overview of the scope of industrial psychology declared, it had a direct concern for how to produce 'the best methods of work and training'. An information file for trainees at the Cocoa Works reiterates Myers' point, adding that the value of 'psychological' intervention in training - 'the modern point of approach' - 'takes account of the best way of putting a job over', which required 'a knowledge of psychology and the ability to teach'.[100] A 'modern point of approach' implies a distinction between training in psychological terms and what came before. Whether this is simply a rhetorical distinction or one which pointed to a past method of training is unclear. Certainly, a part of industrial psychology's repertoire of expression was to make bold claims about its methodology, even despite utilisation of older techniques in practice. For example, Taylorist methods such as time study had only been rolled out across the factory in 1923 and, despite animosity to both Taylorism and its connected schemes, - particularly the Bedaux system - time study and, latterly, motion study were both deeply entwined with the work of the Department in training.

The argument for the efficacy of 'psychological' intervention in training is developed by the labour manager: firstly, 'it takes ordinary work room methods and, after analysis, presents them in the simplest graded form and then standardises them'.[101] As such, 'it breaks them down into the form most easily learned and then ensures that all beginners are taught in that way'.[102] Secondly, 'arrangements have in most sections been made for a specially selected person to the "trainer"'.[103] How such considerations may be factored into training is highlighted by an example in the labour manager's report of 1930-1931. In this case, Miss Stevenson, who was the assistant psychologist to Moorrees, intervened in a particular work process in the Gum Department:

[99] *ibid,* 312. Notes a report by Farmer and Eyre (1922) in which these results were outlined.
[100] BI, JRF/RCO/6/2/1, 'Information File for Trainees', c.1930.
[101] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[102] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[103] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.

> Junior girls working on raisin picking in the Gum Department were not progressing satisfactorily. They were picking raisins into huge drums containing about 100 lbs. These enormous receptacles took what seemed an unconsciously long time to fill. The youngsters had, therefore, no small measure standard that would indicate their progress and thus induce them to compete with their own hourly achievement. Further, if there was any complaint about a stalk or a seed found in a drum, the whole drum had to be picked over again. Miss Stevenson suggested an experiment be made in picking into small sieves of six lbs. each, so that each girl could get a "bogey" on her output sheet. One half day sufficed to get such a "bogey". Since this output was low, it was suggested that the girl might increase it by half a sieve or one sieve an hour, a suggestion to which the girls responded. The experiment was run for a little under two weeks, and showed the distinct advantage of measuring into small receptacles and giving standards of achievement that were small enough to be comprehensible. Further consideration led to a more radical alteration in the method of picking, with an increase in output of more than 33%.[104]

At face value, this example might appear to demonstrate little more than common sense on the part of the psychologist. The replacement of 'huge drums' for 'small sieves', however, readjusted the nature of the work process and facilitated a sense that the workers should compete, not only with themselves, but with the other workers in the room. Increased output, then, remained the core function of the 'psychological' intervention.

While this example illustrates how industrial psychology envisioned its role in training, the majority of the work done with respect to training was by the trainers and the overlookers in the factory. As such, in practice, the work of the Psychological Department in training was largely aimed toward *training the trainers*. These personnel were the ones who would typically oversee the everyday work processes in the factory. The Psychological Department would keep tabs on how each of these personnel progressed and would record how quickly the workers adapted to the new processes. Furthermore, their training was supplemented by the provision of education classes in psychology - as well as in other variants of scientific management - in the works school.[105] On the factory floor, time study, and later, motion study, were both employed to assist in the work of the trainers.

Vocational selection

[104] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 September 30, 1931.
[105] Rowntree, *The Human Factor*, 104-105.

A key component of the Psychological Department's work was in vocational selection. Vocational selection, alongside the training of workers, proved to be the aspects of management ripe for the intervention of the psychologist. As such, Fitzgerald remarks that 'much faith was placed in the work of the Psychological Department for selecting and training labour once it began operations in 1922'.[106] The mode of intervention was the selection test. In a more general sense, the aim of the selection test, whether an interview or a 'mental test', was to find 'the most suitable workers' for a particular job.[107] In this process, the Psychological Department claimed that the deployment of selection tests had proved to be successful in reducing 'waste'. By this it meant that it reduced the number of workers who were dismissed for inefficient work. Northcott outlines the success of vocational selection at the Cocoa Works, remarking that between 1923 and 1931, of the '1,287 girls of junior ages (14-16 years) were engaged after psychological selection tests' only '122 or 9.5 per cent have been the subjects of complaint on the ground of inefficiency and have been dismissed' before narrowing down the figure further to a mere '3.3 per cent' as being dismissed for inefficient work.[108]

The logic of the test underpinned the aim of 'psychological' intervention to determine a calculable standard for a particular task or job. In the process of selection, the test could take the form of either a written test or an interview with an employment manager. A 'mental test' was frequently used to test candidates for clerical or office work. In correspondence with R. B. Wolf, an American businessman, the psychological department outline a variety of tests that were in use at the Cocoa Works. For clerical and office work at the Cocoa Works there was a collection of seven tests: a 'Cancellation Test', 'Memory Test', 'Common Sense Reasoning Test', 'Instructions Test', 'Proverbs Test', 'Analogies Test' and a 'Number Series Test'.[109] These tests derived from tests used by the American Army and from a collection of manuals written by an American psychologist, Guy Montrose Whipple. Whipple's manual, *Simpler Processes*, explains the 'Cancellation Test' as 'in this test people are asked to cross out one letter wherever it occurs in a page of unfamiliar script, e.g. a jumble of French words'.[110] The aim of the test could vary, according to Whipple. He notes that it had been used as a test to measure "discrimination", as a 'test of attention', as a test for "rate of perception", "correction of proof", 'to measure fatigue', for "efficiency of perception".[111] Certainly,

[106] Fitzgerald, *Rowntree and the Marketing Revolution*, 267.
[107] Myers, 'Introduction', 9.
[108] BI, RL/DL/LS/2, 'II. Statistical Note upon the Results of Vocational Selection, 1923-1931: By C. H. Northcott', Publications, 1933.
[109] BI, JRF/RCO/6/2/5, 'Correspondence with R. B. Wolf concerning psychological and educational testing', 27 August 1927 - 22 July 1941.
[110] BI, JRF/RCO/6/2/5, 'Correspondence with R. B. Wolf concerning psychological and educational testing', 27 August 1927 - 22 July 1941.
[111] Whipple, *Manual of mental and physical tests*: *Part 1, Simpler Processes*, 305.

in this example, Thomson's argument that the 'the expertise of the psychologist lay in an ability to modify and interpret the results according to a shifting environment' rings true.[112]

Another test utilised in selection at the Cocoa Works was the 'formboard selection test', which 'required candidates to fit 40 coloured wooden shapes into a board in the correct sequence, working against the clock'.[113] This test was devised by Moorrees himself and was used to test candidates for roles associated with the packing of chocolates.[114] That this test was completed 'working against the clock', re-emphasises the way in which 'psychological' methods sought to introduce an element of competition into the work process - like in the example of the intervention in the training of workers. While the 'speeding-up' of work processes was a sustained concern of the workers at the factory, the inducement to compete marked a softer demand for an increase in the rate of production. Furthermore, by testing prospective workers on how fast they could complete a particular work process, the Psychological Department could already secure 'speeding-up' without having to force through a retrospective initiative.

Aside from mental and practical tests, the process of selection also entailed the use of interviews. As Winifred Spielman, in a chapter of Myers' *Industrial Psychology*, underlines that 'the term "personal interview" may cover anything from a curt "Name? Previous experience?" of a busy foreman, to the long and carefully thought-out conversation of a skilled employment officer'.[115] However, in order for an interview to be used most effectively, 'it must be systematized both as regards the methods by which it is conducted and the means used for recording the impressions'.[116] The standardisation of the interview was a consequence of the intervention of the psychologist. A standard scale of measure, in which the interviewer weighted a particular quality or characteristic, such as 'co-operativeness', would be the measure against which the candidate would be assessed.[117] Crucial to the functioning of this system, Spielman adds, was the ability of the interviewer 'to put the applicant at ease' and 'special care should be paid to the interviewer's manner of speaking, his introductory remarks, and the arrangement of the room in which the interview takes place'.[118]

Selection tests for new entrants into the factory were accompanied by a medical inspection. This was the case for all workers who underwent selection tests and it underlined the entanglement in the ideas about health and psychology in the early twentieth century. A doctor had been appointed to the Cocoa Works in the summer of 1904 and was made available for 'free consultation by any employee each morning except Saturday'.[119] Building upon this medical infrastructure, the

[112] Thomson, 'The Psychological Body', 298.
[113] Geoffrey Bunn, 'That old Black Magic', *New Scientist*, 174:2345 (June 2002) 50-51.
[114] *ibid*, 50-51.
[115] Winifred Spielman, 'Square pegs, square holes', in Myers (ed.), *Industrial Psychology*, 185-204, 190-191.
[116] *ibid*, 190-191.
[117] *ibid,* 202.
[118] *ibid*, 201.
[119] Briggs, *Social Thought and Social Action*, 100.

establishment of a full-time dental department followed later in the year.[120] As such, at the point of employment, the prospective employee also had to prove that they met the bodily minimum for work. The bodily minimum, it would seem, extended little further than the absence of infectious skin conditions, which were an issue in a factory which handled food products.[121] Again, the use of medical tests in conjunction with 'psychological' tests for prospective employees reflected the notion that health was defined by the ability to work or, as Blayney puts it, that the worker met 'the minimum bodily requirements to maintain productive efficiency'.[122] In the Labour Research Enquiry, too, the investigator refers to a 'medical report' prepared by Dr Hossell and notes its similarity to the into the 'psychological make-up' of the workers.[123] In doing so, it hints at the prospect of an integrated system of health and psychological assessments at the Cocoa Works. However, principally, selection emphasised the psychological calculation of worker efficiency over, what was in effect, a token interest in the health of the worker.

Transfers

By 1931, Northcott writes, 'the Department has now succeeded in constructing a fairly satisfactory group of tests for the selection of new workers and the transfer of older workers'.[124] Transfers were a major element of the Department's work in labour management. Fundamentally, transfers aimed to reconfigure the efficiency of the workplace by moving inefficient workers from one room or one job to another. Perhaps more pertinently, however, they also offered management an opportunity to re-test workers and to keep a closer statistical profile on each worker. For example, in the process of a transfer between departments, the psychologist 'has to collect the cards of all individuals proposed for transfer, study them to see what points of psychological interest become apparent concerning the individuals, and then report in conference and discussion to the Women's Employment Manager and to the Personnel Assistants of the two departments concerned'.[125] To this end, a suggestion was made that 'to deal with the problem of transfers' the Psychological Department could assist in the grading of all jobs according to '(i) the period of training necessary; (ii) The skill required; (iii) The physiological qualities of those workers already on the job and proved efficient'.[126] There was already a gradation of jobs within the factory; 'Employees, therefore, were divided into A to D operatives, A to C grade overlookers, clerks, clerical supervisors, management

[120] *ibid*, 100.
[121] BI, RL/DL/LH/1, 'Letters from a nurse concerning her time in the Medical Department', c.1919-1929.
[122] Blayney, 'Industrial Fatigue and the Productive Body', 17.
[123] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 5', Enrober Room Reports, 1930.
[124] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1929 to September 30, 1930.
[125] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[126] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.

and technicians'.[127] However, it is unclear from the evidence whether such a comprehensive system was ever implemented according to the criteria outlined.

A closer examination of the period between 1 October 1931 and 31 September 1932 shows the importance of work in overseeing transfers for the Psychological Department. During this period there were 727 tests made: 410 were 'tests at application for employment', 107 of which were given to girls, 228 to boys, 36 to apprentices, and 39 to 'Offices & Depots'; 131 're-tests of transferees within factory' were given; 141 'tests on application for promotion'; 15 'Salesmen's tests'; and 30 'Tests of junior Executives and applicant Trainees'.[128] Internal tests make up a significant proportion of the tests made during this working year. Indeed, the prominence of scenarios which demanded re-testing evokes the sense that the factory was covered in a psychological hue, which commanded the movement and employment of people across the factory. In reality, such a totalising picture overplays both the impact of psychology on the everyday aspects of work and the effectiveness of the tests it deployed.

Consumer research

A final aspect in which the Psychological Department established a foothold in the factory was in the practice of consumer research. Consumer research became increasingly important in the interwar years, as patterns of consumption in Britain changed. Consumption reflected the idea that, as described by Matthew Hilton, 'in the early twentieth century, the abstract monetary contents of the pay packet were only made real when they had been transferred to the purse' and, as such, 'wages were thought of in terms of the commodities that they could be used to purchase'.[129] For groups such as working young women, this new era of consumption had a transformative effect. New openings of employment both gave them unprecedented access to leisure and to consumer goods, clothes, cosmetics, and magazines, and 'structured young women's access to leisure'.[130] For an industry based on chocolate and confectionery goods, this era held rich potential. Indeed, the possibility for products and marketing which played to and manipulated the 'psychological and social desires' of the consumer began to be realised.[131] Such was the importance of consumer research to a company like Rowntree, Fitzgerald has compellingly argued that the history of the company should be one of a 'history of brands' and how it came to be an 'innovator in market research, product

[127] Fitzgerald, *Rowntree and the Marketing Revolution*, 271.
[128] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1931 to September 30, 1932.
[129] Matthew Hilton, *Consumerism in Twentieth-Century Britain: The Search for a Historical Movement*, (Cambridge, 2003) 3.
[130] Selina Todd, 'Young Women, Work, and Leisure in Interwar England', *Historical Journal*, 48:3 (2005) 789-809, 802-808.
[131] Fitzgerald, *Rowntree and the Marketing Revolution*, 12.

development and branding' in the 1930s.[132] However, underneath the consumer research which reshaped Rowntrees' future, the Psychological Department played a supporting role.

Psychology and consumer research had a flirtatious relationship in the interwar years, never quite becoming a formal item. This was despite the interest that Seebohm Rowntree himself had shown in the application of psychology to consumer research.[133] The labour manager had asserted that, when the Psychological Department was asked 'to do a certain amount of consumer research' between 1930 and 1931, 'this is no innovation, since investigations of this kind were made as early as 1923, and request to establish or criticise preferences have from time to time been received from the Novelty Section of the Cream Manufacturing and other Departments'.[134] Northcott continued 'this work is quite definitely of a psychological nature and whether carried out directly by the Marketing Department or by the Psychological Department, can only be successful if the procedures employed are psychologically sound'.[135] Consumer research was conducted chiefly by interviews and questionnaires distributed internally. As illuminated in the selection tests, interviews and structured questioning were clearly viewed as 'psychological' terrain. The Psychological Department argued that 'any questionnaires used must be free from ambiguity and especially from suggestion', 'interviewing must be conducted so as to ensure a true and unhampered expression of opinion' and that 'the interviewer must be an individual of the right temperament, manners and mode of approach'.[136] As such, consumer research, it appeared, was unambiguously 'psychological' and therefore an area of work suited to the Psychological Department.

Despite the repeated attempts by Northcott and Moorrees to pull market research closer to the Psychological Department, consumer research in the 1930s was carried out on the behalf of Rowntree by both the NIIP, as indicated above, and the J. Walter Thompson Company. The latter published reports in both 1932 and 1933 on the marketing of Rowntree's products, and made recommendations on the shape, colour, flavour, consistency, appearance, pastille crystallisation, and the packaging of the products.[137] More significant was the work carried out by the NIIP in this decade. Rowntree commissioned the industrial psychologist Nigel Balchin to spearhead the development of a new product for the company.[138] The NIIP was paid £3000 to carry out the necessary consumer research for the new product, interviewing 7000 consumers.[139] The final result was 'Black Magic', an assortment box of dark chocolates, which, Bunn asserts, 'was arguably one of

[132] *ibid*, 5-6.
[133] *ibid*, 176.
[134] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[135] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[136] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1931 to September 30, 1932.
[137] BI, R/DD/MP/2, 'Reports and Advertising History of Gum and Pastilles, 1925-1961', Rowntree & Co. Ltd. Gums and Pastilles Intermediate Report, February 1933.
[138] Bunn, 'That old Black Magic', 50-51.
[139] *ibid*, 50-51.

industrial psychology's greatest triumphs', even though it was uneasily received at the NIIP, where the commercial application of industrial psychology was suppressed by Myers himself.[140] Despite the consumer research carried out internally, the outsourcing of significant portions of work to the NIIP and the J. Walter Thompson Company denied the Psychological Department a clear grasp on consumer research.

Responses to the work of Psychological Department

The Psychological Department at the Cocoa Works thus operated in three principal roles: in training, in the selection of workers, and in training. It also engaged in some internal consumer research. Time study and motion study were also utilised by the Psychological Department in each of these roles. The response to the work of the Psychological Department was one of general suspicion by both workers and trade unions alike. Records of vocal discontent with particular methods are sparse in the annual reports of the labour manager, but there are some discernible patterns. It is not, then, a case of wholesale resistance, but rather subtler responses to the imposition of tests, in particular, on older workers. For the most part, the term 'worker resistance' is inadequate to capture how workers responded to the implementation of schemes of scientific management in Britain. Indeed, as Kevin Whitson concludes, the key question remained not one of 'worker resistance', but, rather, one of whether 'resistance did more than "interfere" with capitalist goals' when it came to scientific management.[141]

Unsurprisingly, the use of time study in conjunction with the work of the Psychological Department proved to be a key point of concern for the workers. In talks at Cloughton, formed to ease the tension between the workers and the management felt in 1924, it was recorded that 'much consideration was given to the Time Study and Psychological functions'.[142] This followed the report made by the employment manager that time study 'has contributed much towards the unrest in the factory'.[143] One of the chief issues with time study was its perceived role in the 'speeding-up' of work processes. As such, the Department sought to manage the connection between time study and 'psychological' work. Hollway argues this case, noting that Moorrees does not mention the contribution of time and motion study to the practice of industrial psychology in the factory in his article 'Industrial Psychology at Rowntree's Cocoa Works'. By doing so, Moorrees could construct a line between 'psychological' work and its more controversial accompaniment, in order that the former could continue to 'represent the activities as being in the interests of workers' welfare'.[144]

[140] *ibid,* 50-51.
[141] Whitson, 'Worker resistance and Taylorism in Britain', 7.
[142] BI, R/DL/L/2, 'Labour Manager's Report', 1924.
[143] BI, R/DL/L/2, 'Labour Manager's Report', 1924.
[144] Hollway, 'Efficiency and Welfare', 315.

Industrial psychology, then, shaped its role in accordance with the terrain of the management in the works.

The attitude of the trade unions to industrial psychology at the Cocoa Works displayed a lack of awareness about both the function and the concreteness of industrial psychology as a part of management. In negotiation with the National Union of Clerks in 1925, it is reported that 'several frank discussions concerning the nature and purpose of output measurement and of psychological work were followed by attempts that would not hinder efficiency'. The union representative, Mr. Elvin, 'suggested that our proposals were neither necessary nor advisable', relating to the use of such methods in the factory. In response

> The Labour Manager insisted, however, that they were the matters under negotiation. He pointed out that job analysis and the application of Psychology to industrial activity were a definite part of the firm's organisation and policy. Moreover, they had been in operation for over two years in terms of an agreement which, by reason of a stipulation in connection with the institution of clerical shop stewards, must be accepted as the basis of negotiation.[145]

While it would be a mistake to read too much into this account, it is possible to suggest that there was a lack of awareness about what industrial psychology was and also how it intervened in management in the factory, evidenced by the remark that it 'had been in operation for over two years' prior to the National Union voicing an opinion on its suitability. Hollway's argument that the 'the British tradition [of industrial psychology] was fashioned by the strength of the trade unions and by the industrial welfare tradition which were particular to Britain', is significant in a broader context.[146] However, at a more minute level, the process of negotiation between the unions and industrial psychology was messier and operated with a degree of ambiguity as to what the exact practices of the latter were.

In a similar manner, the labour manager revealed that the psychological committee, which was formed to oversee the work of the Psychological Department from the perspective of the workers, had 'practically ceased to function' by the end of 1924.[147] This was 'partly because so very few people know what its duties are, and partly because the majority of its work has been undertaken by the shop stewards'.[148] Again, while this is not a concrete case, it does imply that the workers were not necessarily aware of the intricacies of what the function of the Psychological Department entailed. Moreover, it demonstrates that, despite a comprehensive infrastructure of

[145] BI, R/DL/L/2, 'Labour Manager's Report', 1925.
[146] Hollway, 'Efficiency and Welfare', 308.
[147] BI, R/DL/L/2, 'Labour Manager's Report', 1924.
[148] BI, R/DL/L/2, 'Labour Manager's Report', 1924.

industrial democracy, the effectiveness depended on negotiation and a shared understanding of the function of management. In relation to industrial psychology, this was not always the case.

Women workers and industrial psychology

More generally, the effect of unionisation - or the lack of, in this case - was to push industrial psychology toward a particular subject, one which was presumed to be docile and thus pliable to the methods that industrial psychology utilised.[149] Female workers were disproportionately exposed to 'psychological' intervention in the work processes that they occupied. While this was the case, the 'low prestige' of industrial psychology as a scientific discipline eased the engagement of women as investigators.[150] To some extent, this also followed the idea that welfare work was a woman's domain, further entangling psychological and welfare activities.

As has been shown, in the reports of cases of 'psychological' intervention, the final remark often alluded to the gratitude of the workers toward the psychologist. Especially in respect to training, it was remarked in the earliest report of psychology at the Cocoa Works that "the workers were unanimous in their appreciation of a considerable saving of fatigue at the end of the day, spontaneously expressing to the investigators their gratitude". On this point, Thomson contends that 'If they [industrial psychologists] really were welcomed, this may have been because the workers at these sites had little choice or were so insecure that their conditions could only have improved'.[151] This may have been the case for the general work in selection, training and transfer. However, as the next chapter aims to show, there was a belief that 'psychological' intervention could quell discontent too. Thus, it was not only shaped by the prospect of discontent in the shape of union pressure, but it actively oriented itself toward cases of internal discontent. This was the case in the elaboration of the Labour Research Enquiry.

Transfers were a major point of contention too. Indeed, as early as 1924, the labour manager reflected that 'complaint was made concerning the extension of selection and training tests to older girls' and that 'there is the feeling that the Firm has broken faith with the workers by imposing psychological tests on long service workers'.[152] This was, Northcott writes that 'the older girls objected to being tested, such testing, they held, being contrary to the agreement made by the Labour Director before the introduction of a psychologist'.[153] It was not long, it seemed, before a requirement to be tested came to be seen as an indication of an impending transfer. By 1931, the Psychological Department was considering the need to account for older workers in the process of

[149] Thomson, *Psychological Subjects*, 147.
[150] *ibid*, 147.
[151] *ibid*, 147.
[152] BI, R/DL/L/2, 'Labour Manager's Report', 1924.
[153] BI, R/DL/L/2, 'Labour Manager's Report', 1924.

selection and transfer. Moorrees describes the problem as 'the obsolescence of older workers'.[154] He follows:

> There are, for instance, to take an extreme case, numbers of ageing workers who have done some simple operation or a few simple operations for very many years and have consequently reached a high standard of efficiency. Their test performances, however, are such that the Psychological Department would not recommend them for transfer, whereas it would recommend workers whose tests were of a high level but whose efficiencies are probably lower than those referred to above, simply because they are younger and have not had the same length of time on the job that the older workers have had.[155]

This problem characterises the intersection between 'psychological' testing and efficiency in the factory. On the one hand, experience in a particular repetitive job could foster especially efficient work. However, this did not necessarily portend a high 'psychological' score. Indeed, it illustrates that industrial psychology, in practice, had to take account of how it met with age, synonymous with adaptability in this example, in the process of transfer. It appears, too, that the older workers themselves were aware of their own inability to adapt to new work. A short memorandum, entitled 'Enquiry into Fear as an Incentive', conducted by Miss Hall underscores this point. Her observations were that 'a few of the older ones who had always been considered good workers in their own departments were afraid of inefficiency in a new department, with a resulting loss of self-respect', relating that they had expressed "we're too old to learn new things".[156]

Summary

The intervention of the Psychological Department in training, selection, and transfer, through the use of testing and measurement defined the everyday employment of industrial psychology in the factory. Indeed, in this, the Psychological Department operated in a similar manner to 'cosmetic surgery', which aimed to 'tidy up the body's proper meaning by scouring away all of its unmanageable and stubborn subjectivity, and replacing it with the marvellous intelligibility of finely-tuned gears, standardized and hence interchangeable'.[157] As a lubricant for 'the productive act', however, 'psychological' methods had to account for the interference of both the individual worker and the trade unions. In consumer research and in training, the Psychological Department

[154] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[155] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[156] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[157] Guéry and Deleule, *The Productive Body*, 79.

had to articulate the value of its involvement. In doing so, it sought to psychologise the processes which characterised these aspects of work. When it came to the use of time and motion study, however, the Psychological Department aimed to distinguish itself from this practice. In summary, the Psychological Department managed where and what constituted 'psychological' work. Tests, either of a verbal or written variety, were the key tool in the Psychological Department's armoury, and they were utilised in order to map a productive and efficient space. Like Thomson's description of how the science of psychology and its language of '"intelligence", "personality" and "memory", of "instinct" and "sentiment" has mapped and remapped a psychological body', the Psychological Department had to negotiate and articulate its employment in labour management.[158]

Chapter three

While chapter two accounted for the everyday functions of the Psychological Department, here, the focus turns to a specific example of a 'psychological' intervention, which occurred in a particular room in the factory. This intervention was packaged as the Labour Research Enquiry, which was conducted in the years 1930 and 1931, led by the labour research investigator, Miss Hall. It marked the most comprehensive single work in which the Psychological Department was engaged during the interwar period and satisfied the call for an investigation worthy of publication.[159] Furthermore, the Enquiry indicates a different emphasis to industrial psychology by the end of the 1920s. The influence behind this was Elton Mayo and a 'human relations' approach to management, which, although still only nascent at this time, was referenced by Moorrees as a possible avenue for the Enquiry to take. As such, there is a disciplinary component to this story. Finally, the Enquiry provides a concrete case for an examination of how gendered ideas were enveloped within the discourse of industrial psychology. The Enrober room staff comprised entirely of women and both the initial move to intervene, and the way in which that work developed, reproduced particular ideas about women in work.

The work in the Enrober room was carried out by personnel from the Psychological Department and it used the language of psychology to describe and to classify the workers, yet, the work here was described as 'labour research'. Whether this was a matter of nuance, or it indicated a

[158] Thomson, 'The Psychological Body', 291.

[159] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931. The report notes 'But facts that have been established in the course of the twelve months are sufficiently general to have a wider significance than this factory allows and might in due course be published in the usual spirit of scientific research'; BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1929 to September 30, 1930: In the previous year, it had also been remarked that ' It was hoped that the department would be able to publish something of use to other psychologists and people with scientific interest in the work, but though this end, which demands exact and uncompromising treatment of the results, may not be achieved, a general description of principle and practice, which is quite possible at this stage, will help to direct and increase interest in the experiment we are making in this factory'.

subtle understatement of the presence of psychology is difficult to determine. However, given the suspicion that industrial psychology generated and the way in which Moorrees later failed to mention the use of time study in his survey of work at the Cocoa Works, it may have been a further attempt to repackage 'psychological' work in the more neutral form of 'labour research'.

The Enrober room

The Enrober room was to be the site where the Psychological Department achieved its most detailed elaboration in the form of the Labour Research Enquiry. The room marked the end of the production line for products at the Cocoa Works. To 'enrobe' meant to coat a particular vessel, be it a nut or a creme, in a layer of chocolate, giving it a characteristic chocolate gloss. Enrobing is described by Arthur William Knapp in his detailed exploration of the process of chocolate manufacture, commissioned by Cadbury and published in 1920. Knapp writes that 'the girl sits with a small bowl of warm liquid chocolate in front of her, and on one side the "centres" (cremes, caramels, ginger, nuts, etc.) ready for covering with chocolate', then, 'she takes one of the "centres", say a vanilla creme, on her fork and dips it beneath the chocolate'. Knapp continues, 'when she draws it out, the white creme is completely covered in brown chocolate and, without touching it with her finger, she deftly places it on a piece of smooth paper' allowing the chocolate to set into 'a crisp film enveloping the soft creme'.[160] While Knapp details the manual process of enrobing, by 1930 Rowntree had 'covering machines' installed in the factory. They were staffed exclusively by women.

Women were typically placed at the end of the production lines of industry, concentrated in 'suitable' work as either coverers or packers. Indeed, this followed the way in which the division of labour should be broken down in the chocolate industry, according to Knapp. 'Covering', he remarks, 'is light work requiring a delicate touch, and if, as is usual, it is done in bright airy rooms, is a pleasant occupation'.[161] Firstly, this reinforced the notion that women were vulnerable - both physically and mentally - to the effects of industrial labour. Indeed, the Enrober room was commonly assumed to be 'the hospital of the firm', which employed 'girls who were not physically strong enough for other departments'.[162] While this was argued to no longer be the case by 1930, as the investigator notes 'recently however the work in the whole of these rooms has been considerably speeded and we have consequently altered our policy and now no longer look upon it as easy work', to the point that 'we do examine girls specially for machine covering work before putting them in there', it indicates that assumptions about a woman's place in the factory were sustained in the interwar years.[163]

[160] Arthur William Knapp, *Cocoa and Chocolate: Their History From Plantation to Consumer*, (London, 1920) 87.
[161] *Ibid*, 87.
[162] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 4', 1930.
[163] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 4', 1930.

Moreover, the idea that covering was 'light work requiring a delicate touch' played to a particular notion of what skill-set women brought to factory work. Women were assumed to have a 'acknowledged skills', such as 'stamina and dexterity' when working with their hands.[164] Such skills delimited the types of work that were perceived to be suitable for women and clearly invoked domestic work, tacitly reinforcing the sense that 'women's work' in industry mirrored domestic labour.

At the Cocoa Works, labour was divided by sex and, embedded in this division, there was a what Anne Phillips and Barbara Taylor have described as a 'sexualisation of skill'. They argue that this meant skill became 'increasingly defined *against* women - skilled work is work that women can't do'.[165] Fundamentally, this was 'a response to the actual de-skilling of the work process' which arrived hand-in-hand with the mechanisation of what were previously skilled tasks in industry.[166] At Cadbury, to contextualise this notion, the selection and quality check of the cacao beans once they arrived at the factory was reserved for male workers. As Knapp outlines, 'roasting is a delicate operation requiring experience and discretion' and 'even in these days of scientific management it remains as much an art as a science'.[167] 'Experience' and 'discretion' were skills possessed by the male worker, illustrated by Knapp's eulogising of the 'aesthetic judgment of man' even when compared to 'scientific machinery'.[168] To some extent, Knapp's comments appear to play on the contentiousness and the dislike of the so-called efficiency engineering, implying that the 'aesthetic judgment of man' is superior to 'scientific machinery'.

Trouble at t'mill

Prior to the work of the Enquiry, the Enrober room had already been singled out for its particular disruptiveness. A memorandum written by Seebohm Rowntree in February 1929 underscores this point. In this case, the transfer of an employee 'K. Schumacker' from the Enrober room 'on the grounds that her work there is inefficient' had been disputed between the workers and management.[169] Any further dispute in the wake of a review which determined Schumacker' work inefficient, would be met by a hardline response from Rowntree. He writes that 'if any difficulty arises, whether small or great in extent, I am perfectly prepared, without any fear whatever, to stand

[164] Miriam Glucksmann, 'In a Class of Their Own? Women Workers in the New Industries in Inter-War Britain', *Feminist Review*, 24 (Autumn, 1986) 7-37, 11.
[165] Anne Phillips and Barbara Taylor, 'Sex and Skill: Notes towards a Feminist Economics', *Feminist Review*, 6 (1980) 79-88, 85.
[166] *ibid*, 85.
[167] Knapp, *Cocoa and Chocolate*, 74.
[168] *ibid*, 74.
[169] BI, JRF/RCO/6/5/2, 'Complaints about management in the Enrober Room/Note on Personnel difficulty in Enrober Room', Letter of complaint and response, February 1929.

by this decision'.[170] Clearly, this is a matter of enforcing discipline in the factory, but the sanctity of efficiency and its central role in operations in underlined by the following sentence. Rowntree continues, 'I regard the principle involved as one of fundamental importance, and so long as I am Chairman of this Company, it will never be departed from'.[171]

However, it is the final remark which is the most pertinent. Rowntree notes that 'for the years past' he has received 'complaints of constant difficulty arising in the management of the Enrober Room', which he puts down 'to a clique of girls, who are causing trouble'.[172] This conclusion is reiterated by the labour manager, who notes that the room was 'widely known as a seat of trouble' and that 'its personnel was regarded as the most difficult in the whole factory'.[173] Rowntree concludes the memorandum with the note that 'I am prepared to take whatever steps are necessary to see that good management is supported in the Enrober Rooms'.[174] To further the earlier assertion that older workers were viewed as problematic to the process of transfer, in this case, the room was mostly made up of women over the age of thirty. The report continues, 'the group was very solid: they could be counted on to follow their leaders who were some half dozen or more noisy, grumbling women of the oldest class'.[175] The Enquiry, then, can be seen as a consequence of the past disruption in the Enrober room. Partly, then, the Enquiry can be positioned as a disciplinary story. In contrast with chapter two, the Enquiry positioned productivity as a secondary aspiration, one which would follow the disciplining of the workers in the room. But intervention also posed as a mediative measure, one which could assuage the grievances of the staff and, crucially, restore an efficient working environment. In this guise, the Enquiry had an air of the 'human relations' approach which had been promoted by Elton Mayo in the course of the Hawthorne Works experiments in the United States.

Elton Mayo and 'human relations'

The Hawthorne Works of the Western Electric Company were the site of Mayo's most first significant incursion into management. Conducted between 1928 and 1931, the experiments provided the case study for his work into human relations. The human relations approach 'depended on the idea that individual workers could be motivated – could be made to find sufficient satisfaction at work – to

[170] BI, JRF/RCO/6/5/2, 'Complaints about management in the Enrober Room/Note on Personnel difficulty in Enrober Room', 1929.
[171] BI, JRF/RCO/6/5/2, 'Complaints about management in the Enrober Room/Note on Personnel difficulty in Enrober Room', 1929.
[172] BI, JRF/RCO/6/5/2, 'Complaints about management in the Enrober Room/Note on Personnel difficulty in Enrober Room', 1929.
[173] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.
[174] BI, JRF/RCO/6/5/2, 'Complaints about management in the Enrober Room/Note on Personnel difficulty in Enrober Room', 1929.
[175] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1930 to September 30, 1931.

perform in ways that management wanted'.[176] Indeed, over the course of the 1930s and 1940s, inspired by Mayo's publications, human relations 'became a virtual ideology', which stressed 'a way of re-establishing spontaneous social harmony and cooperation within industrial civilisation'.[177] There is little doubt that, by 1930, both Seebohm Rowntree and the Psychological Department were aware of Mayo's work. In 1929 Mayo had distributed his results and conclusions from the Hawthorne experiments to people he felt would be interested in his work, such as Seebohm Rowntree.[178] He followed this by giving talks to the industrialists - with Rowntree again a noted guest - in Britain over the summer of 1930.[179] And, in 1933, some years after the conclusion of the Enquiry, Moorrees noted that 'the procedure [labour research] recommended is similar to that of Elton Mayo in America, but not so definite'.[180]

Personality and 'psychological make-up'

The Enquiry into the Enrober room included an analysis into the 'psychological make-up' of the room, which boiled down to a 'classification of types' based on 'personality ratings'. An emphasis on personality was not wholly derived from the human relations approach, but instead had roots in the Victorian notion of *character*. Character was embedded in the psychology of individual differences. As Thomson notes, 'personality' was, in effect, 'character, recast but essentially revivified in psychological terms'.[181] The 'classification of types', divided into 'leadership' and 'cooperativeness', meant that 'psychological make-up' was not simply understood as an abstract observation of the individual, but it was defined explicitly against productivity. As such, the psychologist becomes the driver of production. Through a particular personality, or 'psychological make-up', ascribed by the psychologist, 'it is the productive body itself that speaks and acts, that discretely or spectacularly distills words and ideas'.[182] With that said, the composition of a complete classification of the room, notes the investigator, Miss Hall, was not possible. This, she remarks, was down to the reluctance of the workers to reveal their 'real attitude to their work', particularly when within hearing range of their co-workers, and 'the dominating influence of certain of the older women may have forced their attitude to the firm on the younger ones or may prevent the younger ones from giving their true opinions'.[183] Again, this reinforces the sense that even though women were reachable for

[176] Hollway, *Work Psychology*, 9.
[177] Graham Richards, *Putting Psychology in its Place: A Critical Historical Overview*, (Hove, 2002) 58.
[178] Richard C.S. Trahair, *The Humanist Temper*, (New Brunswick, 1984) 240.
[179] *ibid*, 241.
[180] BI, R/DL/LS/2, 'I. The Work of the Psychological Department, by V. Moorrees', Publications, 1933.
[181] Thomson, *Psychological Subjects*, 71.
[182] Guery and Deleule, *The Productive Body*, 109.
[183] BI, R/DL/LS/2, 'Research Reports Relating to Enrober Room Staff: 5', 1930.

'psychological' intervention, they were not always the docile subjects they were assumed to be. In particular, it is the older workers who constitute the most significant obstacle to management.

'Leadership' was further divided into 'leaders' and 'led'. On the one hand, under the type 'leaders', the workers were ranked according to their ability to 'form balanced opinions' and their 'reasoning powers', whether they were 'grumblers, who frequently lead or take part in demonstrations against management', whether they were 'frequently noisy' or 'antipathetic to the firm'. Those who were more likely to be 'led', were ranked in accordance to whether they were 'intelligent and keen workers without power of leadership', 'Girls of the "Willing Horse" type', 'probably day-dreamers', whether they were 'physically strong', 'girls who cooperate after a "grouse", or "Outside Interest" girls who work in a nonchalant, happy-go-lucky manner', whose 'interests are confined to dress and pleasure'.[184] On the other hand, under 'cooperative' there were 'intelligent, interested workers [...] who can give helpful suggestions to management', 'those who cooperate cheerfully and do their best with no questions', and 'cooperators after a grouse'. Of the 'non-cooperative' type, the workers were categorised according to whether they 'usually raise objections in a noisy manner and search for grievances against management', or whether they were "Outside Interest" girls.[185]

The characterisation of the 'psychological make-up' of the workers in the Enrober room reproduce a number of assumptions about women in work. For example, the description of some workers as 'probably day-dreamers' reflected the belief that young women in work were engaged in a "dreamy interlude" between childhood and marriage, in which they were largely apathetic to work.[186] Indeed, this characterisation played into the idea that their minds were elsewhere from their work. These "Outside Interest" workers are ranked lowest, disengagement with work being viewed equally to those who complained or displayed antipathy toward the firm. The examples of how workers in the Enrober room were ranked according to their 'psychological make-up' should circle back to Rose's argument in *The Psychological Complex*. Rose contends that 'the conditions which made possible the formation of the modern psychological enterprise in England were established in all those fields where psychological expertise could be deployed in relation to problems of the abnormal functioning of individuals'.[187] 'Abnormal functioning of individuals' was measured against two types, which essentialised into two categories the productive worker: 'leadership' and 'cooperativeness'. However, this process was not free from interference by the workers themselves, as the investigator admits.

[184] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 5', 1933.
[185] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 5', 1933.
[186] Todd, '"Boisterous Workers"', 293.
[187] Rose, *The Psychological Complex*, 3.

Tours

One recommendation made by the Enquiry was to promote tours of the factory for girls on short time. This played on a belief that if the workers were to become acquainted with their broader work environment and the jobs that were done throughout the factory, it may help to remove dissatisfaction with their own position and to appreciate the factory in a wider sense. This called to past models of industrial betterment, in which 'industrial labour was no longer an isolated economic exchange but was located within relations of solidarity and ties of community'.[188] Industrial betterment had characterised Rowntrees' managerial attitude before the First World War, but in the aftermath of the war it was already clear that industrial betterment no longer sufficiently described the breadth of the toolkit of management.[189]

The tours of the factory married intervention with an ambition to foster a sense of community within the workplace. Moorrees compared the tours to 'psychiatrical treatment' and 'a mild form of psycho-analysis'.[190] The adoption of a language of medical psychology in relation to the case of the Enrober room implied that something was wrong. That the tours were primarily organised for workers on short time (this meant that their working hours had been reduced) suggests that what had gone wrong was linked to their employment, which was in turn dependent on their productivity as workers. Indeed, the tours were followed by a discussion between the workers and the psychologist. The aim of that discussion was 'to determine the interest aroused by the visit and their impression of the departments visited', 'their ideas on their life in the factory', 'to afford them an opportunity of discussing matters that worry them', and 'to discover any facts promoting or militating against a happy, full life in the factory'.[191] The 'treatment', then, acted upon the removal of the workers from their particular work process and aimed to inculcate in them an awareness of the factory more widely.

The aim to develop a sense of community in the factory reflected the words of an information pamphlet for new employees at Rowntree in 1922. 'You come to join us', it begins, 'as a member of a great community of 7,000 men and women, with many interests and activities connected with their life together in the factory'.[192] The language of community bore similarities to investigations that were occurring in industrial psychology in Germany. In the 1920s, there were various schemes touted to transform industrial relations in the factory. At first a product of a particular kind of Catholic romanticism which emphasised a 'return to a preindustrial work

[188] Rose, *Governing the Soul*, 62.
[189] Briggs, *Social Thought and Social Action*, 242-243.
[190] BI, R/DL/L/2, 'Labour Manager's Report', October 1, 1929 to September 30, 1930'.
[191] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 8A', 1930.
[192] International Institute for Social History, Amsterdam, IISG Bro 1306/10, 'Rowntree & Company, Limited, York: Information for Employees', 1922.

community', these schemes promoted the notion of a "plant community", which sought to remove individualism in the factory.[193] Similarly, there was a prevalent belief that if the workers understood more about Rowntree, they would be more content by their employment and happier in their work. Indeed, the 'Inquiry into the Morale of the Enrober Room with the Factors Affecting it', notes that there was 'a lack of life in their work' and a 'limited knowledge of the factory', both are presented as factors which inhibit production.[194]

The work environment

The importance of the environment for productive work was not lost on Seebohm Rowntree. Chapter one illustrated the vision which he set out for the factory environment in *The Human Factor*. In the Enquiry, too, the 'Room Difficulties' were a significant concern for the investigator. First, she notes that 'the floor is particularly tiring to the feet and not easy to keep clean in appearance' and that 'the lighting is particularly poor at the picking end of the room'.[195] The most acutely felt difficulty, however, is in relation to the noise and the temperature in the room. The 'trying' temperature and the noise, which is 'most irritating when the "fans" are working', are problems which are later addressed further in correspondence with administrative staff.[196] Noise, especially, is a major concern as it threatened to use up the 'psychic energy' of the worker who has to compensate for any discomfort.[197] The amount of 'psychic energy' wasted by the worker depended upon their temperament. Miss Hall remarks that 'the effect of noise depends admittedly on the person hearing, a neurotic worker suffering more than the healthy person but however healthy, a worker has to use up an amount of psychic energy in order to become "unaware" or "accustomed to" any noise'.[198] The deleterious physical effect of excess unpleasant noise was connected to the individual worker's psychology, both of which were measured against the effect on productivity. The attempt to remove noise, in particular, from the work equation was met with a degree of indifference, however.

In response, Mr Macauley indicated that it would not be 'economically possible' to remove some of the grievances raised by the research enquiry.[199] Indeed, he appears to dismiss the argument of the research reports by indicating that 'these matters have all been mentioned to the

[193] Rabinbach, *The Human Motor*, 281.
[194] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 4', 1930.
[195] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: A', 1930.
[196] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: A', 1930.
[197] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 7', 1930.
[198] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: 7', 1930.
[199] BI, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: Exchange of letters between Miss Hall and Mr Macauley', 1930.

overlookers, who will probably, for a time at least, give them their attention'.[200] The issue of noise in the Enrober room suggests that solution for working conditions, in practice, conflicted with the ideal vision of a harmonious workplace set forth in *The Human Factor*. In particular, the bureaucratic internal workings of factory administration did not work as seamlessly as they appeared on the page. In a similar respect to the survey of the 'psychological make-up' of the room, the intervention of the psychologist met an obstacle in the form of the everyday functioning of the factory and the internal solidarities and relationships between workers.

Summary

The Labour Research Enquiry extended the everyday work of the Psychological Department in selection, transfer, and training, into a space which more reflected the human relations approach to management that was spreading from the United States and which placed an emphasis on morale. However, within this framework, the ideas it conveyed were not entirely new, such as the notion of a community of workers in the factory and the casting of workers in terms of their personality. In the language of personality, the Enquiry reproduced gendered assumptions about women in work, reinforcing the notion that women were an appropriable subject for 'psychological' intervention. In addition, the Enquiry can be positioned as a disciplinary story. The intervention of the psychologist clearly reflected the disturbances which had emanated from that particular room in the years previous. Discipline, however, was not a simple prescription of the psychologist and the work of the Enquiry was still subject to interference from both the workers, who could refuse to communicate with the investigator, and from other areas of management, obstructed by internal bureaucracy.

Conclusion

The Psychological Department, then, operated in various roles at the Rowntree Cocoa Works in the interwar years. It was especially involved in work in training, selection, transfer, and, to a lesser extent, in consumer research. In consumer research, the Department sought to articulate its relevance by arguing the necessity of 'psychological' methods in conducting such research. Indeed, consumer research and marketing were instrumental to the company's success in the early 1930s, yet consumer research was mostly carried out by external bodies such as the NIIP. This may simply be a case of practicality and the NIIP could have a broader reach than the internal Psychological Department in the process of distributing questionnaires and conducting interviews. Consumer

[200] BI, UoY, R/DL/LS/1, 'Research Reports Relating to Enrober Room Staff: Exchange of letters between Miss Hall and Mr Macauley', 1930.

research aside, these three operations thus came to mark the areas of labour management that were ripe for 'psychological' intervention. Particularly through the deployment of both written and verbal testing, the Psychological Department sought to map the labour force in accordance with the individual worker's efficiency and 'psychological make-up'. It was the test that denoted the most common 'psychological' intervention into the workplace. However, these tests also incorporated a degree of ambiguity. Not only did the intervention of the psychologist envelop this ambiguity, but the workers and the trade unions themselves were not simply submissive to industrial psychology. As chapter one outlined, industrial psychology in the interwar years was inextricable from the context of industrial politics and management into which it was set.

To this end, 'psychological' intervention was most explicit when it came to women workers. The example of the Labour Research Enquiry makes clear that, when it came to groups of women, the Psychological Department was poised to mediate between management and workers. As such, the language and the techniques it used assimilated assumptions about women in work. In this guise, the intervention of the Department resembled the 'human relations' of Elton Mayo. Indeed, the Psychological Department incorporated methods and techniques typically associated alternative management initiatives. The characterisation of the 'psychological', then, has accounted for the mixed methods enveloped in the work of the Psychological Department. It has also illustrated that the work of the Department itself was active in the production of a notion of the 'psychological'.

By taking the example of Rowntree, then, an analysis of industrial psychology can operate at the intersection of Rose' and Thomson's, accounting for both the intentions of the psychologists and the 'messy politics' of industrial psychology in practice. Furthermore, it has built upon the work of Hollway, adding depth to an understanding of which areas of management industrial psychology came to flex its authority. Clearly, the Psychological Department was not constrained to work in selection, however, this commanded a significant portion of its attention. The more experimental labour research underscores how the Department was engaged with the wider field of management and also demonstrates a disciplinary undertone to its presence in labour management.

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