A REPORT ON THE CAUSES OF WASTAGE OF LABOUR IN MUNITIONS FACTORIES EMPLOYING WOMEN. NO.16

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649353200

A report on the causes of wastage of labour in munitions factories employing women. No.16 by Various

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

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Trieste

NATIONAL HEALTH INSURANCE.

MEDICAL RESEARCH COMMITTEE.

A Report on the Causes of Wastage of Labour in Munitions Factories employing Women.

(Approved for publication by the Medical Research Committee, 7th December, 1917.)

Medical. Research Committee.

(National Health Insurance.)

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(B2604—r B2367/4/3/18) Wt. 13357—66. 1000. 7/18. Sir J. C. & S. **Gp. 32.**

INTRODUCTION.

To the enquiry of which the results are given in the present Report the Medical Research Committee offered assistance as part of their co-operation in the investigations of various kinds conducted on behalf of the Health of Munition Workers' Committee. The employment of women upon an immense scale in munition factories and workshops seemed to provide a unique opportunity for determining the results, so to speak, of a gigantic experiment, in which women were exposed by the national necessities to an unfamiliar stress of factory life. The simultaneous and systematic organisation of this female labour in many parts of the country at once, under central control by the Ministry of Munitions, allowed statistical data to be secured without an undue expenditure of clerical labour and in numbers sufficient to give the results real significance.

The proper mobilisation of women for national tasks, like that of men, is fundamentally a medical problem, and the measure of the success achieved in it, expressed in terms of the rate of disappearance of recruits unsuitably enlisted, seemed likely to yield information of a new and valuable kind. But the results have shown that the rates of loss by the falling out of women from the employed ranks at given tasks were too high to be accounted for in terms of physical unfitness alone. As Captain Greenwood points out in his report, it must be taken as being definitely established that the "existing rates of loss in manufactories are unnecessarily high, and that so long as they continue the effective mobilisation of labour for national service has not even been approximately realised. When expressed in terms of the whole munition making female population, the avoidable losses must amount to many thousands." Avoidable loss means here in the main a loss not due to physical incapacity or ill-health. The causes at work in producing it must receive their explanation elsewhere, and must indeed remain unexplained until they can be expressed by further analysis in terms of social and economic factors through the organised studies of welfare workers and the systematic "following up" of absentees. This side of the problem, however, lies outside the sphere of medical research.

Nevertheless, some broad results of medical interest emerge clearly from Captain Greenwood's work. The collected facts show that the general strain of factory life in itself is not borne worse by elder than by younger women, but that when the general wear and tear of factory conditions is combined with physical labour of more than a light or medium degree, women over 23 years of age cannot as a whole stand the strain so well as their juniors. We are speaking here only of women engaged during physical maturity, and not in the decline of life, and yet the difference between the junior and senior members of this young adult class is well marked. As Captain Greenwood

concludes, " it is distinct enough to make an attempt at systematic recruiting of the older women for the physically lighter labour and of the younger women for the more strenuous tasks worthy of practical attention." There seems little doubt that the explanation is to be found, as he suggests, in the fact that the senior women will in larger proportion be married and have young children than their juniors, and will obviously be less likely to have the same reserves of strength and energy for the double demand made upon them at home and in the factory.

The thoroughness with which Captain Greenwood has availed himself of the exceptional opportunities offered to him for this enquiry has appeared to the Committee to justify, even at the present time, the full presentation of his numerical data. These may long serve as a standard for reference when subsequent work of a similar kind is undertaken in the future.

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A REPORT ON THE CAUSES OF WASTAGE OF LABOUR IN MUNITIONS FACTORIES EMPLOYING WOMEN.

Made to the Health of Munition Workers' Committee (Ministry of Munitions of War)

BY

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I.—INTRODUCTION.

The Health of Munition Workers' Committee have discussed various problems which offer themselves for solution when the object proposed is the greatest possible output of munitions purchased at the least possible cost of money, health and time. They have shown that certain hygienic standards ought to be established for the material conditions of the factories, that the hours of labour ought not to exceed a maximum which is different in different classes of work, that the exact organisation of day and night work is of moment and the system, as distinct from the amount, of wages remuneration by no means a matter of indifference. It has also been made probable that waste of time may be diminished by a heedful organisation of working periods. On the basis of these results various improvements have been suggested, some of which have now been carried into effect.

One very important matter has not, however, been discussed: viz., the regularity with which employees in munition factories continue to perform their tasks. Although it is true that a majority of the operations carried out in munitions factories do not require a high degree of manipulative dexterity, hardly any are such that practice does not lead to increased precision of work and therefore rapidity of output. Thus in the manufacture of cartridge cases, perhaps the simplest type of operations, all the Committee's investigators agree that an employee cannot attain her maximum degree of efficiency until she has been engaged some weeks on her task.

It follows, therefore, that a factory the operatives in which are constantly leaving and being replaced by new workers, cannot attain the same level of output as one in which the working population is stationary, and it becomes of importance to obtain exact information as to the extent to which munition workers do really change their employment. In obedience to the instructions of the Committee that I should collect and submit to them data for a consideration of this problem, a preliminary report was completed in May, 1917. Since that time, my transfer to the headquarters of the Welfare and Health Section has enabled me to amass further material, and the report is less incomplete than would otherwise have been the case.

Discontinuity and intermittency of employment are a familiar topic to economists, the able study contained in the report of the Minority of the Royal Commission on the Poor Laws being well known. Some of the large factors influencing the variations of employment in peace-time industries are, however, inapplicable to munition work in war time, and *pro tanto* the problem is simplified. We have not, for instance, to consider changes of demand—the demand for munitions is constant and practically infinite—neither have we to allow for the desire, or alleged desire, of certain employers to maintain a reservoir, " a stagnant pool," of intermittently employed hands. But there are other complications which if not peculiar to are at least intensified by war conditions. One of these applies directly to men and indirectly to women, viz., the increasing demand of the military authorities for recruits. This must tend to shorten the average expectation of industrial life among the men directly and among the women indirectly, since an increasing fraction of the latter will be drawn upon to fulfil necessary services outside the walls of munition factories when the men in unreserved but still vital occupations are recruited.

The second complication more immediately concerns the women. In the flush of patriotic enthusiasm many women, and doubtless not a few men, crowded into occupations of national importance, anxious to do their " bit." Some of these were unaccustomed to long hours of monotonous labour; they had not learned or perhaps had forgotten, the bitter lesson of experience, viz., that enthusiasm is no substitute for dogged endurance. Instead of attributing their discomforts to the true cause, they blamed their health or the hygienic surroundings of the factory, and optimistically concluded that some other form of national work would be more congenial and better suited to their abilities. This motive of change which in normal times is held in check by the fear that when a job is lost no other may be found, has free play in the case of persons not forced to earn their bread, and even operates upon necessitated wage earners when the demand for most sorts of labour is much greater than the supply.

II.—Previous Investigations.

It is *a priori* impossible to say whether the conditions special to peace time work and absent from war work effectively balance those special to war work and not normally in action, but it seems desirable at the outset to ascertain how labour does fluctuate in any peace time industry, the conditions of which are tolerably stable. The most recent contribution to this subject comes from America, and is contained in a report of an investigation by Mr. Joseph H. Willits, carried out in Philadelphia and published under the title "Steadying Employment" in the Annals of the American Academy of Political and Social Science for May, 1916.

Many of the facts recorded in this interesting document are not relevant to the Committee's task, but the following are noteworthy. A particular shop in a carpet mill was intensively studied, it was chosen because the kind of work done to some extent avoided the variability of seasonal trades, fashion being a relatively unimportant element and slack seasons being utilised to manufacture for stock. The dates of engagement and discharge of the employees were tabulated for the period 1907–15, and the following results emerged :—Of males, employees hired between 1907–15, 4 per cent. remained in employment over 5 years, 3 per cent. 4–5 years, 4 per cent. 3–4 years, 5 per cent. 2–3 years, 9 per cent. 1–2 years, and 75 per cent. less than one year. Forty-eight per cent. of the men and 37 per cent. of the women remained in the service of the firm less than ten weeks.

A wider but less detailed study made by Mr. Alexander of the General Electric Company, of a large number of factories of all sizes in the United States and Europe showed that on January 1st, 1912, 38,668 persons were employed in the factories studied, and on December 31st, 46,796, or an increase of 8,128. But the records also showed that in the interim 44,365 persons had been engaged, so that 36,237 had dropped out of employment during the year, or about 5½ times as many people had to be engaged as constituted the increase of forces at the end of the period.

These figures, as published, are not amenable to the analysis to which I have subjected certain munitions factory data to be discussed later on in this report, but it will be of interest to contrast them with some material which is also not suitable for detailed study.

I obtained from a large munitions factory the following figures :—

In effect, the number of women employed at the end of June, 1916, was 4,571, and at the end of October 6,237, an increase of