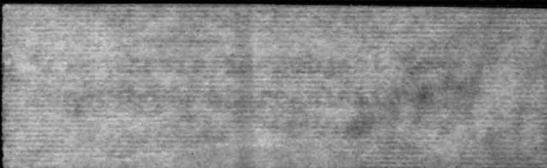


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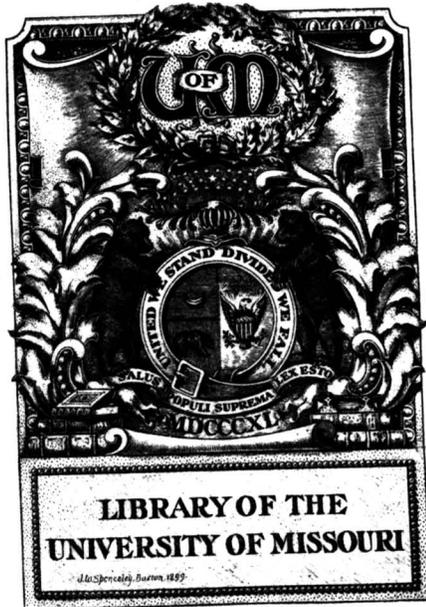
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WOMEN IN WAR WORK
1914-1918

by

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FOREWORD.

In presenting this subject the writer has endeavored not to cover every form of work in which women were engaged between 1914 and 1918, but to choose those phases of work, those evidences of success, the consequent regulation and standards that were found to be necessary as the stress of war production increased, and put them in such a form that they would forecast in some measure the development of women's work after the War. For the sake of a better understanding of the conditions of industrial work, before 1914, and for a comparison of those conditions with the ones which developed from 1914-1918, the first chapter was written.

Though recognizing and rejoicing in the work of women who came as volunteers from lives of no regular work, and from the professions, to four years of strenuous, exacting work in which they achieved unqualified success, I have barely mentioned it. The needs of the "working woman" are the needs of by far the greatest number, and demand immediate attention in this period of reconstruction.

13 Aug 1920 F.H.

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WOMEN IN INDUSTRY BEFORE 1914.

Contrary to the popular belief that women in factories are doing men's work, are the facts which are brought to light as to the conditions of work when the factory system was established in the United States of America.

It is incontestable that when the factory system was first established women were urged to go into factories.⁽¹⁾ Men were engaged in agriculture and the "Friends of Industry" replied to those citizens who declared that manufactures would ruin agriculture that "not one fourth of the employees in manufacture were able-bodied men fit for farming."⁽²⁾ Economic gains were at first used as an argument. Gallatin in 1831 "concluded that the surplus product obtained by the employment of women in a single cotton mill of 200 employees was \$14,000 annually."⁽³⁾ Another writer in the "Boston Centinel" said "that machinery enables women and children who are unable to cultivate the earth to make us independent of foreign supplies."⁽⁴⁾

This entrance of women into factories was not a hardship because women had done much of the hard work of

(1) Abbott, Women in Industry, pp. 48, 50, 55.

(2) Ibid., p. 51.

(3) Ibid., p. 54.

(4) Ibid., p. 55.

2

spinning and weaving in the homes, and later the farmer's daughter had worked in the "manufactures." The picture drawn of the home of several generations ago is not, to say the least, enticing. "The mother was always at home. Her work drove her unceasingly; she knew little or nothing of the great outside world; and too often she was a prematurely aged woman. Indeed the average home of two or three generations ago if reproduced today in one of our towns or cities would be called a sweat-shop of an inefficient type." (5)

These women who had woven and spun in the home were not to be kept from this same work when it was taken from the home to be done in factories. Land was cheap and men expected to farm, but "it was just as confidently expected that women could be counted on to continue, in the mills, the work they had formerly done at home." (6) And in addition to this women and children rendered more useful service in manufactures than elsewhere, and the farmer who had a wife and daughter had a new source of income. This was likewise the case in England where women and children were drawn into factories because their labor was as effective and cheaper. "Before the middle of the century (19th) the wives and children of workingmen were actually taking the places of husbands and fathers in the mills." (7)

(5) Carlton, The Industrial Situation, p. 57-58.

(6) Abbott, Women in Industry, p. 49 ff.

(7) Goodsell, Hist.Fam.as Social & Edu. Inst., p. 423.

The numbers of women in manufacture in the United States has been large since 1850, but the proportion of men has increased faster than that of women.

	Numbers		Proportion in each 1000 of each sex		Per cent of women
	Men	Women	Men	Women	
1850	731,137	225,922	87	28	24
1905	4,801,096	1,194,083	142	39	19
	78 %	19 %			(8)

Though the actual numbers are vitiated by the fact that the schedules used in the census of 1850 included children under fifteen or sixteen and those for 1905 include only those persons over sixteen yet these figures are substantiated by the fact that the proportion of employees in manufacturing for each 1000 in each sex has tended to increase much faster in the case of men than in that of women. While the number of men increases 55 in each 1000 the number of women increases only 11.

In all industries the increase of women since 1870 to 1905 is seen to be slow:

Comparative Summary of all Industries 1905 Census of Manufactures I,XXXVI.					
	1905	1900	1890	1880	1870
Men	4,801,096	4,110,527	3,327,042	2,019,035	1,615,598
Women	1,194,083	1,029,296	803,686	531,639	323,770
Total inc.children	6,162,245	5,308,405	4,251,613	2,732,595	2,053,996
% of Women over 15 or 16.	19	19	19	19	16

(8) Abbott, Women in Industry, pp. 81, 83.

(9) Ibid., p. 82.

As is seen by the table the increase of women has been only 3 %.

In certain industries, e.g., in the manufacture of textiles, there has been a decrease in the percentage that women form of all employees. That is, from 58 % in 1831 to 40.2 % in 1905. (10)

In the sewing trades there is a decrease:

	1850	1870	1900	1905
Boot & shoe making	31.3 %	14.1 %		33% (11)
Mens' Clothing	63.7 %		47% (12)	
Millinery & Lace Goods	92 %		83.2 % (12)	

In fact "An examination of the data given shows some ground for believing that as the factory system becomes established in the different trades, the same process is going on which has been so apparent in the textile trade- the gradual substitution of men for women." (13)

In England the increase of women in the textile trades has been marked. From 1841 to 1891 the increase for women was 221 %, for men 53 %. (14) This is in great contrast to the decrease in the industrial employment in the United States in the last half century. (15)

(10) Bur. Lab. Stat., Bul. Whole No. 175, p. 291.

(11) Ibid., p. 293.

(12) Ibid., p. 295.

(13) Ibid., p. 295.

(14) Goodsell, Hist. Fam. as Social & Edu. Inst., p. 424.

(15) Abbott, Women in Industry, App. B., p. 361.

The entrance of women into industry was retarded in the first place because of the physical limitations on women which appeared as machinery came into greater use. Movements in following the "mule" were impeded by their skirts. ⁽¹⁶⁾ Other indications are that women were not suited to the factories, because although until about 1860 in the United States weavers were uniformly referred to as "she," ⁽¹⁷⁾ yet after that time it was decided that the "improved high speed and automatic looms can be most efficiently operated by men." ⁽¹⁸⁾ Likewise dressing of materials was women's particular work until the "slasher" was introduced in 1866. The work was then considered too exhausting for women. ⁽¹⁹⁾

The above examples are from the cotton industry, but the same objections to women were raised in the clothing trades, where men gradually displaced women because women had not the endurance to maintain for any length of time the speed on a machine that could be maintained by a man. ⁽²⁰⁾

In the more highly skilled trades women had difficulty entering because a long apprenticeship was required which was hardly worth while or desirable if the girl who underwent the training married before she could practice her trade. "Women with the expectation of marriage before them, have not, as a general rule, entered trades which require a considerable time to learn." ⁽²¹⁾ This was very true of

(16) Abbott, Women in Industry, p. 91.

(17) Ibid., p. 95.

(20) Ibid., pp. 227, 257.

(18) Ibid., p. 96.

(21) Ibid., p. 250.

(19) Ibid., p. 99.

printing where the master printer did not want to bother with a girl, (22) and she had to "steal the trade." The difficulty in serving apprenticeships worked an additional hardship later when the printers, fearful of machine competition as well as of women's competition, after the introduction of the linotype in 1887, required that the linotype machine should be operated only by "journeymen trained in the trade as a whole." (23)

The objection to women on the part of the employee was also due to the tendency to cut wages that the employment of women fostered. In 1877 women were used as strike breakers in the cigar trade. They were later considered a blessing to the employer because they were largely outside of the union and worked for lower wages. (24) Again, the employee was apt to object to women in trades which he regarded as primarily man's. (25) This has been true, certainly, in the printing trade, in which the union policy was to exclude women till 1972 when it was discovered that women were maintaining a lower wage scale. (26)

But another tradition which has hung over women and has militated against the quick adjustment to a society

(22) Abbott, Women in Industry, p. 254.

(23) Ibid., p. 257.

(24) Ibid., p. 206.

(25) Ibid., p. 250.

(26) Ibid., p. 250.

in which nearly every home industry has been taken from the home, is due to the fact that woman was at one time essential to the home and the impression lasts that she always must be. Time was when the work of the housewife was to direct the spinning and weaving of cloth and its transformation into clothes for the family. She not only had to prepare the meat and cook the meals, but also to see to the cleaning of the house and that there was enough fuel for the winter. She could not depend on food from distant parts brought in refrigerator cars on express trains or in pure food cans. Light was a matter of oil wicks or candles that were home made and clothes were cleansed with soap that she boiled. But most important of all, she was expected to train and educate her children and rejoiced in that duty. Kindergartens, public schools, boarding schools and colleges were not accessible to take care of the sons and daughters. And so the feeling has continued that she has plenty to occupy her at home when in very truth the most burdensome as well as the most pleasant of her duties have been transplanted to factory and school.

The influx of women into highly organized trades is not from easy, mental and physical work to heavy, strenuous, exacting work. Unfortunately, the physician who objects to a woman undertaking medicine because the rigor of the training is more than she can stand is not objecting solely on the grounds of regard for the health of women as

such; because on seeing a woman scrubbing the pavement in front of a building, he replies to a query as to the comparative severity of scrubbing and medicine that "women can scrub because they have always scrubbed."

Olive Schreiner sees men's objection to women entering professions not based so much on the kind or amount of labor that the woman must do, but on the reward that she gets and whether she is entering a field which is particularly desirable to him. (27)

In addition to physical labor women have indeed been called upon to use their minds. Until the recent development of public schools the education of children was in the hands of women. Illiterate they may have been and often were, but the responsibility of the children up to the time the boy was apprenticed or the girl was married was certainly with the mother. Not only in training her children, but in manipulating the family income, the woman had to use her mental faculty. She began by utilizing the products of the chase as food and clothes; she now has the nicer task of apportioning the money income so that the children will be clothed with "store clothes", the grocer's bill paid; and the blasts of winter kept off by fuel and shelter. Now that so many of the home responsibilities are being lifted from women's shoulders, it is unreasonable to

(27) Woman and Labor, pp. 211 to 213.

ask that they should not go into other pursuits. It is indeed true that "machines are doing many of these operations and that many of the machines are operated by men."

But in spite of this fact there were a considerable number of women in industry before 1914.

	1880	1910
Number of Women Gainfully Employed	2,500,000	8,000,000
In Manufacturing and Mechanical Industry		1,800,000 (28)

In 1905 the greatest numbers of employed women were in five trades, textiles, clothing, tobacco and cigars, boots and shoes, and printing. The total for these was 509, 832 while in all industries women totaled 1, 194,083. Men workers in the first five industries 685,532; in all industries 4,801,096. (29) In all industrial occupations before 1914 women made up more than 2,000,000 of the total number of employees and were in 295 of the 303 occupations listed in the census. (30)

	1910	1914
In Gainful Occupations		
Men	30,091,564	
Women	8,075,772	8,263,153
In Manufacturing Industries		
Women		1,649,687 (31)

There has been in the industry group a change or increase up to 1905 in occupations not particularly in women's

(28) New Rep., Woman's Work after War, Jan. 25, '19, p.359.

(29) Abbott, Women in Industry, p.85.

(30) Clark, Am. Women in World War, p.118.

(31) Nat. Ind. Conf. Bd., Rep. No. 8, p.133.

province though more than half of the women in industry have been in textiles and clothing for each census year. The total of women in industry for 1905 was 1,065,884. Of this number textiles and clothing formed half and the other large proportions were in:

	1850	1905
Cigars & Tobacco	13.9 %	41.6 %
Metals & Metal Products (not incl. iron and steel)	3.4 %	14.2 %
Other Manufacturing	3.6 %	13.8 %
Food	2.5 %	22.5 %

(32)

But not only were they there in numbers but in the amount that women contributed to the family income there was an appreciable per cent which increased in all sections of the country from 1870 to 1912:

	1870	1900	1912
In all Industries	14.7 %	20.6 %	26.7 %
	(33)	(33)	(34)

Comparing the number of occupied women in the United Kingdom in 1911 with the number in the United States in 1910 we find that the number was not as great in the former:

1912- No. of Occupied Women in United Kingdom

Total	5,851,849
Domestic Pursuits	2,000,000
Manufacturing (Incl. metals, paper, textiles, clothing)	2,275,000
Other Industries not Given	---,--- (35)

(32) U.S. Com. of Lab., Wom. & Ch. Wage Earners U.S., V. 9, pp. 19, 250.

(33) Ibid., V. 9, p. 12.

(34) New Rep., Wom. Work after War, Jan. 25, '19, p. 359.

(35) Andrews, Ec. Effects of War Wom. & Children, etc., p. 25.

In 1914 the number of women in industry not including those in domestic service, small clothing workshops military, naval, Red Cross and St. John's hospitals was:

	1914	Increase July, 1916	Replacing men, 1916
Total	3,219,000	866,000	766,000
Industrial Occupations	2,117,000	362,000	263,0000 (36)
			&&

In 1917 there were 1,059,000 more women at work outside their own homes than in August 1914, (37) although the use of women in munitions did not become general until September 1915 after experiments at the Woolwich Arsenal. (38)

It is evident from these figures that women were in industrial pursuits in considerable numbers both in the United States and in the United Kingdom before 1914, and that those numbers were increasing. In four years, from 1910 to 1914, in the United States there was an increase of 187,381. The War only served to precipitate a tendency that was already developing. (35)

The question of numbers has been serious, and men have watched with apprehension the dilution of their trades with women. But more serious, and yet less serious in the long run because there will be fewer people to undercut if wages are uniform, is the demand of working women for "equal pay, for equal work." The precedent of low wages for women was set

(36) Mo. ly Rev. v. 3, 1916, p. 789.

(37) Andrews, Ec. Effects of the War etc., p. 29.

(38) Ibid., p. 32.

(35) See above, ref. #35.

long ago and women have had to accept the minimum or less than that. Possibly the two most important reasons for this condition have been women's lack of a union at all comparable to men's and because they felt that any wage was large compared to "no wage envelope" for work in their homes or very poorly paid laundry work done for an outsider.

In the United States women's wages were lower than men's early in the nineteenth century. In 1832 women in the boot and shoe industry earned only one-fifth to one-half as much as men or from twelve cents to twenty-five cents per day while men earned seventy cents to one dollar.⁽³⁹⁾ Women's wages in this industry continued lower than men's up to 1900. The median wage in:

	Men	Women
1890	\$11.00	\$6.00 per week
1900	11.50	6.00 " "

In cigar making at this time⁽¹⁸³²⁾ the women made forty or fifty cents a day and the men a dollar to a dollar and a half.⁽⁴¹⁾ The printing trades of Boston in 1831 paid women fifty cents per day and men a dollar and a half; but in this trade women seldom gained the skill that men had because they

(39) Abbott, Women in Industry, p. 157.

(40) Ibid., p. 306-7.

(41) Ibid., p. 192.

were excluded from apprenticeship in it. (42)

Wages ranged from a difference of six cents in the case of spoolers to \$1.80 in the case of cloth room hands in the cotton goods industry in 1891.

Wages in Cotton Industry in 1891.

	Estab.	Men	Women
Doffers	#39	\$5.31	\$4.50 per wk.
Back Hands	#40	3.47	3.30
Clothroom Hands		6.66	4.86
Doffers		3.91	4.07
Spinners		5.16	4.95
Spoolers		5.06	5.00
Warpers		6.84	6.00
Weavers	#43	8.52	7.26 ⁽⁴³⁾

The differences in wages were excused on the grounds that the work done was not the same, that often women needed more supervision and assistance in lifting heavy boxes, etc. These are valid reasons except, when as will be shown later, women in war productions often did much more work for less wage. Women in the early days were not as skilled, they did not expect to stay in the industry as long as men and so, being undesirable in these

(42) Abbott, Women in Industry, pp. 249 to 250.

(43) Ibid., pp. 256, 373.

respects to the employer of early days, they had to submit to the conditions outlined.

But down to our own day conditions are similar. Scott Nearing estimated that one-eighth to one-fourth of women get less than \$6.00 per week whereas only from one-tenth to one-sixteenth of the men get this wage. (44) He also says that a wife who is regularly employed may earn three-fifths as much as her husband. (45)

In England in 1912 Sidney Webb calculated that the average weekly wage for women was \$2.61 and for men \$6.18. (46)

In the years before 1914 women have been shown to have entered industry early and in considerable numbers, but the increase of their numbers as compared to men has been slow. The question of wages had to do with universally low ones, low at the beginning and continuing low until 1912. The case for women after 1914 will be seen to be a case of higher wages, consideration and provision for training, and the provision of every possible convenience so that women would not be hampered in any way in output of war supplies. The question when war faced England and America was not whether women would cut wages, or enter men's special trades, or necessitate changes in machinery, - the question was one

(44) Nearing, Wages in U.S. 1908-1910, pp. 38-39.

(45) Nearing, Fin. the Wage Earners Fam., p. 111.

(46) Andrews, Ec. Effects of War, etc., p. 16.

of output; it was necessary for women to come in and changes began after women had proved their worth.

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THE NUMBERS OF WOMEN IN INDUSTRY 1914-18 AND THE
WORK THEY DID

With the outbreak of war in 1914 the women of England were not able to rush right into a munitions plant or on to a farm or across the water as V.A.D.'s. Especially the women workers in confectionery, chemical works, cotton, herring, and flax were thrown out of work so that the unemployment of women in September, 1914, amounted to 1,100,000 or 44.4 % of women who worked. The men likewise were out of work, and their unemployed amounted to 27.4 %. This unemployment was gradually decreased until in April, 1915, it had reached the prewar level.⁽¹⁾

To relieve some of this unemployment the Work for Women Fund was almost immediately organized by Queen Mary. The work was on uniforms and woolen belts. The desire was that the work should not interfere with ordinary industry but that it should maintain and if possible increase the efficiency of the workers. The wages were placed very low so that they would not draw women from factories to the workshops of the "Fund". They were 3d (6¢) per day or 10s (\$2.40) for a 48 hour week.⁽²⁾ In addition to the work-rooms this fund,

(1) Andrews, Economic Effects of the War, etc. p 23.

N.B. V.A.D. designates a member of "Voluntary Aid Detachment"

(2) Times History of War v.4, p. 256.

thru its Central Committee on Women's Employment, indicated to the government War Office the firms that needed orders in shirts, khaki, etc., and endeavored to divide up contracts among small manufacturers. It also maintained an employment bureau which up to January 1, 1915 had handled 9,000 women. (3) Other emergency work-rooms were provided (4) by the Woman's Social and Political Union.

The English women were not received at once by the government. Sixteen months after the offer of training for women in munitions work had been made by Mrs. Alec-Tweedie with the Y.W.C.A. cooperating with the Ministry of Munitions made the following announcement: "The Ministry of Munitions is prepared to receive applications from women of all classes wishing to be trained as munition workers at the centers which the Ministry has established by arrangement with educational authorities in various parts of the kingdom." (5)

English women doctors had to go to France to prove their ability where they opened a hospital at Claridge's Hotel, Paris. They proved their worth and were then given a hospital on Endell Street, London, of which Sir Alfred Keogh said: "This is the most economical of the war hospitals, you ought to run them all." (6)

(3) Andrews, Economic Effects of War etc. p. 28.

(4) Times History of War v. 4, p. 213

(5) Alec-Tweedie, Woman's Army Eng. Rev. v. 24 p. 39.

(6) Blatch, English and French Women and War, Outlook, v. 113, p. 486.

On March 17, 1915 the Board of Trade made an appeal to women to register to take men's places in industry. On the first day according to a conservative estimate there were 700 women. (7) Miss Helen Fraser states there were 4,000 registrants; (8) but the two records agree that during the first week of registration there were 20,000, and an average of 5,000 per week for the following weeks.

The numbers increased steadily in industry. (9)

	April 1916	% over July 1914
Industrial Occupations	287,500	13.2 %
metal	126,000	88 %
chemicals	33,000	84 %
railroad	16,000	168 %

July 1917

Docks and arsenals	202,000	9,596 %
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As was mentioned above, the total increase up to 1917 was 1,059,000. (10)

The above figures indicate the increase, but the actual numbers in various forms of industrial work for

(7) Times History of War, v.4, p.277

(8) Women and War Work, p. 98.

(9) Andrews, Ec. Effects of the War upon Wom. & Child'n etc. p.35-38

(10) see Ch. I, ref. 37.

consequent periods will give further evidence of British women's response to the call.

	<u>Industry proper</u>	<u>Munitions</u>	<u>Administrative and Distributive</u>
End of 1916	250,000 (12)	500,000	350,000 (11)
April 1917	950,000 (13)		
November 1917-	1,000,000		
Middle of 1918)			Gov't. Dep'ts.
Replacing men)	1,250,000	1,000,000	198,000 (14)

The numbers of processes and the percent of women in the factories is large.

In August 1916 women were working on 500 munitions processes. (15) In January 1917 there were factories where 95 % (16) of the workers were women. In one of the largest explosive factories there were 11,000 women and 4,000 men in November 1917, or women formed 73 % of the employees. At the same time women were doing 90 % of the work on small shells and fuses, and in a shop for breech mechanism for howitzer guns, every machine tool was operated by women who hardened and ground their own tools. (17)

(11) Stone, Women War Workers, p. 281-2.

(12) "Power", v. 45, p. 493.

(13) Baillie, Eng. News Record, v. 79, p. 959.

(14) Fraser, Women and War Work, p. 20-21.

(15) Yates, Woman's Part, p.21.

(16) Alec-Tweedie, Eng. Rev. v. 24, p. 41.

(17) Baillie, Engi. News-Rec., p. 959.

The work that women have been doing in munitions includes all kinds from the rough turning of shell bodies to final gauging and inspecting of a screw gauge which is examined with an optical projection that magnifies fifty times. (18) In oxy-acetylene welding women manipulate a flame which is 6,300° Fahrenheit at the apex. (19) Even in the skilled work of tempering tools for munitions work, women have found their place. The tools that Henrietta Boardman tempers are reputed to be the best in the shop. Her success is thought to be due to her feminine sensitiveness to color. (20)

But women in industry in Great Britain are not confined to munitions. Up to 1918 on the British railroads the number of women increased from 11,000 to 100,000. (21) They were first used in London in the fall of 1915. In Glasgow, Scotland, by November, 1915, there were 818 women conductors. (22) The Great Western Railroad employed women first as ticket collectors, but they have since been used extensively as car cleaners, booking and parcel clerks in the clerical departments, and as telegraph operators. (23) The introduction of women on the railroads was agreed to and controlled by the

(18) Fraser, Women and War Work, p.118

(19) Ibid., p.110

(20) Daggett, Women Wanted p 179-180

(21) Women's Work and War, v.I, No.5, p.4.

(22) Elec.R'w'y.Jour., Women Conductors for London, v.46, p 962.

(23) R'w'y Age Gazette, v.58, No.21, p 1120.

trade unions. It was recognized as " an emergency provision not to interfere with the reemployment of men who were in the army, after the war."⁽²⁴⁾

It has been found necessary to have women police and patrols to protect the women workers, to and from trains and to oversee camps and barrack areas, particularly when near factories in which women are working. The "Women's Police Service" which was founded in Sept. 1914, numbered in munitions factories 700 women.⁽²⁵⁾ The patrols numbered 3,000.⁽²⁶⁾ But the protection of workers did not end with police and patrol, because in most of the factories there were welfare supervisors, selected and trained by the Welfare and Health Department of the Ministry of Munitions. These were recommended for all national and controlled establishments and were compulsory for shops where⁽²⁷⁾ T.N.T. was handled (Trinitrotoluol). Their duties were obtaining and maintaining a healthy staff, seeing after the "intramural welfare" i.e. supervision of working conditions; the canteen in small factories; of ambulance, rest room and sanitary/conveniences; and finally attending to the "extramural welfare" of the workers--i.e. agencies responsible for housing and transit; sickness, maternity, day nurseries and recreation.⁽²⁸⁾

(24) Mo. ly Rev. V 3, p 254

(25) Fraser, Women and War Work, p. 243

(26) Ibid. p 237-39

(27) Yates, Woman's Part, p 38-9

(28) Fraser, Women and War Work, p 144-150

This account of the British women should give an accurate picture of the extent of their numbers and the field of their accomplishment.

Before we speak of the women of the U.S.A. in industry, it will be well to indicate the relative need for women as compared to Great Britain; and at the same time to remember that American men were not called to the colors until two and a half years after the Englishmen and that they were only in the army a year and a half after that time. The proportionate as well as the actual number of men who went into the army from industry was much larger for Great Britain than for the U.S. In Great Britain in normal times there are 18,000,000 men workers as compared to our 37,000,000 and 7,000,000 of these were called to the colors as compared to our 2,000,000 who have been drawn from industry. ⁽²⁹⁾ Even at that, American women had begun to find their places in munitions, shipbuilding, on railroads, and in government offices, and their numbers were not so small that we need be ashamed of them.

One account says that in Dec. 1918, there were twelve million American women working for wages. ⁽³⁰⁾ This statement is certainly nearly accurate because a Bulletin of the American Association for Labor Legislation states that in June, 1917, there were eleven million women and girls in American industries; of this number 1,071,000 replaced men. ⁽³¹⁾ According to Miss Obenauer, who made an investigation of fifteen states to determine industrial conditions, there were in the early part of 1918, 1,266,001

(29) Women's Work and War V.I No.5, p 4

(30) Clarke, Ass. Mo. 17 V XII, 9 445

(31) Amer. Ass. for Lab. Leg. Labor Laws in Wartime No.2, p.1.

women "engaged in work which was necessary to carry on the war"⁽³²⁾ But according to a report of the National Industrial Conference Board the number of women added to industry in the U.S. since April 1917, is probably not over five or six hundred thousand and the number of women that has actually replaced⁽³³⁾ men is almost negligible.

Whether or not the women replaced the men, the significant thing for women workers is that they have been taken into industries where they have never been employed before. They are found as messengers and elevator "boys", as section hands, tower men and cleaners of the outside of coaches on the railroad; running drills and presses; working in powder and saw mills and wiping engines in machine shop, munitions' plant, and⁽³⁴⁾ aeroplane factories. In Cincinnati of the 275 plants investigated in 1918, 22 were employing women and 18 of these had⁽³⁵⁾ never employed women before 1917.

In munitions there was not a single woman welder in Sept. 1917, but there were 128 in one factory in Sept. 1918.⁽³⁶⁾ The Worcester Pressed Steel Co. employs women on screw machines and press work and the Remington Arms-Union Metallic Cartridge Co. employs 1300 women in a new rifle plant where the women do the milling, drilling, polishing, filing and inspecting--everything that does not require men's strength. In all, this

(32) Women's Work and War V. I, No. 3, p. 2.

(33) Amer. Ass. for Lab. Leg. Labor Laws in Wartime ^{Bul. 2} p. 23

(34) Goldmark, Mo. ly. Rev. V. II, p. 56

(35) Mann, Women Workers in Fact. p 16

(36) Ass. Mo. ly -- The Girls Behind the Men V. XII p. 332

(37)
 company employs 6,000 women. Women are successfully operating lathes and screw machines, doing gear cutting, stamping, filing, and assembling small tool parts as well as replacing men as clerks and ^{working} in the blue-print room. (37 1/2)

Women's entrance into railroad work has been of such a nature and of sufficient proportions to justify the Women's Service Section of the U.S. Railroad Administration with a Director and four field agents. In June 1917, the Penna.R.R. took on 500 women and girls. (38) Within the year, from June, 1917-18, one railroad alone had taken 9,000 women into employment new to them, and it expected to employ 10,000 more women in the last six months of 1918. (39) The kinds of service in which they were employed were as attendants; bridge and lock tenders, carpenters and upholsterers in the car department; clerks, cleaners of cars and shops; messengers; operators of turntables and wipers of engines in round houses; helpers to blacksmiths, electricians and clerks; station agents; telegraph and telephone operators; watch women in warehouses and docks. Women had been employed as laborers, truckers, crew callers and parcel room attendants, but by the request of the Director-general they are

(37) Engineering News-Record, pp 82-3 V 79.

(37 1/2) Viail, Am.Mach. V 48 , p 910

(38) Daggett, Wom.Wanted p 86

(39) Women's Work and War v I. No.5 p 4

no longer so employed.(40)

Women have also been employed in the storage depots of the U.S. in appreciable numbers. There are 500 in actual stores work as inspectors of woven underwear, socks, bed sacks, woolen shirts mosquito netting, and gloves; and in one case in the packing of stationery and dental supplies.(41) The suitability of women to this work depends on whether they have to handle gun car-
(42)
riages or mesh underwear.

Women have been used to a limited extent on street rail-ways. Seventy-five were put on the N.Y. surface cars at first with the expectation that their number would be increased grad-
(43)
ually to fill men's places. Women have even been found on
(44)
coal-breakers at the Meshquehoning coal-breaker. This will be stopped, as have sorting scrap, wiping engines and working in the
(40)
parcel rooms of railroads.

But more gratifying than the fact that women in England and America have gone into industry in large numbers and that they have not stopped at any kind of work that they believed would help in the war, is the fact that employers, and government officials in both the United States and in Great Britain have in many instances and usually unqualifiedly pronounced their work

(40) Ross, Private Communication

(41) Van Kleeck, Storage Bul. No.9, p.12

(42) Ibid. p.10

(43) Electric Railw'y Jour. v.50, p.1075

(44) Women's Work and War v.1, No.5, p.2

good. Though this praise is unstinted in most cases, it is qualified in some, and in others, instead of a verdict of women's success we find one of their failure: "in one ship yard where the work done was drilling, red leading and measuring rivets, the work was not as good as men's, though the women were more attentive." The same author says that where women were employed on the north-east coast of England in engineering works, boiler shops, shipbuilding yards, and munitions, the work was not satisfactory, and it was doubtful if they (women) would be maintained after the war. (45) Indeed women in machine shops was considered one of the horrors of the war; but now the employer does not hesitate between the woman and the unskilled man because he finds her a better and more conscientious worker than he and she is better able to acquire skill rapidly. Employers have in fact reached the point of taking on and training women instead of applying to the Ministry of Munitions for men. (46) There is however, unrestricted praise given to women and one writer believes that the objection to using women in machine shops is largely due to education and tradition because he considers the work in machine shops and core-rooms no worse than that done in textiles and other mills or than the drudgery of hard work in the home. (47) "It is not claimed of course, that women are suddenly turned into skilled mechanics, but what is claimed is that under

(45) "The Engineer", V. 120, p. 375

(46) Baillie, Eng. News Rec. V 79, p. 959

(47) Viall, Am. Mach. V 48, p. 909

suitable instruction and supervision they become in a wonderfully short time expert at particular kinds of work and that the range of their capabilities extends from working to thousandths of an inch with a delicate grinding machine to taking off heavy cuts with a large turning lathe." (48) During the first year of the war said "The Engineer", Aug. 20, 1915, "in a certain factory a department making 4.5 inch projectiles was started, the workers being women. Much of the work taxed the intelligence of the operatives to a high degree, yet the work turned out has reached a high pitch of excellence." (49) Skilled women mechanics stop at nothing. In optical work they make complicated prisms for range finders, and prismatic binoculars with graniculed lenses; they make chemical and medical glass ware, like glass bristle brushes which require a great deal of skill. In gauges including case iron cylinder, screw and ring gauges, where the maximum error allowed is .0003 of an inch, they are successful; and in all this work the machine is set up by the operator. (50)

In December, 1915, a writer in the Contemporary Review stated that "women have shown much resource and adaptability and a high degree of capacity in accomodating

(48) "Engineer" v 121, p 123

(49) Andrews, Ec. Effects of War, etc. p. 33.

(50) Engineer, v 123, p. 296.

themselves to the changed conditions of industry. In the metal trades and ⁱⁿ making projectiles women are doing work demanding intelligence of a high degree and involving intricate operations." (51) In machine operations it is said that women are not only capable of using automatic or semi-automatic tools, but that in a screwing operation where it was customary to rough the thread out with a tool and finish it with taps, women have discarded the taps, and are accurately chasing the screw to gauge with the tool alone. They "handle weights undreamed of before", do figuring and use all but the heaviest tools. (52) The verdict of efficiency was pronounced in 1916 that in unskilled and semi-skilled trades, they achieved success quickly. It was too early to judge skilled work. A firm employing them at plate-edge machines found their work satisfactory and in instances superior to men, and in the ship yards and engineering works of the Clyde district where they did all but the heaviest work they were considered to surpass men. (53) When it comes to a matter of output, women are found to excel in light operations particularly. Miss Helen Fraser says that the output of English women on certain sizes and types of fuses is as good and many times better than that of men in some of the

(51) Adler, Cont.Rev. V.108 p,786

(52) Andrews, Ec. Effects of War, etc. p.33.

(53) "Engineer", V. 120, p 275

best organized American shops. She continues by saying that figures were produced in the Manchester Guardian for Nov. 15, 1915, "showing the output of women munitions workers is slightly more than twice that of men. That in one factory five women are now doing the work of six men with 10% increase in output." (54) Women did work at a feverish pace and it may have been partly due to the fact that they considered their work small in comparison to what men were giving "in Flanders' field", in fact "in the munitions works, in the ship yards, in the engine shops, in the aeroplane sheds, risking life and health in some cases but thinking little of it compared with what their men are doing knee deep in snow and mud and water in the trenches. 'Is the work heavy?' you ask. 'Not so heavy as the soldiers.' 'Are the hours long?' 'Six days and nights in the trenches are longer.'" (55) This will explain some of the output, but others have said that women haven't the "go-slow" policy of the trade unions bred in them as the men have, and are not held back consciously or unconsciously in what they accomplish.

A writer in "The Engineer" makes this statement "that on heavy capstan work women's output is 75% of men's, and that on light capstan work it is better than men's; this applies to the production of small articles in general." (56)

(54) Women and War Work p. 121-123

(55) Fraser, Women and War Work, p. 29

(56) Engineer, V, 120, p. 275

In fact the British War Office has authorized the assertion that on all of the 1701 jobs at which women can be employed "she is just as good as a man and for some of them she is better".⁽⁵⁷⁾ The British Government even announced that by March 31, 1917, "no contracts for shells of a certain dimension would be given except where 80% of the employees were women"; the progress in shell production had been so marked⁽⁵⁸⁾ and so rapid in those shops.

The feeling in the United States seems to be that women will work satisfactorily on the light, simple or semi-complicated operations where men set the work up, for example in tool making which requires neatness, accuracy, precision, dexterity and quickness;⁽⁵⁹⁾ but that women are not "mechanically minded"⁽⁶⁰⁾ and have not men's "reasoning power".⁽⁶¹⁾

The praise of the man who says that "women are superior to boys but inferior to men" would hardly be counted as praise by some, but he admits that women are particularly

(57) Daggett, Women Wanted p. 177

(58) Yates, The Woman's Part, p. 22

(59) Knoepfel, Ind. Management v. 55, p. 480

(60) Baker, Mach. v. 24, p. 451

(61) Engi. News Rec. v. 79, p. 82-3

satisfactory on the drill presses, small punch press, small assembly, field and armature winding in small sizes; part inspection of small parts; spot-welding; soldering; small grinding; and small bench lathe work. They should not be used where they must stand all day, or on foot-press work, without a shock absorber." (62)

Another American writer remarks that a "new broom sweeps clean" and he seems to be skeptical that when it is old it will do its work well. He says that the percent of turnover is nearly as large as that of men, due to higher wages in other plants and the desire to change that comes with spring. He admits that women succeed on some jobs in which deftness counts, but says that they are not put on jobs requiring staying power and that the machines that women run need more attention. (63) In contrast to this are the statements that in a screw department running automatics and hand machines the women keep the machines running and gauge them but they have no setting up to do; and in a gear cutting department they attend to the ordinary running of the machines, setting them up, and do all that a gear-cutting operator is expected to do. (64) Mr. Upp, writing in the "Journal of the American Society of Mechanical Engineers", pointed out that women have difficulty in mastering the screw machine, but when they do, the work is satisfactory, and on the lighter machines more productive than men's work. It is hard for them

(62) Lord, Ind. Management, v 53 p 844

(63) Viall, Amer. Mach. May 30, 1918, v. 48 p. 910

(64) Viall, Am. Mach. v 48, p 12

to learn the difference between a dull and a sharp cutting tool and the lathes are not easy. Women's facilities are in light and heavy punch presses, in assembly work, and in gauging and inspecting. He believes that under proper conditions and with proper training they are almost if not quite the equal of men, and he is surprised at their endurance and is now "ready to assign them to duties at one time considered beyond the scope of their ability."⁽⁶⁵⁾ Again, Mr. Upp says that in all classes of factory operations they are more attentive to their work and when they learn what constitutes satisfactory work the output will be uniformly satisfactory.⁽⁶⁶⁾

Unreservedly the American Pressweld Radiator Corporation of Detroit says, "Women were able to do neater welding and as fast and in some cases faster than the men."⁽⁶⁷⁾

Though we are sure from the statements assembled, that in Great Britain and the United States women have not proved themselves a failure, yet it is also necessary to recognize that women cannot work in industry without training any more than men can, and in addition there must be regulation as to standards, hours, numbers of working days in a week, conditions of work in the factory, and modification of some of the processes and

(65) Jour. Amer. Soc. Mech. Eng. V. 40 p. 456

(66) Knoeppel, Ind. Management, v 56, p 49-52

(67) Women's Work and War, v I, No. 5, p 2.

machines. Women are not built for lifting heavy weights nor can they stand all day at a machine. England did not recognize this at first and let her women work entirely too long and under injurious conditions. They stopt this state of affairs and the U.S.A. with England's example before them began in 1917 to formulate standards which should be adhered to, no matter what the pressure for war supplies should become.

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REGULATIONS AND STANDARDS IN INDUSTRY

The contrast in the training of women to meet an emergency production and of men who were trained for normal production is that women's training amounts to a few weeks intensive training on a particular operation whereas men's equipment consisted in an apprenticeship of years in most branches of the trade. In addition to this, women had to be taught accuracy to a .0003 part of an inch as in gauges.⁽¹⁾ This was sometimes difficult to learn for girls who were "accustomed to measure ribbons or lace within a margin of a quarter of a yard or so or to prepare food by a guess-work-measure of ingredients."⁽²⁾

Though the processes were at first hard to master, the training has not been without its rewards. In Great Britain it was found to be inadvisable to train women in shops with men because where men were opposed to their entrance, they were apt to put every impediment in their way. The most satisfactory training has been given in government or in private schools for women or in separate shops connected with the plant.⁽³⁾ The Cordwainers' College opened a short course in July, 1915, for leather machining,⁽⁴⁾ and in August the National Union of Women's Suffrage Societies started a school for women oxy-acetylene welders.⁽⁵⁾ In the fall of 1915 the "Ministry of Munitions, equipped

(1) Yates, The Woman's Part pp. 14, 17

(2) Ibid., p. 15

(3) Mo. 17 Rev. Sum. of Eng. Exp. V VII p. 1794

(4) Adler, Cont. Rev. V 108; p. 785

(5) Yates, Woman's Part, p. 14

two schools where the women are not given general training beyond the use of the foot rule and the micrometer, but are taught to do a specific job on a specific machine. The larger part of the training is in the plants themselves. Women acquire considerable skill in six to eight weeks. (6)

In a factory making 4.5 inch guns, women learned how to perform some of the operations to gauge in two days and needed not over ten days to attain the most intricate skill in the most intricate operations. Indeed the output of these women has not fallen short of that attained by men who have done the same things all their lives. (7)

Training for a more selected group is given on the west coast of Scotland to women between the ages of twenty and thirty-five who have a bent for mechanics. Preference is given to daughters and widows of army and navy officers. The factory is to make the parts of and finally complete air-plane engines. (8)

Another school has been established in Scotland where women who have gained some knowledge in technical lines are given an opportunity to pursue the engineering profession. The women are paid during the training and their pay is increased after the first six weeks with every examination they pass. (9)

In the United States training has been adopted chiefly in special plants where men adequately trained were unavailable, or women were found to work better if properly trained. The

(6) Baillie, Eng. News-Rec. v. 79 p 959

(7) Power, Workers in Engine Shops, v. 45, p 181

(8) Engineer, Women Workers in Gt. Britain, v. 123, p 5

(9) Engineering, Women Eng. Stud. v. 104, p 485

Recording and Computing Machines Company of Dayton, Ohio, employs over 5,000 women in practically all the mechanical operations. They were noticed to be frightened by the machines and to learn slowly and poorly from other employees. The Company established a training department with a good mechanic, who was a gentleman, at the head, and with women of experience to teach and inspire confidence in the new girls. The training was for one particular job and lasted from three to ten days. In a few weeks the production was sufficient to earn bonuses; in fact, the best output as estimated by two expert engineers was 15,000 fuses per day in two shifts, but thoroly trained girls produced 38,000 per day in one shift. They also do lense work that must be exact to .00025 of an inch and the company has concluded that "strong, healthy women can do work requiring great precision after they are thoroly trained quite as well as skilled men mechanics. They are remarkably efficient as inspectors, and we have also taught them to be excellent tool makers."⁽¹⁰⁾

In a plant in Sch^enectady, N.Y. the new employee's training begins immediately. She is quick to learn and with a short intensive training is doing the work of a man with two or three years' apprenticeship training. It is essential, however, that there be minute instruction, and this the women will follow absolutely without using their own "judgment." The work of women so trained has proved to be of uniform standard morning and afternoon.⁽¹¹⁾

(10). Carpenter, Ind. Management V. 55, p. 353-357

(11). Upp, Jour. of Am. Soc. Mech. Eng. Jan. 1918, v. 40pp. 45

Another writer on this subject says that women lend themselves more readily to instruction than men. They are more willing to learn the right movements (i.e. the employers' movements) and adhere to them, whereas men are apt to use their "mechanical minds and reasoning power" and learn the wrong way. (12)

The employers in the United States do not run any risks in letting the women do their way. They are interested in output and in having it up to standard; they leave nothing to women's judgment and it is because women are not trained in any way to mechanical pursuits and easily become discouraged unless they are shown how. But both in England and in the United States women can be and have been trained to do skilled and unskilled, intricate and simple operations and those requiring judgment as well as those of the purely repetition sort.

Regulation in industry cannot stop with training. It has been found necessary to modify machines and processes, but above all it has been fundamental that standards be made and observed.

Great Britain had to formulate her standards after some of the damage had been done. The sudden call for munitions, clothing, and all supplies in general precipitated a period of overtime night work and Sunday work. (13) Women were sometimes working on two twelve hour shifts, at higher wages. (14)

(12) Baker, Mach. V.24 p 451

(13) Walter, Mun.Workers in Eng.and Franch., p 3

(14) Stone, Women War Workers, p 39

with no Saturday afternoons or Sundays free. The strain (15)
 was aggravated by the heavy weights they had to carry, 80 lb.
 boxes in munitions factories. Overtime was permitted and women
 worked the same as men. Three shifts were usual from six to
 two, two to ten, and ten to six. This work was not without
 strain on the workers; the shells were heavy and they made
 sore hips and worn clothes (16) but " it has been said by a man
 in a position to know that women in this war time will do any-
 thing if only there is the possibility of self-sacrifice in it.
 Women risk losing their health not less willingly than men
 risk losing their lives." (17) The women may have been willing
 for this condition but the British government was not. In
 Sept. 1915, the Ministry of Munitions appointed the Health of
 Munition Workers Committee " to consider and advise on ques-
 tions of industrial fatigue, hours of labor and other matters
 affecting the physical health and physical efficiency of
 workers in munitions factories and work shops." (18) It was
 demonstrated, by close observation for 24 weeks of one hun-
 dred women turning fuse bodies, that with the decrease in
 hours of work the output increased. During the first six weeks
 the average hours per week were 68.2. and the out put was 6,820

(15) English Review, v. 247, p. 42.

(16) Stone, Women War Workers, p. 37.

(17) Ibid., p. 250.

(18) Walter, Munitions Workers in Eng. and France, p. 7.

fuses; during the last eighteen weeks the average week's work was 59.7, with output 7,343, a net gain of 8%.⁽¹⁹⁾ Sunday work was abolished only gradually. On March 30, 1916, 60% of the 2400 plants in operation were reported to have no Sunday work and of the remaining 40% many were doing only repair work or were manned by voluntary week-end workers. Finally, a statutory order of April, 1917, abolished Sunday work in government and controlled plants.⁽²⁰⁾ The recommendations of the Health of Munitions Committee though inadequate for peace times are given in summary because they are a step in the right direction.

I. HOURS OF WORK

- a. Seven-day labor abolished for men, women and children.
- b. Excessive overtime should be done away with by introduction of shifts.
- c. Hours of labor should be adapted to the age and sex of the worker and the nature of the process performed.
- d. Night work, where possible, should be in eight hour rather than twelve hour shifts and in no case should women work at night more than 60 hours. Its evil should be further lessened by sufficient rest periods and by periodic change to the day shift.

(19) Women's Work and War, V I., No. p 1, and Am. Ass. for Lab. Leg. Bul. 2.

(20) Walter, Mun. Workers in Eng. & France, p 34

- e. Meal periods should be at least an hour in length on twelve-hour shifts and half an hour on eight-hour shifts. Further breaks should be allowed in long five-hour spells.

II. HEALTH AND HYGIENE.

- a. Industrial fatigue should be decreased by a careful study of work and of the most economical method of accomplishing ~~it~~.
- b. Provision for both prevention and treatment of work accidents, industrial disease and other illness should be made in all munition plants. N.B.
- c. Matters of factory sanitation such as ventilation, heating, lighting and washing facilities should receive special attention.

III. GENERAL WELFARE.

- a. Improvement of housing and transit facilities should enlist the cooperation of the employers.

N.B. This has been recognized as necessary by a large motor vehicle establishment in the U.S. where the sanitary conditions have been given special attention, medical care with doctor and trained nurse provided and other health and hygiene conditions looked after to the extent of \$62,554.52

- b. In the interests of health and efficiency all munitions works should have canteens where employees can secure hot food.
- c. The appointment of welfare supervisors is recommended in all factories.
- d. Problems involved in the increased employment of women and children should receive the careful attention of both managers and the government. Special welfare workers (21) should be assigned to their oversight.

As was said above, these recommendations are only a step in the right direction. But more serious than the fact that they are inadequate is the fact that all the provisions are to be made by the employer, and strange though it may seem to some, one of the conditions that the trade unionist has been fighting for more than anything else is a voice in the management of the industry in which he works. Though as Miss Fraser says "girls gain real inspiration from a sensible educated woman who can advise them as to health, work, leisure and amusements," (22)

in 1917. See Emmet, B. in Monthly Labor Review, ^{U.S.} Bur. of Lab. Statistics, v. VI, No. 4, 1918, p. 14-17.

- (21). Walter, Munition Workers in Eng. and Fr. pp. 32-33.
- (22). Fraser, Women and War Work. p. 269.

and as she shows the appreciation of Y.W.C.A. canteens, which serve 80,000 meals a week and the good work of the (23) creches and nurseries connected with the factories, yet cheerfulness counts though it be on the utilitarian basis of an American employer who says that it does ^{not} increase skill but it puts the worker in a frame of mind to do the best with the skill he possesses and the cheerfulness which comes from the satisfaction of a desire to manage one's own business is going to be of greater use than the provision by the employer of "white enameled machines, clean (24) water and soap, and scrubbed floors."

In direct contrast to the Treasury Agreement in 1915 in which the British "Trade Unionists agreed to give up their restrictive customs and practices for the duration of the war and to submit to compulsory arbitration provided that all rules relinquished would be restored at the (25) end of the war" are the actions of the National Women's Trade Union League, the government departments and government officials in the United States.

The National Women's Trade Union League at its convention in Kansas City, Missouri, June 1917, at the

(23). Fraser, Women and War Work. p.132-134.

(24). Lord, Jour. of Am. Soc. Mech. Eng. Jan, 1918, v.40 p.43.

(25). Nat. Ind. Conf. Bd. Research Rep., no.15, p.3.

beginning of our war period, adopted the following standards.

I. In government contracts

1. Wages.

- a. Wages be the highest prevailing rate in the industry which the contract affects.
- b. Equal pay for equal work .
- c. Trades without wage standard be placed in hands of an adjustment committee.
- d. That all wages be adjusted from time to time to meet the increased cost of living by the above named committee and other wage questions be submitted to it.

2. The eight-hour day.

3. One day of rest in seven.

4. Prohibition of night work for women.

5. Standards of sanitation and fire protection.

6. Protection against over-fatigue and industrial diseases.

7. Prohibition of tenement house labor.

8. Exemption from the call into industry of women having small children who need their care.

9. Exemption from the call into industry of women two months before and after child birth.

II. They asked that the government employment agencies, transportation, and housing facilities be made adequate to the needs,

III. They asked Congress to empower the Department of

Labor to inspect all plants handling government contracts.

- IV. They protested against the lowering of educational standards or the weakening of laws protecting women and children especially. (26)

Not only have women workers asked for the preservation of standards, for in November 1917, the U.S. War Department through the Chief of Ordnance issued the following suggestions to Arsenal commanders and manufacturers, concerning munitions work.

1. Hours of Labor. Existing legal standards should be rigidly maintained and even where the law permits a nine or ten hour day, effort should be made to restrict the work of women to eight hours.
2. Prohibition of night work. This should be done as a necessary moral and physical protection.
3. Rest periods. No woman should be employed for a longer period than 4 1/2 hours without a break for a meal and a recess of 10 minutes should be allowed in the middle of each working period.
4. Time for meals. At least 30 minutes, and 45 minutes or an hour if ^{the} working day exceeds 8 hours.

5. Place for meals. Not in work rooms where relaxation is impossible and ventilation is needed.
6. Saturday half holiday. An absolute essential for women under all conditions.
7. Seats. With backs for those who sit at work, and for those who stand seats should be available and their use permitted at regular intervals.
8. Lifting weights. No woman should be required to lift repeatedly more than 25 lbs. in any single load.
9. Superintendents for women should be provided to **oversee** conditions of work.
10. Replacement of men by women. Should be made after care is taken that the task is adapted to their strength. Where women do work equivalent to that done by men, the wages should not be lowered from those hitherto prevailing for men.
11. Tenement work. No work should be given out to be done in rooms used for living purposes or in rooms directly connected with living rooms. (27)

(27). Women's Work and War, vol. I., No. 3, p.4.

Finally, the Secretary of War said in Nov., 1917, that the duty of everybody who believes in the philosophy of the National Consumers' League "is to set his face resolutely against everything that on any pretext whatever seeks to break down those barriers which we have set up through years of patient labor against the enervation and dissipation of the child-life and of the woman-life and of the man-life of this country."-----"it will do us no good whatever to send our sons to France to fight for our political rights if while they are waging the battle, we surrender our industrial and our social rights here at home." (28)

To the credit of American employers it may be said that in the main, they have seen the wisdom in the standards as quoted, and have done a good deal to realize (29) them. According to Mr. Knoeppel, the employers proposed to see that work rooms were well lighted and ventilated and that the room temperatures were constant; to provide variation in the position at work by installing seats, etc.; to protect women's health through rest and recreation rooms, and through a factory matron; to increase safety from accident as well as from men in the factories, and when ^{the women were} going to and from the factories.

(28). Baker, Ind. Liberty in War Time. p.6.

(29). Ind. Mgm't., v.55, p.480-483.

One company looked after the housing of its employees, either through providing boarding houses or by placing them in respectable families. (30)

The Brown and Sharp Manufacturing Co., according to Mr. Viall, provides rest and lunch rooms and matrons. (31)

Something has also been done towards reorganizing the shops so that the work will not be so fatiguing. Most of the products are kept on a level of the tables of the machines until finished, and sometimes through the gauging and inspecting, to eliminate lifting. (32) In another shop carrying trays have been constructed so that it is impossible for a woman to obtain a load of more than 50 lbs. except in cases of individual pieces. Stools or chairs are provided and the women take short rest periods at certain times. (33)

The protection to women workers by the guarding of machinery has also been looked after. One company has the same devices for women who wear protective clothing as for men, except that the mesh for the wire guards is smaller and the guards are farther from the moving parts. (34)

(30). Knoeppel, Ind. Mgm't., v.56, p.49-52.

(31). Am. Mach. May, 1918, v.48, p.910/

(32). Still, Ind. Mgm't., v.53, p.650-54.

(33). Upp, Jour. of Am. Soc. of Mech. Eng., Jan.1918, v.40 p.45.

(34). Ibid., 47

Miss Annette Mann in her investigations in Cincinnati found that the machinery was well guarded, a hand ~~clutch~~ was provided which necessitated the use of both hands when the machine was in motion, and tweezers were used to insert or remove material on the machine. (35)

The question of "equal pay for equal work" was not settled by the war either in the United States or in Great Britain. By ^{the} order of May 26th, 1918, the U.S. Railroad Administration ruled that, "The laws enacted for the government of their employment must be observed, and their pay when they do the same class of work as men, shall be the same as that of men". (36) Yet it was reported in June 1918 that women who ^{had} taken the places of car cleaners got 20¢ an hour whereas the men got 30¢. (37) However, in one place, where women were sorting scrap, they were put on the same piece rate basis as the men and averaged the same pay as the men - \$2.88 per day. (38) The hardest fight for the Women's Service section of the Railroad Administration has been on this point, because it was so easy to say "that the women are not doing the same work as men and make it a half truth by changing the process slightly".

(35). Women Workers in Factories, p.18.

(36). Women's Work and War, v. I, no.6, p.4.

(37). Women's Work and War, v. I, no.5, p.3.

(38). Women's Work and War, v. I, no.5, p.4.

It is probably true to say that, up to the end of 1918, wherever there was a range of wages, either "most women get the minimum" or "few women laborers get the maximum". (39)

For the same work on time ranges, ^{for} guns women received \$30 a month and men \$35, though the women's output was twice as great as the men's, according to a report of Miss Nellie Swartz to the Women's Committee. (40)

In the case of the American Pressweld Radiator Corporation, ^{they} ~~is reported to~~ pay women the same as men. (41)

Miss Mann reported that in Cincinnati women get 2¢ to 9¢ less than men for work which is virtually the same. (42)

Finally, in the U.S. storage departments, Miss Van Kleeck found that inspectors of woolen shirts and bed sacks, if they were women got \$50 per month, and \$100 per month if they were men. This variation ^{was} on the ground that the men were capable of inspecting other kinds of goods and were sometimes sent to the factories to inspect. This was in Jeffersonville, Indiana, but likewise in Philadelphia it was found that women were paid \$50 per month for work that men had been paid \$75 for. (43)

(39). Ross, Private Communication.

(40). Women's Work and War, vol.I, no.6, p.1.

(41). Women's Work and War, vol.I, no.5, p.2.

(42). Women Workers in Factories, p.16.

(43). Storage Bulletin, no.9, pp.11 and 12.

The same state exists in England where women are reported to receive 50 to 75% of men's wages in the same occupations. In the metal trades the wage scale was:

Girls under 18 years	\$2.19	
Women 21 and over	3.65	(44)
Men	6.33	

Another account says that when women were doing the work of a skilled mechanic they received the same day and piece rates, but on unskilled work they received a minimum wage which was equal to 2/3 rds. of that of the unskilled man. (45) There were cases of sweating on army clothing, military brushes, haversacks, etc., which were sublet to home workers who brought their own thread, worked 12 hours a day, and were paid \$3.36 to \$3.60. (46) But in January 1916, the Central Labor Supply Committee was given the power of enforcing the provisions of Circular L.2, which provided "that women employed on work customarily done by fully skilled tradesmen shall be paid the time rates of the tradesman whose work they undertake." (47) Women in munitions factories are reported to have received from \$5.47 to \$19 and \$24 per week in a few cases. (48)

(44). Monthly Rev. v.2, p.630, 633.

(45). Baillie, Eng.News-Rec., v.79, no.21, p.959.

(46). The Survey, 38:p.154.

(47). Fraser, Women and War Work, p.115.

(48). Stone, Women War Workers, p.40, and Monthly Review, p.115.

But the most striking comparison of men's and women's pay comes from France, as given by Mabel Potter Daggett. A girl was drilling holes in brass. "See," said he, "she does 1000 holes at 50 centimes an hour. No man we were able to employ ever did more than 500 holes an hour and we had to pay him 75 centimes."⁽⁴⁹⁾

But the average working woman in Great Britain during the war was very much better off financially than she had ever been before. She probably earned 30s. a week, and if she were married, as was probable, she had a separation allowance of 12s.6d. for herself. If she had children, she received in addition 5s. for the first child, 3s.6d. for the second and 2s. for each subsequent child. Whether or not this had anything to do with it, there were 60,000 fewer persons in receipt of poor relief in London in 1915 than in 1903.⁽⁵⁰⁾ With this extra money she is able to live in three rooms instead of two, and to have some of the luxuries and pleasures instead of less than the bare necessities.

It has not been a hardship for women to enter industry in large numbers, rather it has opened up a new vision of what she is able to do, and realization of greater material comforts, better clothing, better shelter, better food and some recreation.

(49). Daggett, Women Wanted, p.177

(50). Daggett, Women Wanted, p.151

WOMEN'S FUTURE PLACE

Women did indeed burst into industry. It is true, as we have shown, that women were in industry before and that their numbers were increasing, but it was not simply that a horde of women precipitated a movement without meaning. The facts of greatest moment are that they proved a capacity for meeting an emergency with sufficient production of a high standard; secondly, that the eyes of those who saw what women did recognized it to be good and said that it was; and thirdly, that certain standards of work have been formulated which are conceded to be not only desirable for the individual worker, but also for the article which she produces.

Olive Schreiner said some time ago that "acting in us and through us, nature will mercilessly expose to us our deficiencies in the field of human toil and reveal to us our powers," (1) and nature has indeed accomplished that in the last four and one half years. We must not forget that it was not only the women who worked at munitions of war or took men's places on railroads, in banks and on the land, but the nurses, the women doctors, the V.A.D. and the W.A.A.C. of Great Britain drawn from every

(1) Schreiner, Woman & Labor, p. 172-173.

walk of life and facing shells, disease and death without flinching; ⁽²⁾ and the women of the United States who have helped with the work of the Council of Defense; in Y.W.C.A. work; in Red Cross work at home and on the fighting lines; and even with the American Expeditionary Forces ⁽³⁾ who have proved their worth as women.

Fine though their showing was, the hardest test is yet to come. The women of the world must decide in the years before them what place they will take in the work of the world.. We cannot go back to the domestic system; we will not go back to the old factory system with long hours, low pay and no provision for rest periods, canteens, and general consideration of the workers because the system that has those things has justified its existence; we must go forward not only to women in factories working with more than a bare existence wage, with human hours, under healthful conditions, and where there are provisions for nurseries, canteens and rest rooms, but also to women in adequately paid educational, secretarial and social work.

Mr. Devine has well said that "those who want large families need not object to women going out to work, for it is always the workers and not the idlers who have borne children. Those such children as are born to have a good chance need not object, for it is ignorance and a

(2) Daggett, Women Wanted, pp. 115-146

Fraser, Women & War Work, pp.57-65, 216-228.

(3) Clarke, Am.Wom.& World War, pp.17-107, 137-215.

lack of income rather than lack of time on the part of mothers that causes under nourishment and neglect. Those who are concerned about the happiness of women should rejoice, for there is no doubt that women who have worked in these past few years whether in factories, offices, or relief committees have on the whole gained more happiness in their occupations than in all the idle leisure, the artificial, parasitic occupations of their lives. From now on wives will share when they like the responsibility for earning an income. There will be women in the professions, trades, and industries - no deluge, but enough to make a difference. On the other hand women who prefer to confine their economic services to the home will, in an enlightened public opinion, stand on exactly the same footing." (4)

There were few women who went into war work with any ulterior motive. "This burden has been taken up with no ulterior motives but with singleness of purpose in pursuance of the duty these heavy times have laid on all of us, each to do such service as the circumstances of life permit without struggling either for preferment or power, without taking praise or wealth, always acknowledging that they who risk life and limb in their country's cause come first in the minds and hearts of their fellow citizens." (5)

(4) Survey, V. 41, p. 184.

(5) Stowe, Women War Workers, p. 12.

Girl signallers on the front behaved so well under bombing that someone suggested they be mentioned in the orders of the day. "No," said the commanding officer, "we don't mention soldiers in ~~our~~ orders for doing their duty." (6)

The statement of this officer epitomizes not only what the employer's attitude should be, but also that of the woman in his employ. He will provide her with conditions under which she can work and maintain physical and mental efficiency. She will work with no thought of reward except economic justice, which is not more than she deserves, because she is a woman, but what she gets in return for the work that she does on a basis of "equal pay for equal work" which principle should exist whether that work be done by a woman or a man. Woman's sphere can no longer be only the home. "It is the place where her capacity, ability, and genius finds its fullest vent." (7) We can no longer assume that the male psychosis leads men to active pursuits and that the female psychosis predestines any human being who is born with it to passivity. It is not the kind, nor amount of work that woman has done that has mattered. She has been physically active throughout history, and in the latter part of the nineteenth century and up to 1918 in the twentieth, she has found it possible to attend to her home and to do something else too.

(6) Fraser, Women and War Work, p. 30.

(7) Ibid., p. 277.

Woman cannot afford to encourage sex consciousness to the extent which allows her to feel that her task is done when she has performed her sex function and the duties which it entails. She no longer has her children for more than half the day after they are six years old, and the able-bodied woman is not fully occupied with home duties when her children are all ready for school. Factories that were employing married women during the war arranged that the hours would be suited to the needs of the household. In one department the hours were from 10 A. M. to 5 P.M., and in another there were two shifts from 7 A. M. to 12 noon and from 1 P. M. to 6 P. M. (8)

But this is not all; the British Home Office has been given large powers to provide for women's comfort. They emphasized the importance of canteens at the places of work, by announcing that for a "large class of workers home meals are hurried and especially for women, too often consist of white bread and boiled tea. Probably much broken time and illness results from this cause." (9)

Meals ~~were~~ served at cost price to employees, and at the Woolwich Arsenal four meals a day ~~could~~ be gotten for at least fifty cents. (10)

Women will not neglect their children because they are earning money outside of the home. The married

(8) Daggett, Women Wanted, p. 175.

(9) Ibid., p. 165.

(10) Ibid., pp. 163, 164.

woman whose husband is earning from twenty to thirty dollars a week must work unless in a very short time there is a radical change in rates of wages for men. Her choice is between unregulated home work and work outside for a limited working day. The former very often consists in laundry work entailing the heavy work of carrying water to the stove to be heated, again to the wash-tub and finally to the drain. But of whatever kind the work may be, she has little time to attend to her children who interfere with her work as well as with her tired nerves.

"The Lancet", a medical journal, is bold enough to print that "Factory work under fitting conditions may be so beneficial to women that it may lead to permanent benefit to the race." (11) The war industries have demonstrated what those conditions should be. A woman need not work nine or ten or even eight hours a day, and when the British Labor party gains its point no one will have to work more than forty hours a week. Nor will the mother have to leave her young child at home to be looked after by some irresponsible person, or to take care of himself. The best factories have nurseries or crèches where the children are well taken care of, and where the mother can go during her rest periods to nurse or at least

(11) Daggett, Women Wanted, p. 192.

to play with her child. The Governments have in England and France given women an allowance and time off before and after child birth which has in no way interfered with their efficiency or the production of the plants where they worked, because there were a sufficient number of women engaged to fill in when they were needed. (12)

If the working woman can earn enough to live in three or four rooms instead of two where she knows her children will have more light, and air, and where fewer of them will die, she will not hesitate to work. She does not know that in London the infant mortality rate is 200 in 1000 in one-room tenements and 100 in tenements of four rooms and over; but she does know that too many children die in crowded rooms, and she, as much as any other mother, will do what she can to prevent her child's death. (13)

Nor will the household duties that she would normally do be neglected. It is possible to have steam laundries where the clothes will be washed with less physical exertion and cleaner than in the individual tenement. The French government even provided laundries for its munitions workers. (14) When the woman working under standards

(12). Conyngton, Mo'ly Rev., v.VII, p.127, and Daggett, Women Wanted, pp.308-337.

(13). Daggett, Women Wanted, p.326.

(14). Fraser, Women and War Work, p.200

outlined for her by the National Women's Trade Union League, comes home to her "four rooms instead of two", with the clothes all clean from the steam laundry and with the prospect of her supper being gotten from the communal kitchen, if she so desires, ⁽¹⁵⁾ ~~and~~ she will have time to enjoy her children or at least have other diversion than a change from factory work to the wash tub, or to some other equally wearing kind of work. Living under conditions of this sort would be play and not struggle.

However, it is not only for the "working woman" that the future should be filled with inspiration if she wants to have a richer life. Some women will manage households, conservers if not creators of wealth, others will be social workers, teachers and in ^{the} professions, "To coop them up at home without future, without freedom, without outlook, dependent on their father's purse yet with the wide world ever present, is a poor way of showing man's sense of the meaning of the words, Liberty, Equality, ⁽¹⁶⁾ Fraternity". Women are successfully entering chemistry, architecture and banking, and some believe that what they prove capable of achieving and holding, they will certainly ⁽¹⁷⁾ have.

Though women with training have proved their ability in the professions of law and medicine in France ⁽¹⁸⁾ England and the United States, and will surely continue

(15). Daggett, Women Wanted, p.329.

(16). Stone, Women War Workers, p.313.

(17). Fraser, Women and War Work, pp.272-3

to practise, yet the profession which should appeal to many women and could be practised without need of such strict accountability to hours is that of teaching and of social work. Women, until the prevalence of training schools of all kinds had more of the responsibility of their children than anyone else, Now they are sent to a young girl in the grammar schools who often has little wisdom and less patience with the children who are in her charge for seven hours a day. It is the mother, who understands children better than anyone else, who should direct them in the school. If an all-day session were too strenuous or confusing, there is no reason, except the inconvenience of more book-keeping, why there should not be a staff of teachers for the morning and one for the afternoon. In high schools this is not necessary because the session is shorter than in grammar schools. But if we are to have universal education for all children under fourteen, (preferably sixteen) there will be a great need for teachers to give instruction.

Women ~~need~~ not stop with teaching young people. There is training of older ones thru all branches of social work that must be done if we are going to have a society which will be ^{the} happiest for all concerned. This work could be done as volunteer work, and the Women's Committee has

proved the efficiency of volunteers under the stress of battle, but in normal times not only is "the workman worthy of his hire", but usually he takes more pride in what he is doing, tries to keep up with the times in his profession and has a greater influence with other people if he is being paid for what he does.

We have in the United States made a start in the agencies which should administer this work. The Federal Children's Bureau is very efficient, and the state divisions of the Women's Council of National Defense are splendidly organized. Is it impossible that we should have in the federal government a Department of Education, a Secretary of Labor who will have supervision of women in industry with a consequent need of assistants in every State; and a Department of Health which shall reach and supervise the work for better health in every city, town and county. We have made a start in this direction with home demonstration agents in the counties under ^{the} provisions of the Smith-Lever bill.

There is more than a plenty of work for each woman who wants to do something. The working woman may do it for a better house, better food, and more leisure; the professional woman may follow her profession because she is peculiarly adapted to it or because she loves it; and the woman who works as a teacher or as a volunteer or paid social worker may find in those tasks the perfect service.

Whatever the future may hold of work that women find to do, in the light of their accomplishments during the four dreadful years of the Great War, we may be confident, that however great or humble the task, within the bounds of human limitations, it will be done well.

BIBLIOGRAPHY

- Abbott, Edith, Women in Industry. London, New York,
D. Appleton and Company, 1910.
- Adler, N., (x) Women's Industry after the War. Contemporary
Review, v. 108, December, 1915, pp. 780-8.
- Alec-Tweedie, Mrs., Woman's Army. London, English Review,
v. 24, January, 1917, pp. 39-48.
- American Association for Labor Legislation, Labor laws
in War time. Bull. No. 2, June, 1917.
- Andrews, Irene Osgood. Economic Effects of the War Upon
Women and Children in Great Britain. New York,
Oxford University Press, 1918.
- Association Monthly, The, The Girls Behind the Men Behind
the Guns. v. XII, 1918, p. 332.
- Baillie, G. H. Esq., (x) Dilution of Skilled Labor and Substitut-
ion of Women in Industry. Engineering News-Record,
v. 79, 1917, pp. 958-959.
- Baker, Donald H. (x) Women Workers in the Shop. Machinery,
v. 24, 1918, p. 451.
- Baker, Newton D., (x) Industrial Liberty in War time. New York
City, National Consumers' League, 1917.
- Blatch, Harriot Stanton. English and French Women and the
War. Outlook, The, v. 113, 1916, pp. 483-488.

(x)-full name not given by the source.

Brooks, F. W., ^(x) Female Substitutes for Male Employees.

Electric Traction, v. 13, 1917, pp. 686-688.

Carlton, Frank Tracy, The Industrial Situation. New York,

Fleming H. Powell Company, 1914.

Carpenter, Charles U., ^(x) How We Trained 5,000 Women.

Industrial Management, v. 55, 1918, pp. 353-357.

Clarke, Ida Clyde, American Women and the World War.

New York, D. Appleton and Company, 1917.

Clarke, Ida Clyde, The Business Woman's Hour. The

Association Monthly, v. XII, 1918, p. 445.

Daggett, Mabel Potter, Women Wanted. New York, George H.

Doran Company, 1917, 1918.

Devine, Edward T., ^(x) Between War and Peace. The Survey,

v. 41, 1918, pp. 179-185.

Electric Railway Journal, London Letter. v. 46, 1915,

p. 1136.

Electric Railway Journal, Women Conductors for London.

v. 46, 1915, p. 962.

Electric Railway Journal, Women Conductors on Surface Cars.

v. 50, 1917, p. 1075.

Electric Railway Journal, Wartime Economies. v. 49, 1917,

pp. 419-20.

Electrical World, Women Prove Successful as Central Station

Solicitors. v. 69, 1917, p. 1068.

Engineer, The, The Employment of Women in Engineering

Workshops. v. 120, 1915, pp. 181-182.

- Engineer, The, Employment of Women as Machinists. v. 120,
1915, p. 218.
- Engineer, The, The Employment of Women on Munitions of
War. v. 121, 1916, p.123.
- Engineer, The, Report on Replacement of Men by Women
Workers. v. 122, 1916, pp. 274-275.
- Engineer, The, Women Shell Makers. v. 122, 1916, pp.358-359
- Engineer, The, Munitions Factories. v. 122, 1916, p. 262.
- Engineer, The, A Woman's Engineering Works. v. 122, 1916,
p. 37.
- Engineer, The, Skilled Women Mechanics. v. 123, 1917,
p. 296.
- Engineer, The, Women in Industry. v. 123, 1917, p. 502.
- Engineer, The, Women Workers in Great Britain. v. 123,
1917, pp. 4-5.
- Engineering, Women Engineer Students. v. 104, 1917, pp.
485-488.
- Engineering News-Record, One Labor Shortage Problem Solved-
Women in Machine Shops a Success. v. 79, 1917,
pp. 69-71.
- Engineering News-Record, Women Draftsmen. v. 79, 1917,
pp. 82-3.
- Fraser, Helen, Women and War Work. New York, G. Arnold
Shaw, 1918.
- Goldmark, Josephine, Some Considerations Affecting the
Replacement of Men by Women Workers. The Monthly
U.S. Bureau of Labor Statistics
Review, v. II, 1918, pp. 56-64.

- Goodsell, Willystine, A History of the Family as a Social and Educational Institution. New York, The Mac-Millan Company, 1917.
(x)
- Hiatt, Walter S., Efficiency of French Women as Railway Workers. Railway Age Gazette, v. 59, 1915, pp. 943-45.
- Industrial Management, Britain's Industrial Revolution, Its Lesson for America. v. 53, 1917, pp. 625-629.
- Industrial Management, Skill and Women Workers. v. 53, 1917, pp. 125-126.
- Kelley, Mrs. Florence, The Problem of the Married Woman in Industry. Bul. Pennsylvania Department of Labor and Industry. v. 5, No. 1, Series of 1918, pp. 55-62.
- Knoeppel, C. E., American Women in War Industry. Industrial Management, v. 55, 1918, pp. 480-483.
(x)
- Knoeppel, C. E., The Problem of Woman in War Industry. Industrial Management, v. 55, 1918, pp. 385-387.
- Knoeppel, C. E., American Women in War Industry. Industrial Management, v. 56, 1918, pp. 49-52.
- Lord, C. B., How to Deal Successfully with Women in Industry.
(x) Industrial Management, v. 53, 1917, pp. 838-845.
- Lord, C. B., Psychology of Environment. Journal of the American Society of Mechanical Engineers, v. 40, 1918, pp. 48-49.
- Mann, Annette, Women Workers in Factories. Consumers' League of Cincinnati, 1918.

- National Industrial Conference Board, Problems of Readjustment in the United States. Report No. 15, 1919.
- Nearing, Scott, Financing the Wage Earners Family. New York, B. W. Huebsch, 1914.
- Nearing, Scott, Wages in the United States, 1908,-1910, New York, The MacMillan Company, 1911.
- New Republic, The, Woman's Work After the War. v. 16, 1919, pp. 358-359.
- Pennsylvania Department of Labor and Industry, The Possibilities and Limitations of the Employment of Women in Industry. v. 5, No. 1, Series of 1918, pp. 36-42.
- Porter, Harry F., ^(x) Detroit's Plans for Recruiting Women for Industries. Industrial Management, v. 52, 1917, pp. 654-659.
- Power, Workers in Engine Shops Abroad. v. 45, 1917, p. 493.
- Ross, Helen, Private Communication. ^{to writer} February 13, 1919,
- Schreiner, Olive, Woman and Labor. Ed, 8, New York, Frederick A. Stokes Company, 1911.
- Still, F. R., ^(x) Women as Machinists. Industrial Management, v. 53, 1917, pp. 650-654.
- Stone, Gilbert, Editor, Woman War Workers. London, Geo. G. Harrop and Company, 1917.
- Survey, The, v. 38, 1917, pp. 152-154.
- Times History of the War, The, Women's Work in the War. v. 4, 1915, pp. 241-281; and 481-512.
- Upp, John W., ^(x) The Woman Worker. Journal of the American Society of Mechanical Engineers, v. 40, 1918, pp. 45-48.

United States Bureau of Labor Statistics;

The Monthly Review, Effects of the War upon Railway Labor in Great Britain. v. 3, 1918, pp. 253-259.

The Monthly Review, Woman's War Work. v. 3, 1916, pp. 788-792.

The Monthly Review, Extension of Employment of Women in Great Britain in 1916. v. 4, March, 1917, pp. 347-8.

The Monthly Review, Women's Wages in Munitions Factories in Great Britain. v. 5, August, 1917, pp. 119-128.

The Monthly Review, v. 4, October, 1917, p. 83.

The Monthly Review, Women Munition's Workers in France. v. VII No. 1, July, 1918. Mary Conyngton.

The Monthly Review, Summary of English Experience with Woman Munition Workers- Excerpt from minutes of proceedings of Institution of Mechanical Engineers. v. VII No. 6, December, 1918, pp. 1794-1797.

United States Bureau of Labor Statistics, Bulletin- Employment of Women and Juveniles in Great Britain during the War. No. 223; Washington, 1917.

United States Commissioner of Labor- Report on Women and Child Wage-Earners in the United States in 19 volumes. Prepaid by Helen L. Sumner, Vol. IX 1910.

Van Kleeck Mary, Employment of Women in the Storage and Warehousing Depots of the United States Army.

Storage Bulletin No. 9, 1917..

(x)

Viall, W. A., Employment of Women in Our Industries.

American Machinist, v. 48, 1918, pp. 909-911.

(x)

Walter, Henriette R., Munitions Workers in England and France. Bew York Russell Sage Foundation, 1917.

Wartime Employment of Women in Metal Trades. Research Report No. 8, Boston, National Industrial Conference Board, 19.

Womens Work and War.

National Women's Trade Union League, v. 1, Numbers

3, 4, 5, 6, 7, Chicago, 1918.

(x)

Yates, L. K., The Woman's Part-A Record of Munitions Work.

New York, George H. Doran, 1918.

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April 22nd. 1919

COLUMBIA, MO.

Dean Walter Miller,
Graduate School, Univ. of Mo.

Dear Sir:

I beg to submit a more formal approval of the thesis submitted by Miss Mary Louise Brown in partial fulfilment of the requirements of the degree of Master of Arts than given by me previously over the telephone. This statement was delayed by reason of suddenly being called on for an out of town trip yesterday.

Miss Brown's thesis while satisfactory might be criticised on the score of two obvious faults. The first of these is excessive use of quotations in the body of the thesis. These should be in foot-notes. Secondly, the use of too many mechanical devices and summaries of documents. Such material would go better in foot-notes or appendices. In general the thesis is interesting and worth-while but much of the could have been better organized, digested, and stated in the author's own words.

Yours very truly,

Norman M. Trenholme

Dear Dr. Miller,

I have again referred to p. 55 of Norman in Industry by Savitt Roberts and I find that "Boston Centinel" is spelled as I have written it in the thesis.

Trusting that the other corrections is made correct.

Yours very sincerely,
Mary Louise Brown

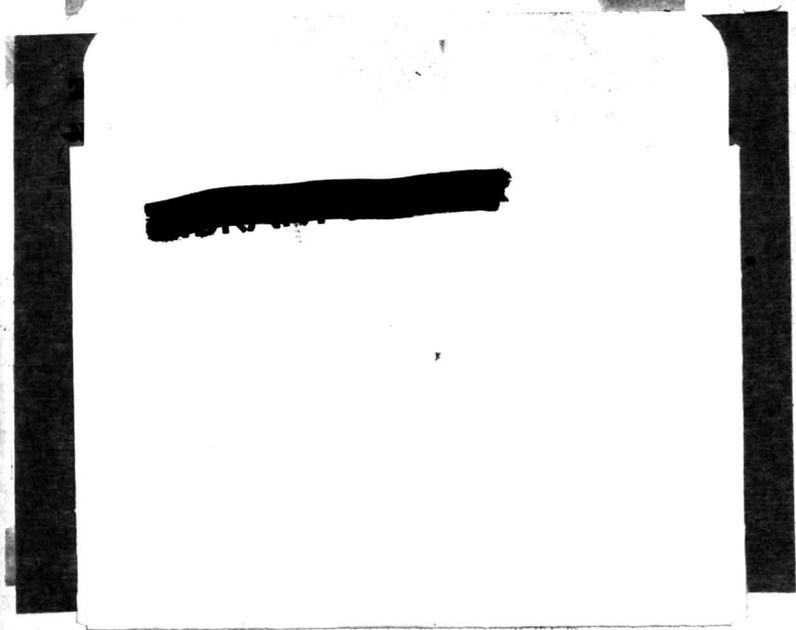
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File types	pdf
Notes	blank pages removed in pdf