

Employment of Women in War Production*

DURING THE WAR PERIOD OF 1914-18, more women entered the labor force than ever before. They worked not only as clerks and saleswomen but also as lathe operators, punch-press operators, single and multiple-spindle-drill-press operators, grinders, riveting-machine operators, inspectors, crane operators, assemblers, and case makers. In some war industries, such as aircraft, the employment of women rose from negligible proportions before the war to about 19 percent in 1918. In other war industries the proportions were considerably higher: 37 percent in optical goods, 35 percent in rubber goods and in photographic supplies, 33 percent in leather goods, and 27 percent in electrical goods.¹ At the close of the First World War, women constituted some 20 percent of the working force in all manufacturing industries in the United States.

Women going to work in factories for the first time were trained in courses conducted in and outside the plants. Many women were trained in the factories in vestibule training schools. In strenuous jobs in which direct replacement of male workers was not practicable, job break-down made the employment of women possible. Whenever careful consideration and thought were given to the problem of training, the employment of women in factories was highly successful.

The serious shortage of agricultural workers which had developed by the spring of 1918 also made demands on women as farm workers. A recruiting program was carried on by the Farm Bureau and other organizations. County exchanges were established to mobilize labor for agriculture, and women over age 18 were registered. In some 20 States women organized themselves into a Women's Land Army, which furnished 15,000 additional workers trained by the organization. Many other women got agricultural jobs through their own efforts.

In Great Britain the number of women employed in industry rose from 3.3 million in July 1914 to 4.9 million in July 1918.² In addition,

about 500,000 women left domestic service for other employment during the same period. In some jobs women replaced men directly; elsewhere, jobs were broken down into component parts, which women then could perform. To meet the growing demand for agricultural labor, voluntary organizations such as the Women's Land Service Corps (Government aided) recruited and placed women on farms. Between 1914 and 1917, 44,500 additional women supplemented the agricultural labor force. Careful selection was made of the women placed, and preference was given those with agricultural training. Care was taken to ensure the safety and comfort of women farm workers, and the women proved of considerable aid in meeting the labor requirements of an expanded agricultural program.

In the post-war period in this country, the employment of women decreased when men returned from the armed forces. The revival of business activity during the twenties, however, again encouraged the employment of women. By 1929 they constituted 22 percent of all employees in manufacturing industries. Among the industries in which women continued to be employed in large numbers were leather, chemicals, electrical-machinery, and scientific-instruments. Similar trends prevailed in other countries. While the peak of female employment never reached the wartime level in either Germany or Great Britain, the proportion of women in the labor force definitely increased during the twenties.

At the outbreak of hostilities in Europe in 1939, the rearmament program had already been in effect in Great Britain since 1936 and in Germany since 1933. After a brief rise in employment at the beginning of the rearmament program in each of these countries, the conversion of industries to war production and the curtailment of consumer-goods production led to serious unemployment, particularly among women. This situation was repeated in the United States; as employment increased during the latter half of 1940, the active files of public employment offices showed a marked decrease. In 1941, however, with displacements in consumer-goods industries affected by priorities and shortages of essential materials, registrations of women rose. In all three countries, after the

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¹ U. S. Department of Labor, Women's Bureau, *The New Position of Women in American Industry*, Bulletin No. 12, 1920, pp. 35, 86.

² Wolfe, Humbert, *Labour Supply and Regulation*, London, 1923, p. 77.

initial temporary displacements, unemployment declined fairly rapidly.

Not until the supply of skilled and semiskilled male workers in Great Britain was practically exhausted did the Government resort to compulsory registration and conscription of women. In March 1941 more than 1.2 million women between the ages of 20 and 24 were registered for war work. Unemployed women and those not normally in the labor force were made available to war industries and the Auxiliary Territorial Service. Early in 1942 the British began the compulsory registration of women up to age 38. Women in the other age classes are to be registered and interviewed as need arises. In addition, the British Government made job-dilution agreements with many trade-unions and trade associations whereby women could be employed on work formerly done by skilled male workers. With the job-dilution agreements, compulsory registration of women, and the continued rise in production, the number of unemployed women decreased from 440,000 in January 1940 to 153,000 by June 1941.

Germany has also met its labor shortage by the recruitment of women in increasing numbers. Contrary to popular belief, the Nazi philosophy of "Kinder, Küche, und Kirche" never decreased the number of women in the labor force. A compulsory work program was introduced for unmarried women under 25 which required a year's work in either agriculture or domestic service. Arrangements for the training and retraining of girls and women were extended. Not only did the women adapt themselves to their new work but because of their manual dexterity their output was in some cases greater than that of the men. Since 1940 there has been a very marked increase in the employment of women, especially married women, and special efforts have been made to organize part-time shifts and communal nurseries for the care of the children of working mothers. The widespread installation of new machinery and technical equipment further extended the use of women by eliminating heavy manual work and weight lifting.

In the United States there has been as yet no Nation-wide compulsory registration of women for employment. There is still a reserve of unemployed men available in most areas, and in those where there has been a special need women have

registered voluntarily in sufficient numbers to meet the needs.

Size and Characteristics of the Female Labor Force

The census of population of 1890 listed 4 million women as gainful workers, or 17 percent of the total of 23.3 million persons in gainful occupations. Each decade thereafter, the number and proportion rose; by 1930 there were 10.8 million women out of a total of 48.8 million gainful workers or 22 percent. According to 1940 census figures, there were 52.8 million persons in the labor force during the last week of March 1940, of which 12.8 million or 24 percent were women. The Census of Manufactures found that women comprised 20 percent of all employees in manufacturing industries in 1919, 22 percent in 1929, and 25 percent in 1939.

The increase in the number and proportion of gainfully occupied women has been notable in a number of States.³ From 1930 to 1940, women workers increased 20 percent in Pennsylvania, 16 percent in North Carolina, 14 percent in Maryland. The District of Columbia in 1940 (as in 1930) led the Nation with 45 percent of its women 14 years of age and over in the labor force. Other States with large proportions of women in the labor force are Massachusetts, Rhode Island, Connecticut, New York, New Jersey, South Carolina, Georgia, and Florida.

Of the 11.1 million women employed during the last week of March 1940, more than one-fourth—2.9 million—were employed in personal-service industries, mainly domestic service (table 1). The second largest group, 2.3 million, was employed in manufacturing industries, principally in apparel factories and textile mills. More than 2 million women were employed in wholesale and retail trade, and 1.8 million were in professional and related service industries, mainly as teachers and trained nurses.

Women outnumbered men in a number of important industries. In personal service nearly three-fourths of the employed workers were women; in domestic service, nine-tenths. Two-thirds of the employed workers in factories manufacturing apparel and other fabricated mill products were women; more than half in the com-

³ For information on percentages in urban areas, see "Estimating the Potential Expansion of the Female Labor Force in Urban Areas," in the Employment Security section of this issue.

munication industry—mainly in telephone and telegraph companies—and in hotels and lodging places were women. Other industries in which women constituted a significant proportion of all workers of the industry were textile mills; leather and leather products manufacturing; eating and drinking places; and laundering, cleaning, and dyeing establishments.

According to the census data, working women

as a group are younger than men. In the last week of March 1940, half the women were under 31 years of age, whereas the median age of men in the labor force was 37. More than one-third of the women in the labor force were 20–29 years of age, whereas men in these ages constituted only one-fourth of all men in the labor force. It is significant that 68 percent of the women in the labor force were in the child-bearing ages 20–44

Table 1.—Employed workers 14 years old and over, by industry group and sex, United States, March 24–30, 1940

Industry group	Total	Men	Women		
			Number	Percent	Percentage distribution by industry group
Total population (all ages).....	131,660,275	66,061,592	65,607,683		
All persons 14 years old and over.....	101,102,024	50,553,748	50,549,176		
In labor force.....	52,780,409	39,944,240	12,845,259	24.3	
Employed workers (except on public emergency work).....	45,166,083	34,027,905	11,138,178	24.7	
Unemployed and on public emergency work.....	7,623,410	5,916,335	1,707,081	22.4	
Total employed workers (except on public emergency work).....	45,166,083	34,027,905	11,138,178	24.7	100.0
Agriculture, forestry, and fishery.....	8,475,432	7,988,343	487,089	5.7	4.4
Mining.....	913,000	902,061	10,939	1.2	.1
Construction.....	2,050,274	2,022,032	34,242	1.7	.3
Manufacturing.....	10,572,842	8,250,590	2,322,252	22.0	20.8
Food and kindred products.....	1,093,628	801,634	109,094	18.2	1.8
Textile-mill products.....	1,170,024	692,353	477,671	40.8	4.3
Apparel and other fabricated textile products.....	780,664	265,324	515,340	66.0	4.6
Logging.....	141,405	140,233	1,202	.9	(1)
Sawmills and planing mills.....	435,559	427,072	8,487	1.9	.1
Furniture, store fixtures, and miscellaneous wooden goods.....	361,523	319,056	42,467	11.7	.4
Paper and allied products.....	328,241	250,519	77,722	21.9	.6
Printing, publishing, and allied industries.....	630,677	501,583	129,094	20.5	1.2
Chemicals and allied products.....	430,845	362,211	77,604	17.0	.7
Petroleum and coal products.....	201,180	186,821	14,359	7.1	.1
Leather and leather products.....	364,443	225,520	138,914	38.1	1.2
Stone, clay, and glass products.....	330,745	293,521	43,224	12.8	.4
Iron and steel and their products.....	1,263,215	1,169,623	93,592	7.4	.8
Nonferrous metals and their products.....	270,454	239,370	40,084	14.3	.3
Machinery.....	1,072,250	909,039	163,211	15.2	1.5
Automobiles and automobile equipment.....	574,931	525,010	49,921	8.7	.4
Transportation equipment, except automobile.....	305,872	295,806	10,066	3.3	.1
Other and not specified manufacturing industries.....	793,096	516,896	276,200	31.0	2.2
Transportation, communication, and other public utilities.....	3,113,353	2,768,267	345,086	11.1	3.1
Railroads (including railroad repair shops) and railway express service.....	1,135,019	1,090,361	35,658	3.1	.3
Trucking service.....	427,623	414,250	13,373	3.1	.1
Other transportation.....	615,029	586,404	28,625	4.7	.3
Communication.....	393,300	182,763	210,537	53.5	1.9
Utilities.....	642,382	485,480	156,902	10.5	.5
Wholesale and retail trade.....	7,538,768	5,500,228	2,020,540	26.9	18.2
Wholesale trade.....	1,200,761	1,024,914	181,847	15.1	1.6
Food and dairy products stores, and milk retailing.....	1,480,303	1,206,648	282,755	19.0	2.5
Eating and drinking places.....	1,110,202	637,562	472,640	42.9	4.3
Motor vehicles and accessories retailing, and filling stations.....	730,311	695,499	34,812	5.0	.4
Other retail trade.....	2,987,191	1,944,705	1,042,486	34.9	9.4
Finance, insurance, and real estate.....	1,467,597	1,013,297	454,300	31.0	4.1
Business and repair services.....	864,254	787,377	76,877	8.9	.7
Automobile storage, rental, and repair services.....	479,592	460,305	13,287	2.8	.1
Business and repair services, except automobile.....	384,662	321,072	63,590	16.5	.6
Personal services.....	4,000,317	1,133,555	2,875,762	71.7	25.8
Domestic service.....	2,320,879	266,943	2,059,936	88.5	18.5
Hotels and lodging places.....	552,655	260,755	285,900	51.7	2.6
Laundering, cleaning, and dyeing services.....	442,803	225,933	216,870	49.0	1.9
Miscellaneous personal services.....	680,980	373,924	313,056	45.6	2.8
Amusement, recreation, and related services.....	395,342	310,003	70,270	20.1	.7
Professional and related services.....	3,317,581	1,472,453	1,845,128	55.6	10.6
Government.....	1,753,487	1,414,009	339,418	19.4	3.0
Industry not reported.....	688,836	450,670	238,206	34.6	2.1

¹ Less than 0.05 percent.

Source: U. S. Bureau of the Census, Sixteenth Census of United States, 1940, Series P-10, No. 11.

years, although probably only a minor proportion of them had children under 16.⁴ Women 45 years old and over were only 21 percent of the female labor force.

The extent to which men and women enter the labor force at different ages is illustrated in chart 1. At every age level more men than women are in the labor market, either at work or seeking work. At age 20 the highest proportion of women are in the labor force—48 percent of all women of that age. After they reach 20 or 21 years of age, women begin leaving the labor force in large numbers, because of marriage and the assumption of home responsibilities. On the other hand, men who have completed their schooling continue to augment the labor force; 95 percent of all men between the ages of 25 and 40 are in the labor force.

Factors To Be Considered in Utilizing the Female Labor Reserve

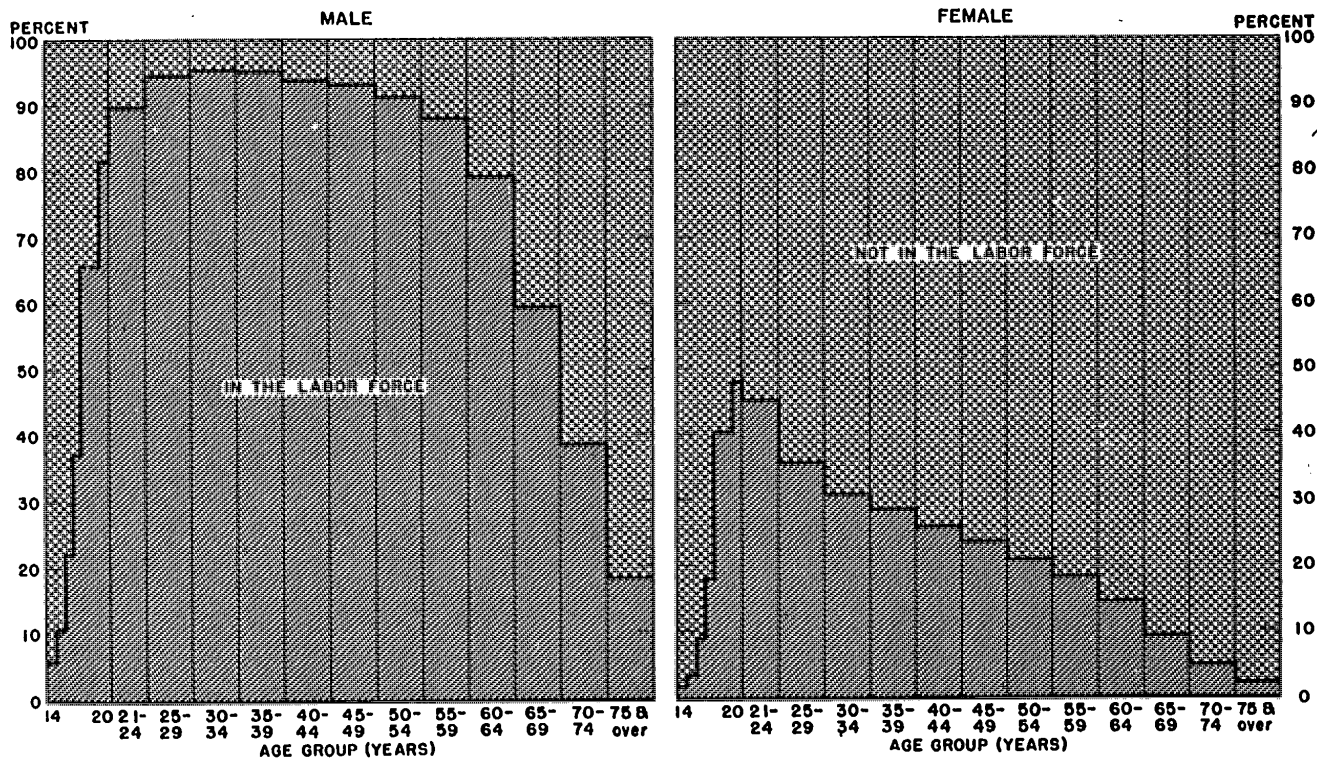
The problem of drawing millions of women into

⁴ Census data for 1940 on age, race, marital status, employment status, and number of children of women, by age of the children, are not yet available.

the labor force is more than a question of wage rates. Undoubtedly, appeals to patriotism would cause many women to seek war employment. Nevertheless some means will have to be found to relieve women homemakers of part of their family obligations before they can assume work outside the home. This problem has been met in some foreign countries through the establishment of community nurseries, staggered and part-time hours, and other measures which enable women to meet home obligations and still seek employment.

In addition to community nurseries in some industrial areas, various war firms in Great Britain have established crèches in the plants for the care of children of pre-school age. Where facilities for such care are not available in the factory, arrangements are frequently made for neighbors to care for children of working mothers. Part-time shifts have been arranged in many plants, to give women sufficient time to attend to their family duties. Persons too old to take on full-time employment are being taken back for part-time work in retail shops to relieve the shortage of workers and to release younger

Chart 1.—Proportion of male and female population 14 years and over in the labor force, by age group, March 24–30, 1940



Source: U. S. Bureau of the Census.

workers, both men and women, for war work.

In the United States, steps are being taken to establish day-care programs for children of mothers working in war industries. Numerous local, State, and national agencies, both public and private, are promoting activities in this field, but, if it is to be adequate, the program needs considerable expansion. No instances have been reported of part-time shifts organized for women war workers in this country, nor is it expected that such shifts will be necessary until the large reserve of full-time workers is exhausted.

The establishment of sanitary and healthful working conditions in establishments seeking additional female labor is another means of encouraging the entrance of women to the labor market. In both England and Germany it has been found that good working conditions, plus special provisions such as rest periods, adequate sick leave, and vacations, result in greater efficiency and less absence from work, for both men and women but especially for women.

Another factor operating to affect the utilization of the large female labor reserve is legislation in the various States governing the employment of women. Eighteen States prohibit the employment of women beyond 8 hours a day except in unusual circumstances, while 20 States set the maximum at 9 hours. About half the States set a maximum of 48 hours of work per week. Night work, usually defined as work between 10 p. m. and 6 a. m., is either limited or prohibited for women in 17 States.⁵ In several States, restrictions apply to the employment of women under age 21; in others the restrictions are fixed at age levels ranging down to 16. Other legal provisions concerning women's employment require proper toilet and rest-room facilities, suitable arrangements for sitting at one's work, and adequate ventilation. Many States prohibit the employment of women in jobs which entail lifting heavy objects or in other activities deemed injurious to health.

The increased pressure of labor shortages has created a demand in some areas for the repeal of the laws governing the employment of women. By May 1942, Connecticut, New York, Massachusetts, New Jersey, and Wisconsin had amended

⁵ Since March 31, 1942, all but one of the States prohibiting the employment of women at night work have made special provision to permit night employment in war industries.

their laws regulating night work for women in selected war industries. At the request of the War Department, the Secretary of Labor, on April 23, 1942, granted an exemption lowering the age minimum from 18 to 16 years for girls employed in about 15 manufacturing industries which furnish products to the Government under the Walsh-Healey Public Contracts Act. Girls under 18, however, may not be employed more than 8 hours a day and not between 10 p. m. and 6 a. m. Among the industries to which the exemption applies are food-processing, arms and ammunition, electrical-manufacturing, plastic-products, safety-appliances, machinery and allied products, converted-paper products, fabrication of metal products, chemicals, and drug and allied products.

The experience of Great Britain in repealing the provisions regulating the employment of women, particularly those relating to hours of work, is significant. Immediately after Dunkerque, the British factory laws regulating hours were suspended and night work for women was permitted. Men and women worked feverishly, and overtime was widespread. The results, however, were disappointing, for it was found that, despite the best efforts of the workers, long hours and night work increased the absenteeism and accident rates due to illness and fatigue among both men and women. The British factory laws have since been re-established.

Prohibitions against the employment of women in jobs requiring heavy lifting were also found necessary in England and in Germany as well. This problem was solved in Germany by requiring employers to install new machinery to do the heavy work, thereby permitting the employment of women. In other instances in which new machinery could not be obtained it was found possible to break down the jobs so that men did the heavy lifting and women the rest of the work.

In general, it was found in both England and Germany that, in order to employ women satisfactorily in war production, the laws regulating employment conditions must be strengthened rather than weakened. Improved conditions resulted in increased efficiency and morale, not only of women but of male workers as well.

Occupational Potentialities of Women Workers

To determine occupations suitable for women,

Social Security

the Occupational Analysis Section of the U. S. Employment Service made a detailed analysis of 1,859 different occupations in 21 war industries and 937 occupations in nonwar industries. Almost 80 percent of the total number of war-industry occupations studied were jobs in which the degree of physical strength required and the conditions under which the work is performed presented practically no barriers to the employment of women. Women were already employed in some of the occupations but could be much more extensively utilized than at present. Even in the case of the remaining 20 percent of the jobs, for which considerable training is required, increased job dilution would make possible the employment of women after a reasonable period of training. For example, it usually takes 3 years to train precision-lens grinders. Certain phases of precision-lens grinding, however, such as blocking, centering, and inspecting, can be taught within a relatively short time, and women have been found to be most adaptable to these tasks.

Some of the occupations in which women could be employed with success are in the manufacture and assembly of parts for radio, motors, recording instruments, and airplane gauges. A large majority of the work in the manufacture of trucks, tanks, and final body assembly could be performed by women, particularly since heavy parts are now moved by machinery. In the ship-building and boatbuilding industries, women are acceptable for employment as boilermaker helpers, draftsmen, machinist helpers, blueprint machine operators, and flash welders. In foundries, women may be employed as casting cleaners, finishers, machine core makers, facing mixers, and in many other jobs. In the manufacture and servicing of aircraft, women can perform such work as metal fabrication, bench assembly, painting, covering, heat treating, anodizing, fuselage assembly, and welding.

Recent surveys by the Bureau of Employment Security of a number of important California firms employing significant numbers of women indicate that, in all the plants visited, the employment of women has been satisfactory. In all instances there was an increase in production per hour of work and a lowering of cost per unit, particularly when men and women were employed at the same wage, in the same department, and

at the same jobs. In addition to the advantages of increased production and lower per unit cost, it was found that:

- Women required less supervision and were decidedly easier to supervise;
- Labor turn-over was noticeably decreased;
- Once women were employed in the plant, the men employees made little objection to the employment of additional women workers;
- With the same training and experience as men, even on difficult machine operations, women could be moved within a department or transferred to other jobs as readily as men;
- In all instances the number of accidents had decreased appreciably;
- The damage to tools and materials was considerably less than when similar work was performed by men. This was particularly true in instances in which women had been employed as operators of small drill presses and were using small drill parts.

Placements of Women, 1940-41

The number of women placed by public employment offices increased from 313,000 in the first quarter of 1940 to 510,000 in the last quarter of 1941, a rise of 63 percent (table 2). During the same interval, which approximates the period from the beginning of the defense program up to the declaration of war, male placements rose from 355,000 to 866,000, or 144 percent. The rapidly accelerated rate of hiring of men during this period accounts for the fact that the ratio of female to total placements declined from 47 to 37 percent.

Placement records by major occupational groups do not show any appreciable trend toward the greater utilization of women for war production (table 3). The larger proportion of clerical-and-sales placements going to women in recent months indicates, however, that women are releasing men in this field for more direct war production or service with the armed forces.

A tendency toward greater utilization of women in some isolated instances is shown by placements in 1941 for selected defense industries. In the aircraft industry, for example, public employment offices placed 460 women in the first quarter of 1941, or 2.6 percent of all aircraft placements; by the last quarter of 1941 the number of placements of women had risen to 3,200, or 7.7 percent of all

Table 2.—Placements made by public employment offices in industry divisions, by quarter and by sex, January 1940–December 1941

Industry division	January–March			April–June			July–September			October–December		
	Total	Women		Total	Women		Total	Women		Total	Women	
		Number	Percent		Number	Percent		Number	Percent		Number	Percent
Total..... 1940	667,576	312,605	46.8	974,008	380,431	39.1	991,410	385,805	38.9	1,140,990	429,116	37.3
Agriculture, forestry, and fishery.....	26,651	2,200	8.3	111,974	17,225	15.4	114,316	10,402	9.1	76,501	7,595	9.9
Mining.....	4,281	111	2.6	5,593	132	2.4	6,575	150	2.4	6,191	118	1.9
Construction.....	71,918	375	.5	140,842	511	.4	155,709	726	.5	241,369	1,267	.5
Manufacturing.....	127,232	40,011	38.5	144,404	53,824	37.3	200,306	82,563	41.2	217,142	74,614	34.4
Transportation, communication, and other public utilities.....	22,601	1,237	5.5	21,578	1,254	5.8	22,915	1,214	5.3	27,878	1,478	5.3
Wholesale and retail trade.....	121,279	60,040	49.5	153,294	75,142	49.0	149,922	73,381	48.9	209,420	109,675	52.4
Finance, insurance, and real estate.....	7,123	2,761	38.8	8,930	3,212	36.8	7,552	3,123	41.4	8,250	3,127	37.9
Service industries.....	285,371	196,893	69.0	385,214	229,057	59.5	332,705	214,123	64.4	301,302	231,081	64.0
Establishments not elsewhere classified.....	1,120	67	6.0	2,069	74	3.6	1,410	114	8.1	1,038	131	6.8
Total..... 1941	1,083,506	413,796	38.2	1,414,093	518,884	36.7	1,554,333	525,202	33.8	1,376,614	510,349	37.1
Agriculture, forestry, and fishery.....	33,635	3,287	9.8	92,209	13,301	14.4	129,645	10,893	8.4	68,196	4,908	7.2
Mining.....	5,681	153	2.7	6,074	193	3.2	8,838	209	2.4	7,340	209	2.8
Construction.....	250,127	1,428	.6	231,131	1,350	.6	311,007	2,158	.7	228,915	1,489	.7
Manufacturing.....	227,051	80,344	35.4	300,960	93,025	30.9	347,572	109,487	31.5	312,414	87,170	27.9
Transportation, communication, and other public utilities.....	29,387	1,611	5.5	30,722	2,462	8.0	42,815	3,302	7.7	39,347	2,307	5.9
Wholesale and retail trade.....	164,223	74,195	45.2	234,303	104,877	44.7	230,742	96,374	41.8	248,825	117,915	47.4
Finance, insurance, and real estate.....	9,323	4,202	45.1	12,605	5,046	40.0	12,059	5,189	41.0	11,032	4,442	40.3
Service industries.....	362,942	248,400	68.4	492,973	298,467	60.5	468,157	297,419	63.5	457,948	291,893	63.7
Establishments not elsewhere classified.....	1,437	176	12.2	3,126	163	5.2	2,898	201	6.9	2,597	101	3.9

aircraft placements for that quarter. Nevertheless, the number of women placed in this industry to date has been very small compared to the number that could be placed. Similarly, the proportion of placements in the industrial-chemicals industry rose, from 7.6 percent in the first quarter of 1941 to 18 percent in the last quarter. Other defense industries, however, continued to hire men as long as the supply was adequate.

The marked reluctance of employers during this first phase of the war program to hire women

when qualified male applicants were available is also illustrated by the data for applicants registered with the public employment offices (table 4). In January 1941 the active file numbered 6.1 million registrants, of whom one-fourth were women; by March 1942 it had declined 25 percent to 4.6 million. The number of male applicants, however, declined 1.3 million or 29 percent during the same period, whereas the number of women applicants declined only 179,000 or 12 percent. Since June 1941, women have

Table 3.—Placements made by public employment offices, classified by major occupational group, by quarter and by sex, July 1940–December 1941

Major occupational group	July–September 1940			October–December 1940			January–March 1941			April–June 1941			July–September 1941			October–December 1941		
	Total	Women		Total	Women		Total	Women		Total	Women		Total	Women		Total	Women	
		Number	Percent		Number	Percent		Number	Percent		Number	Percent		Number	Percent		Number	Percent
Total.....	991,410	385,805	38.9	1,140,990	429,116	37.3	1,083,506	413,796	38.2	1,414,093	518,884	36.7	1,554,333	525,202	33.8	1,376,614	510,349	37.1
Professional and managerial.....	16,864	3,303	19.6	9,442	2,053	21.8	9,345	1,794	19.2	10,153	2,085	20.5	13,305	3,850	28.9	10,904	2,412	22.0
Clerical and sales.....	96,591	59,352	61.4	158,871	100,424	63.2	130,974	77,208	58.9	155,714	90,246	58.0	149,301	93,639	62.7	177,383	117,080	66.0
Service.....	312,152	226,849	72.7	332,952	237,188	71.2	342,160	250,202	73.1	470,904	304,277	64.6	446,037	303,239	68.0	426,660	292,047	68.4
Agricultural, forestry, and fishery.....	116,310	11,131	9.6	82,184	8,778	10.7	37,512	3,292	8.7	103,487	15,501	15.0	134,420	11,198	8.3	72,782	5,464	7.5
Skilled.....	86,993	8,056	9.3	124,625	8,789	7.1	132,196	7,943	6.0	126,647	8,768	6.9	139,583	7,017	5.0	122,599	6,088	5.0
Semiskilled.....	112,169	41,742	37.2	109,007	32,270	29.6	129,580	47,906	37.0	156,200	48,779	31.2	177,617	49,004	27.6	157,242	38,322	24.4
Unskilled.....	245,703	30,976	12.6	328,757	37,791	11.5	301,931	25,406	8.4	390,628	40,193	10.3	493,751	57,171	11.6	408,710	48,915	12.0
Unspecified.....	4,628	4,396	95.0	4,152	3,818	92.0	108	15	13.9	390	65	18.1	229	54	23.6	268	21	7.8

Table 4.—Active file of men and women registrants at public employment offices, January 1940–May 1942

Month and year	Total	Men	Women	
			Number	Percent
1940				
January.....	6,070,405	4,672,807	1,606,508	24.8
February.....	5,920,294	4,473,460	1,440,828	24.4
March.....	5,025,183	3,760,370	1,205,807	25.2
April.....	5,082,447	4,204,205	1,478,242	26.0
May.....	5,724,029	4,165,320	1,558,709	27.2
June.....	5,734,450	4,107,811	1,620,639	28.4
July.....	5,504,071	3,973,273	1,501,308	28.0
August.....	5,210,600	3,740,352	1,461,308	28.0
September.....	4,010,827	3,510,350	1,391,468	28.3
October.....	4,018,504	3,302,807	1,315,607	28.5
November.....	4,508,417	3,269,197	1,299,218	28.4
December.....	4,758,605	3,464,510	1,294,187	27.2
1941				
January.....	5,093,476	3,745,408	1,348,068	26.5
February.....	5,101,417	3,769,783	1,341,634	26.3
March.....	5,170,193	3,819,828	1,350,365	26.1
April.....	5,097,020	3,755,519	1,341,507	26.3
May.....	5,150,288	3,685,144	1,471,144	28.5
June.....	5,120,192	3,567,670	1,558,513	30.4
July.....	4,982,430	3,441,520	1,540,910	30.9
August.....	4,699,020	3,280,989	1,412,031	30.0
September.....	4,355,861	2,788,240	1,182,028	(1)
October.....	4,241,918	2,902,789	1,339,129	31.6
November.....	4,234,455	2,654,865	1,186,001	(1)
December.....	4,412,628	3,082,932	1,329,696	30.1
1942				
January.....	4,898,675	3,462,895	1,435,780	29.3
February.....	4,858,000	3,479,618	1,408,382	28.8
March.....	4,559,135	3,231,363	1,327,772	29.1
April.....	4,397,651	3,033,974	1,363,677	31.0
May.....	4,253,979	2,850,600	1,403,373	33.0

¹ Data by sex not reported for New York.

constituted 29–33 percent of all registrants.

A significant development reported by public employment offices in recent months has been the placement of women in occupations from which they were formerly excluded. In October and November, 37 women were first placed as engine-lathe operators. In those same months, 33 women were placed as multiple-spindle-drill-press operators; 274 women were placed as machine-shop floor assemblers; and jobs were found for 374 women detail assemblers in aircraft. Public employment offices first placed women as aircraft detail assemblers in August 1941, and placements have increased considerably since that date.

Interstate clearance orders reported by public employment offices show increasing requests for women workers, particularly in professional occupations. One large firm was reported willing to hire 100 women as organic chemists, a job usually closed to women. Another employer reported 200 openings for industrial engineers of either sex. Clearance orders were open to women in practically all engineering fields and in drafting work. In New Jersey there were clearance orders for 2,000 electricians and 2,000 radio repairmen of

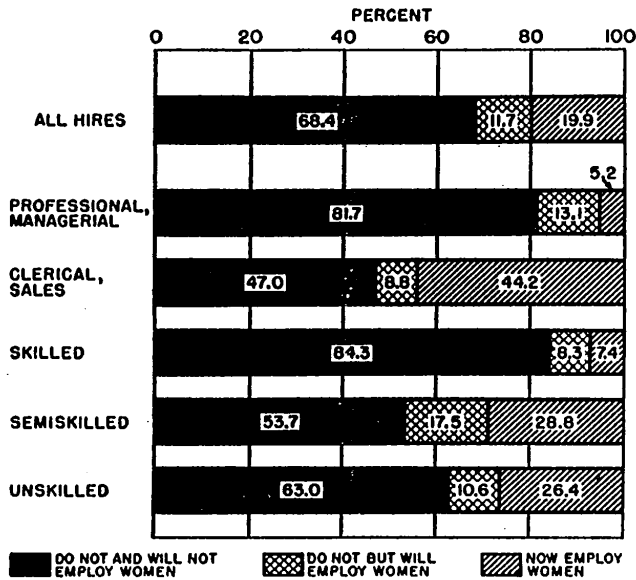
either sex. Among the occupations for which women are being considered in hundreds of openings for the first time are radio operators, tool makers, maintenance men, crystal grinders, electricians, and radio repairmen.

Employment Prospects in War Industries

Despite the indications that women are now being placed in some skilled occupations in which the shortage of qualified male workers is acute, no large-scale hiring of women workers for war production is expected before the end of 1942 unless employers further modify their specifications with respect to women. This conclusion is borne out by a special survey conducted by the Bureau of Employment Security in January 1942 of hiring anticipated by 10,700 war-industry establishments employing 5.1 million persons. These establishments anticipated hiring 676,000 additional workers by the end of June 1942. Asked whether they then employed women in those occupations in which openings would occur or, if not, whether they would employ them in the future, the responding employers indicated that in more than two-thirds of the jobs to be filled women were not and would not be employed. Only 20 percent of the anticipated openings were in occupations in which women were currently employed; less than 12 percent were in occupations in which women had not been employed up to that time but in which consideration would be given them (chart 2).

The extent to which women were currently employed in defense establishments varied considerably among occupational groups. Only 5.2 percent of the professional and managerial and 7.4 percent of the skilled-job openings were in occupations in which the reporting establishments already employed women, compared to 44 percent in clerical-and-sales occupations. Slightly more than one-fourth of the semiskilled and unskilled openings were in occupations in which women were already employed. More than four-fifths of the skilled and professional-and-managerial openings and well over half the semiskilled and unskilled jobs continued to be barred to women. Even among clerical-and-sales occupations, almost half the openings were with employers who would not consider women for such jobs, at least during the first 6 months of 1942.

Chart 2.—Percentage distribution of anticipated hires in major occupational groups, by employer practice in hiring women in war industries, January-June 1942



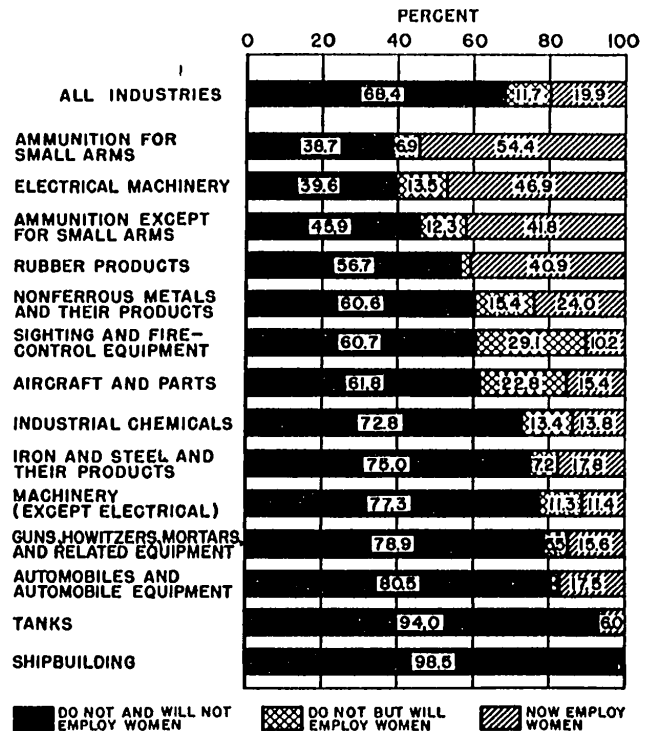
In spite of the increasing shortage of male labor, some relaxation of discrimination against women was indicated for only 12 percent of the reported openings. Thirteen percent of the professional-and-managerial and 18 percent of the semiskilled anticipated openings were in establishments which indicated that they did not but would employ women in the near future. Somewhat less relaxation of the discrimination was indicated for openings in the skilled categories, however, despite critical shortages in many skilled occupations.

Apparently, the decisive factor in determining the policy of an industry in hiring women is the degree of skill required of its workers (chart 3). With the exception of certain industries which cannot employ women in most jobs because of the heavy nature of the work, practically all industries which expected to hire large numbers of semi-skilled and unskilled workers indicated a willingness to consider women. On the other hand, industries which demand mainly skilled workers reported few openings for which women would be hired. In the metal-working-machinery industry, for example, 53 percent of the anticipated openings were for skilled workers and only 19 percent for unskilled; employers in the industry reported that they employed women in only 9 percent of the

jobs and that they did not and would not employ women in occupations constituting 77 percent of the job openings. The electrical-machinery industry, on the other hand, which anticipated hiring one-third skilled, one-third semiskilled, and one-third unskilled workers, reported that 47 percent of its openings would be in occupations in which women were already employed, 13 percent in which the industry would be willing to employ them, and only 40 percent in occupations where they could not be used. Industries in which a high proportion of the labor demand is for unskilled workers, as in the fireworks and ammunition plants, also reported a relatively large proportion of the openings in occupations in which women were or would be employed.

The shipbuilding industry, because of the nature of the work, requires men for most of its operations. In some navy yards, however, women are now being employed for light production work. In one navy yard 200 women are being trained in sheet-metal work and 300 in machine operations and bench work. About a thousand women will be employed in this yard by the end of 1942. It

Chart 3.—Percentage distribution of anticipated hires in selected war industries, by employer practice in hiring women, January-June 1942



may be expected that private shipyards will employ women in greater numbers.

The aircraft-and-parts industry has been slow in hiring women compared to the progress made in Great Britain, where women have been doing 30-40 percent of the work in many plants and where official sources estimate that as much as 70 percent of the work could be done by women. Aircraft factories in the United States reported in January that only 15 percent of the industry's anticipated openings were in occupations in which women were then employed, and 23 percent were in occupations in which they were not then employed but would be considered. More than 60 percent of the total hires in the aircraft industry were in occupations in which employers stated that women were not and would not be employed, at least before July 1942.

Other industries indicating some relaxation of restrictions were the sighting and fire-control-equipment industry, professional-and-scientific instruments, fabricated-plastic products, nonferrous-metals, metal-office-furniture, and heating-apparatus industries.

Geographic variations in hiring practices seem to be caused primarily by the industrial characteristics of the areas concerned. In the Gulf States of Texas, Louisiana, Mississippi, and Alabama, 96 percent of the anticipated openings were in occupations closed to women; three-fourths of all the openings in the area were expected to be in the shipbuilding yards, blast furnaces, and foundries. In the New England area, on the other hand, the anticipated hires were distributed among a wide variety of industries, including many which do employ women, so that the hiring practices of the employers in this area closely approximate the national average. States which indicated relatively large proportions of openings in occupations in which women were or would be employed are States in which the hires of the ammunition industries predominate.

An examination of some of the reports for individual establishments indicates that some employers will not employ women in certain occupations in which other employers in the same industry and area do employ them or contemplate doing so. Although recent progress in this respect is encouraging, the survey indicates that considerable modification of employer restrictions against the hiring of women must still be achieved

before the female labor supply is effectively utilized in the war effort.

The Training of Women

During the first period of the national defense training program, women were not encouraged to enroll for training, since there were more than enough male workers available. From July 1, 1941, through February 28, 1942, there were 32,100 women who had completed or were about to complete pre-employment training courses out of a total of 688,000, or 4.7 percent (table 5). Only 5,400 women, or less than 1 percent of 699,000, had received training supplementary to regular employment. The largest numbers of women were enrolled in machine-shop and aviation-service courses.

The limited number of women enrolled for training is the direct result of the failure of employers to relax their restrictions on the employment of women. Appropriations for defense training require that training be directed to specific needs of war producers. It is evident that, as long as men were available, women were not being enrolled in training courses, nor did placement data indicate that women were being placed in occupations in which training was necessary.

While a sizable increase has occurred during the past few months in the number of women receiving training, a great many steps must be taken to speed up the program so that a larger portion of the available labor force of women may be utilized for the war effort. Specifically, more women could be trained for occupations in electrical services, machine shop, and small parts assembly, to which women have been found to be readily adaptable. Such a training program must continue to be closely related to local conditions, however, as some areas still have backlogs of graduate trainees who have not yet been placed.

Aside from governmental defense training, private employers are also initiating courses for women. One large watch firm last October began training female inspectors in taking caliper and micrometer readings in order to replace male inspectors. The aircraft plants on Long Island, after a trial of women trainees, have decided to hire and train them and eventually will employ about 5,000 as sheet-metal workers, riveters, welders, assemblers, and inspectors. A Maryland

aircraft firm has employed several women trainees for light sheet-metal work, and in May was training 700 women as aircraft riveters and aircraft sheet-metal workers.

The public training program has already made a tremendous contribution to the war effort by preparing workers for war work through short pre-employment and refresher courses and supplementary courses designed to upgrade employed workers. The long-time apprenticeship program of the Department of Labor and the training at the college level by the engineering, science, and management defense training program administered by the Office of Education are designed to satisfy the need for skilled and professional workers. The problem at the present moment is one of timing and coordinating both the short-time and long-time phases of the training program with the war production program.

An analysis of the labor needs of war industries for the period January-June 1942 indicated that 60 percent of the anticipated openings were in occupations requiring 6 months or less of training time; 38 percent required not more than 2 months' training. On the other hand, 16 percent of all hires were in occupations requiring 6 months to a year of training, and 15 percent required more than 2 years. These data indicate that the great bulk of the unskilled and semiskilled needs of

industry can be met in 2-6 months as soon as industry is ready to employ women in large numbers. The mass training of women in these short courses for unit-skilled occupations might not be practical, except in areas of current local stringency, until a substantial proportion of the 3.6 million⁶ unemployed workers are absorbed, which will probably not occur until the end of 1942. But considerably more advance planning is necessary for the occupations—principally skilled and professional and managerial—which require longer training periods. This phase of the training program for women could well begin immediately, in anticipation of the period in 1943 and 1944 when industry will be more than anxious to employ qualified and trained women in any skilled or technical capacity.

Future Trend of Women's Employment

By the end of 1942, it is estimated that about 4.5 million women will be directly engaged in war work. While the number of women employed in the aircraft industry is still relatively small, it may be expected that before the end of the year the number will increase to possibly 200,000, if the industry modifies further its present hiring practices, as revealed by the special survey of January

⁶ Estimate of the WPA for the week of March 8-14, 1942. Estimates for later months indicate a substantial decline from this number.

Table 5.—Enrollment summary of pre-employment and refresher and supplementary courses, by type of course and sex, July 1, 1941-February 28, 1942

Type of course	Cumulative enrollments in pre-employment and refresher courses						Cumulative enrollments in supplementary courses					
	Total ¹		Training concluded		In training Feb. 28, 1942		Total ¹		Training concluded		In training Feb. 28, 1942	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Total	655,622	32,075	496,061	21,085	159,561	10,990	693,164	5,432	518,818	3,250	174,346	2,182
Automotive services.....	22,426	397	18,033	351	4,393	46	34,161	22	27,530	21	6,612	1
Aviation services.....	188,027	11,542	146,459	7,530	42,468	4,012	183,574	1,837	138,905	1,037	44,669	800
Construction.....	5,428	75	3,519	64	1,909	11	5,310	2	4,118	2	1,192	0
Drafting and blueprint reading.....	7,859	758	6,018	483	941	275	50,026	978	40,871	572	15,155	406
Electrical services.....	15,811	915	12,554	662	3,257	253	14,765	86	10,389	52	4,376	34
Forging.....	2,611	11	1,931	11	680	0	328	1	200	1	32	0
Foundry.....	6,577	29	4,941	21	1,636	8	2,226	3	1,859	3	367	0
Machine shop.....	181,004	5,340	134,069	3,405	46,905	1,935	116,844	690	80,332	303	36,512	207
Patternmaking.....	7,705	224	6,397	194	1,308	30	5,153	57	3,925	67	1,228	0
Radio services.....	9,152	1,809	6,633	1,167	2,519	642	14,668	308	9,126	175	5,542	133
Riveting.....	1,624	26	1,605	26	119	0	212	0	174	0	38	0
Sheet metal work.....	27,263	1,014	21,802	600	5,461	324	9,457	84	7,331	60	2,126	24
Shipbuilding and boatbuilding.....	90,947	240	65,925	63	25,022	177	80,130	74	64,361	22	25,769	52
Welding.....	72,582	473	63,476	364	10,106	109	59,190	115	42,625	73	16,565	42
Woodworking.....	2,525	87	2,040	87	485	0	10,050	4	9,289	4	761	0
Other.....	13,181	9,135	9,829	5,907	3,352	3,168	101,080	1,171	87,678	778	13,402	393

¹ Not adjusted for persons dropping out.
² Consists largely of power sewing-machine courses.

Source: U. S. Office of Education, Vocational Training for Defense Workers, Research and Statistics Section.

1942. Similarly, in other armament industries, the number of women employed may be expected to increase rapidly as recruitment of male labor becomes more difficult.

In shell-loading and bag-loading plants, thousands of women have already been employed, and the tendency is toward the increased utilization of women workers, since much of the work in these plants requires little training and is suitable for women. There is also sufficient evidence that women are replacing men in the consumer-goods, retail-trade, and service industries and that the replacement will probably continue at an increasing rate.

Until recently, there have been few indications of the extension of agricultural employment to women. Some instances have been reported of the training of women to run tractors and other farm equipment during local seasonal shortages. Although some types of farm work are too strenuous for women, past experience has shown that they can do all the light work. In some areas, plans are in progress for training women not

customarily engaged in agricultural work to aid in producing the necessary crops.

In mining, construction, and shipbuilding, men will continue to predominate, but women will gain sharply in the fields of transportation, power, communication, trade, apparel, and food processing, and in the hotel, restaurant, professional, and amusement industries.

With several million unemployed workers and no widespread labor shortage as yet, it will be some time before women are employed on a large scale everywhere. The unemployed and workers temporarily displaced by the conversion of industries to war work will have first consideration in employment. Where local labor shortages exist, increased efforts must be made to induce employers and labor to adopt policies that will ensure the full utilization of female labor. Jobs must be broken down into unit skills, workers will have to be upgraded, and women will need to be trained to fill the new jobs. By 1943, the demands of the victory program will require similar action in practically all areas.