U. S. DEPARTMENT OF LABOR
JAMES J. DAVIS, SECRETARY
WOMEN'S BUREAU
MARY ANDERSON, Director

BULLETIN OF THE WOMEN'S BUREAU, NO. 64

THE EMPLOYMENT OF WOMEN AT NIGHT

By MARY D. HOPKINS

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1928

[PUBLIC—No. 259—66TH CONGRESS]

[H. R. 13229]

An Act To establish in the Department of Labor a bureau to be known as the Women's Bureau.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be established in the Department of Labor a bureau to be known as the Women's Bureau.

SEC. 2. That the said bureau shall be in charge of a director, a woman, to be appointed by the President, by and with the advice and consent of the Senate, who shall receive an annual compensation of $5,000. It shall be the duty of said bureau to formulate standards and policies which shall promote the welfare of wage-earning women, improve their working conditions, increase their efficiency, and advance their opportunities for profitable employment. The said bureau shall have authority to investigate and report to the said department upon all matters pertaining to the welfare of women in industry. The director of said bureau may from time to time publish the results of these investigations in such a manner and to such extent as the Secretary of Labor may prescribe.

SEC. 3. That there shall be in said bureau an assistant director, to be appointed by the Secretary of Labor, who shall receive an annual compensation of $3,500 and shall perform such duties as shall be prescribed by the director and approved by the Secretary of Labor.

SEC. 4. That there is hereby authorized to be employed by said bureau a chief clerk and such special agents, assistants, clerks, and other employees at such rates of compensation and in such numbers as Congress may from time to time provide by appropriations.

SEC. 5. That the Secretary of Labor is hereby directed to furnish sufficient quarters, office furniture, and equipment, for the work of this bureau.

SEC. 6. That this act shall take effect and be in force from and after its passage.

Approved, June 5, 1920.

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UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, February 13, 1928.

SIR: I am transmitting herewith the report of a study of the employment of women at night. The main section of the report deals with conditions in the United States and in foreign countries and appendixes show the extent of night-work legislation. The text of the Bern and Washington Conventions is given, and the extent to which the Washington Convention has been ratified by foreign countries. The assistance of the statistical division of the International Labor Office at Geneva in checking the chart on ratification and the night-work legislation in foreign countries is gratefully acknowledged.

The study was made and the report written by Miss Mary D. Hopkins.

Respectfully submitted.

MARY ANDERSON, *Director.*

Hon. JAMES J. DAVIS,
Secretary of Labor.

EMPLOYMENT OF WOMEN AT NIGHT

THE UNITED STATES EXPERIENCE

INTRODUCTION

In a discussion of the employment of women at night in the United States it is necessary to point out that this country occupies an anomalous position among the great industrial nations. Not hastily, but with mature and considerate judgment based on full knowledge of the facts, the other leading industrial States of the world long since determined to eradicate the employment of women at night. Experience has proved that night work is harmful to the worker, and international measures to make its suppression general have been enacted. Even backward countries of undeveloped culture either have legislated against night work or, as dependencies of more developed States, have accepted its prohibition.

LAWS AGAINST NIGHT WORK

At the present time only one-third of the States of this country have any legislation prohibiting night work (see Appendix D, p. 82), and even in these 16 States the laws are far from complete or effective. In two other States, New Hampshire and Maryland, the employment of women by night, though not prohibited, is limited in daily or weekly hours. Among the prohibiting States, Ohio and Washington prohibit in minor occupations only—ticket selling and elevator service, respectively—in each State the women included being so few, of the many needing such protection, that their number is almost negligible. South Carolina, with its great textile industry, prohibits night work in mercantile employment only, leaving without safeguards the very workers who most need the protection of the law. Massachusetts, Pennsylvania, and Indiana forbid the practice in manufacturing alone, making but 10 States where the night-work prohibition covers more than one industry. In New Jersey the existing night-work law is in abeyance, owing to its failure to provide a penalty for infraction. Thus a large percentage of women workers in the 16 States having night-work laws, as well as all the women in industry in the remaining two-thirds of the United States, do not come under night-work prohibition.

REASONS FOR ITS PERSISTENCE

It appears from various American studies that night work has the same ill effects here as in the rest of the world—in the individual, lowered vitality; in the community, loss of civic spirit and interest;

in the mill, slowed production, lessened output, lost time, and spoiled work. The effects are not so extensive as those abroad, and the persistence in the United States of an industrial custom so discredited doubtless is due in part to the fact that it never reached such spectacular proportions in this country as it did in England, continental Europe, and, more recently, the newly industrialized countries of Asia.

A LEGAL SETBACK

At the very time when the signing of the Bern Convention gave so great an impulse to night-work legislation elsewhere in the world, such legislation in the United States suffered a serious check. At that time only four of the States had laws against women's night work—Massachusetts (1890), Indiana (1894), Nebraska (1899), and New York (1903). New Jersey, it is true, legislated against night work in 1892, but this provision, together with the 55-hour law, had been removed from the books in 1904. The New York statute prohibiting the employment of women in factories from 9 p. m. to 6 a. m. was declared unconstitutional by the New York Court of Appeals in 1907 (People *v.* Williams, 189 N. Y. 131, 81 N. E. 778), the court's decision recognizing no connection between the provisions of the law and the welfare and health of women.

A NEW LEGAL TECHNIQUE

It was seven years later that the reversal of the Williams decision by the same New York court set up a conspicuous milestone in the march of legal opinion. But in those seven years much water had run under the bridge. This period of time was marked by the spreading influence of the Bern Convention and the rapid increase of night-work laws among foreign nations, whether participants in the treaty or not. It had been signalized in this country, as far as labor legislation went, by the creation of a new technique in the defence of labor laws. In the 10 years before his appointment to the Supreme Court, Mr. Louis D. Brandeis had initiated a profound and permanent change in the treatment of such cases. He had made a striking departure from traditional method by devoting but a few pages of his briefs to the legal and constitutional aspects of the questions involved and putting the main emphasis upon their human values—social, physiological, and economic. The "economic briefs" compiled by Miss Josephine Goldmark, in cooperation with Mr. Brandeis, and submitted in connection with the defense of these labor laws, marshaling the "world's experience" with respect to the issues involved, threw a new light on the relation of labor laws to human life and the larger life of the community, and brought the cases out of the atmosphere

of legal technicality to the human setting in which alone they can be fairly judged. These briefs and arguments constitute a memorable chapter in the history of labor legislation in America. They have made it impossible for labor cases involving the public health and welfare ever again to be determined on narrowly technical or legalistic grounds without reference to their wider implications. To this new approach the courts have been signally responsive. Under Mr. Brandeis and, after his appointment to the Supreme Court, under Mr. Felix Frankfurter, of the Harvard Law School, in a series of 15 cases before courts of last resort the method met, save in a single instance,[1] with uniform success.

THE SCHWEINLER CASE

The opportunity to apply this method to the defence of a New York night-work law came in 1914 in a case of women employed at night by a printing firm. The New York Factory Investigating Commission had made a study of the conditions of women night workers in the State, and in its second report, published in 1913, had brought a heavy indictment against night work, reenforcing the old findings abroad and in this country by concrete local facts and figures. The night-work law of 1913, prohibiting the employment of women in factories from 10 p. m. to 6 a. m. and in mercantile establishments from 10 p. m. to 7 a. m., was the direct result of this inquiry. The brief submitted in Mr. Brandeis's defense of the New York law in the Schweinler case (People *v.* Schweinler Press, 214 N. Y. 395), again compiled by Miss Goldmark and first published under the title "Facts of Knowledge," remains the best source book printed in English on the subject of the night work of women.[2] To the mass of testimony it contained, as well as to the weight of the factory commission's findings, the court of appeals was frankly sympathetic. Judge Hiscock, reviewing the earlier case in his opinion, declared that—

> in view of the incomplete manner in which the important question underlying this statute—the danger to women of night work in factories—was presented to us in the Williams case, we ought not to regard its decisions as any bar to a consideration of the present statute in the light of all the facts and arguments now presented to us,

and concluded that "the statute is constitutional as a police regulation in the interest of public health and the general welfare of the people of the State."

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[1] The minimum-wage case of the District of Columbia was decided adversely by the Federal Supreme Court in 1923.

[2] Brandeis, Louis D., and Goldmark, Josephine. The case against night work for women. Revised, 1918.

DECISION OF THE SUPREME COURT

The next step of importance was to secure a decision on the question of night work from the Supreme Court of the United States. A flaw in the record barred an appeal in the Schweinler case, and it was not until another case was brought, in the matter of women workers in restaurants, and the law was upheld in the New York courts, that it was possible to bring the question before the Federal Supreme Court. In March, 1924, that court unanimously sustained as constitutional the New York law prohibiting the employment of waitresses at night in first-class and second-class cities of New York State. (Radice *v.* New York, 264 U. S. 295.)

PROGRESS OF LEGISLATION

In the years since the Williams decision a number of States have ventured upon prohibitive legislation or orders. In 1911 South Carolina, in 1913 Pennsylvania and Connecticut, enacted laws against night work for women. Delaware followed them in 1915. The Oregon Industrial Welfare Commission in 1913 issued orders prohibiting night work, as did the Wisconsin Industrial Commission in 1917 and the Kansas Industrial Commission in 1918. More recently legislation has been passed against it in Ohio (1921), Washington issued an order against it in 1921, North Dakota made it illegal in 1922 and New Jersey in 1923, and orders have been issued against it in California by the Industrial Welfare Commission (1923).

THE BASIS OF PUBLIC OPINION

Night work in the United States has survived, in the last analysis, for lack of effective public opinion. But such public opinion must be built on facts, and these facts have not been available. It is curiously characteristic of night work in America that so little is known of it. Here and there a group of night workers has been studied; here and there in response to such a study a law has been passed. Nothing could be more significant of the extent to which this grave issue of human health and welfare has been overlooked than the fact that it has never been possible to find out the actual amount of night work going on in the United States. Guesses and approximate estimates alone are available.

FINDINGS IN WOMEN'S BUREAU SURVEYS

There is need of fuller information on which to base intelligent and authoritative public opinion; there is need of a full investigation and of the publicity that will make its findings available. In the absence of such investigation, certain findings of the Women's Bureau, incidental to its State surveys, are here presented as suggestive in miniature of the status of night work in the United States.

Extent of night work.

In the series of industrial studies made by the Women's Bureau during the years 1919 to 1925 it was in no case the intention to investigate the question of night work. During this period there occurred the industrial depression of 1920 and 1921, which lasted for a year or more in many States and industries, and the depressed conditions of 1924. Short time was prevalent then, overtime for the most part was negligible, and it seemed that the resort to night shifts was nowhere demanded by any pressure of business.

The field included three industrial States of the first importance—Illinois, Ohio, and New Jersey; five Southern States ranking high in the production of textiles—South Carolina, Georgia, Alabama, Mississippi, and Tennessee—and one in the production of tobacco—Virginia; and three States still largely agricultural—Iowa, Kentucky, and Oklahoma.

These data on night work are given, then, for what they are worth. The groups studied are in most cases large enough to have representative value; in all cases large enough to have suggestive significance. One fact is certain—that these findings greatly minimize the extent and the proportions of night work. It must be remembered that records for all employees in a plant were taken for only one week, selected as typical as far as hours and earnings were concerned but perhaps not typical as regards night work, which was not a subject of inquiry. In many plants, moreover, agents of the bureau found that night work had been carried on intermittently or regularly before their visit. In fact, the managements reported the employment of 4.6 per cent more night workers than were actually on the books of the week selected. In South Carolina 22 textile mills were found running night shifts, but schedules showed irregular night work during some weeks in 10 others. In Georgia, besides the 3 textile mills appearing in the table, 9 others, according to the schedules, had employed women till after 1 a. m. before the survey, and in several others night shifts had been only recently discontinued.

But not only is this picture of night work minimized by the method of taking data for only one week and, to some extent, by the effect of industrial depressions: it is minimized by the limited field of the surveys. In no case, do the figures reveal conditions except for the group of establishments studied, and night work varies widely from plant to plant as well as from week to week. Comprehensive figures for the State might have been many times larger. For example, a conspicuous instance was the official data for New Jersey furnished by the commissioner of labor in the spring of 1923,[3] which showed 1,567

[3] Letter to the Consumers' League of New Jersey.

women employed at night in the State, all but 400 of them concentrated in the city of Passaic. At the time of the survey disturbed industrial relations in the principal plants in Passaic having night work prevented their inclusion in the study by the Women's Bureau. As a consequence, only 247, or 15.8 per cent of this number, had been found in the plants visited by the agents of the Women's Bureau in their survey a few months before.

Moreover, as far as other official figures are available, certain of these indicate a volume of night work far in excess of that suggested by the incidental findings of the Women's Bureau. For example, in Alabama only 5 per cent of the women covered by the Women's Bureau survey were working at night, and this was next to the highest percentage found in the 12 States. Compare with this the percentage of night work in a typical southern textile State, North Carolina, as shown by the figures of the State department of labor and printing and quoted by an important executive of the cotton industry in relation to the subject of overproduction. According to these, the proportion of night-run spindles in 1921–22 was at its war-time volume, 33.8 per cent, and in 1923–24 it had risen to nearly 40 per cent (39.8).[4]

TABLE 1.—*Extent of night work of women as found by the Women's Bureau, United States Department of Labor, in 12 State surveys,[1] 1919 to 1925*

State	Date of survey	Establishments surveyed	Women surveyed	Working at night			Notes
				Establishments	Women		
					Number	Per cent	
Total	1919 to 1925	2,464	208,034	131	[2]4,367	2.1	1,687 in textiles; 996 in electrical products; at least 700 in tobacco.
Alabama	Feb.–Apr., 1922	131	6,030	14	304	5.0	302 in textiles.
Georgia	June–July, 1920	131	9,838	3	151	1.5	125 in 1 textile mill.
	Feb.–Apr., 1921						
Chicago (candy)	Feb.–Apr., 1921	31	2,070	1	102	4.9	In candy.
Illinois	Feb.–May, 1924	429	48,730	10	1,303	2.7	996 in electrical products.
Iowa	Oct.–Dec., 1920	223	10,479	11	68	.6	38 in food products; 30 in hotels and restaurants.
Kentucky	Oct.–Nov., 1921	151	10,141	2	40	.4	32 in textiles.
Mississippi	Jan.–Feb., 1925	81	2,853	6	182	6.4	180 in textiles.
New Jersey	Sept.–Dec., 1922	300	34,894	6	247	.7	188 in textiles.
Ohio	do	302	32,311	7	223	.7	131 in rubber; 77 in glass.
Oklahoma	May–Dec., 1922	172	4,140	32	[2]86	2.1	53 in telephone operating.
South Carolina	Nov., 1921–Jan., 1922	151	11,171	22	503	4.5	503 in textiles.
Tennessee	Feb.–May, 1925	216	16,596	11	357	2.2	357 in textiles.
Virginia	Oct., 1919–Jan., 1920	146	18,781	6	801	4.3	At least 700 in tobacco.

[1] General surveys of hours, wages, and working conditions; night-work data incidental to main purpose of surveys.

[2] Includes a few women employed at night only 2 or 3 times a week.

[4] Textile World, Feb. 4, 1928. Analysis of textile working conditions proves uncontrolled night work a liability, by Arthur T. Bradlee. (Article written in 1925.)

In the field covered by the bureau in 12 States, then, 131 establishments were making use of night work and, according to the schedules, 4,367 women were working at night. Almost two-fifths of these were employed in the textile industry, 87 per cent of this number being found in the five Southern States for which such data were collected—Alabama, Mississippi, South Carolina, Tennessee, and Georgia. Of the number remaining, at least 700 women were working at night in the tobacco factories of Virginia and 996 were reported in the electrical shops of Illinois. Another group is shown in the glass and rubber factories of Ohio.

It is not an important percentage that is affected. In the case of only two States, Mississippi and Alabama, does the proportion rise to as much as 5 per cent of the number of women surveyed in the State; in South Carolina all the night workers reported were in textile mills, and even then they formed but 4.5 per cent of the total number of workers for whom data were obtained. The large group in Virginia constitutes only 4.3 per cent of the workers studied. These small percentages register the relative economic importance of night work.

A strange comment on the practice is offered by the combination of night work with short time. In many places, even with the mills running only three or four days a week the night shifts still continued. A similar comment is suggested by the use of night work in the tobacco factories of Virginia. Here again the industry need not be continuous; the material is not very perishable; there is little seasonal pressure.

Hours of night workers.

Of 4,367 night workers scheduled, by far the largest group (1,944) worked 10 hours a night. The next largest number (627) worked between 9 and 10 hours, 602 worked 11 hours, and 252 worked 12 hours nightly. By combining the figures of the table it is seen that 3,260 women, or practically 3 in every 4, were working 10 hours or more a night, and that 996, or more than 1 in 5, were working at least 11 hours. Only 438, or 10 per cent, had a schedule as short as 8 hours. Thus the 8-hour day, more and more generally accepted as the physiological working day, and since the war established by law over a large part of the civilized world, is exceeded in length by 90 per cent of these night workers; even the 9-hour day is exceeded by 89 per cent. For the great majority of these women the intrinsic strain of night work is intensified by a harder schedule than is sanctioned even for day workers by progressive industrial opinion. For an appreciable number (252, or 6 per cent) the 12-hour night shift persisted at the time the State survey was made.

TABLE 2.—*Scheduled daily hours of night workers, by State (from Women's Bureau surveys*[1])

State	Number of establishments	Number of women	Number of women whose scheduled daily hours were—										
			Under 8	8	Over 8 and under 9	9	Over 9 and under 10	10	Over 10 and under 11	11	Over 11 and under 12	12	13
Total	131	[2]4,367	196	242	9	33	627	1,944	320	602	140	252	[2]
Per cent distribution		100.0	4.5	5.5	0.2	0.8	14.4	44.5	7.3	13.8	3.2	5.8	([3])
Alabama	14	304	----	----	----	2	----	5	44	175	----	78	----
Georgia	3	151	----	----	----	----	----	----	----	26	----	125	----
Chicago (candy)	1	102	----	----	----	----	----	102	----	----	----	----	----
Illinois	10	1,303	83	1	----	----	207	1,012	----	----	----	----	----
Iowa	11	68	8	----	7	----	----	21	----	----	----	32	----
Kentucky	2	40	8	----	----	----	----	32	----	----	----	----	----
Mississippi	6	182	----	----	----	----	----	----	20	20	140	----	2
New Jersey	6	247	20	35	----	----	192	----	----	----	----	----	----
Ohio	7	223	67	101	----	5	----	----	----	----	----	----	----
Oklahoma	32	[2]86	6	55	2	20	----	2	1	----	----	----	----
South Carolina	22	503	----	----	----	----	----	125	----	378	----	----	----
Tennessee	11	357	----	----	----	5	20	57	255	3	----	17	----
Virginia	6	801	4	----	----	1	208	588	----	----	----	----	----

[1] For dates of surveys see Table 1.
[2] Includes a few women employed at night only 2 or 3 times a week.
[3] Less than 0.05 per cent.

As regards weekly hours, much the largest group of women (1,912) worked a 50-hour week; the next largest group, 603, or nearly one-seventh, worked 55 hours; and the third largest (562) came between these. In fact, 70.5 per cent of the women reported are included in three groups that are representative of a weekly schedule 50 to 55 hours long.

TABLE 3.—*Scheduled weekly hours of night workers, by State (from Women's Bureau surveys*[1])

State	Number of establishments	Number of women	Number of women whose scheduled weekly hours were—													
			Under 44	44	Over 44 and under 48	48	Over 48 and under 50	50	Over 50 and under 55	55	Over 55 and under 60	60	Over 60 and under 70	70	Over 70 and under 80	84
Total	120	[2]4,367	80	94	152	486	10	1,912	562	603	191	236	3	3	5	30
Per cent distribution		100.0	1.8	2.2	3.5	11.1	0.2	43.8	12.9	13.8	4.4	5.4	0.1	0.1	0.1	0.7
Alabama	14	304						5	46	175		78				
Georgia	3	151								26		125				
Chicago (candy)	1	102						102								
Illinois	11	1,303	30		53	178		999			30	13				
Iowa	11	68					8		7			20		1	2	30
Kentucky	2	40			8			32								
Mississippi	6	182							20	20	140				2	
New Jersey	6	247	9		15	223										
Ohio	7	223	40	94	50	39										
Oklahoma	32	[2]86	1			46	2		26	1	4		3	2	1	
South Carolina	22	503						125		378						
Tennessee	11	357			25			57	255	3	17					
Virginia	6	801			1			592	208							

[1] For dates of surveys see Table 1.

[2] Includes a few women employed at night only 2 or 3 times a week.

Small groups of women worked much longer schedules; for example, the 30 restaurant workers who worked 84 hours weekly, and the two 13-hour workers in a factory who worked a stretch of 78 hours. Extremes such as these are rightly emphasized, even if they occur only in isolated cases, as examples of what may happen in the absence of restrictions.

Personal data.

Information was procured from some of the women night workers on such matters as age, conjugal condition, and nativity. It was necessary to get these facts by the questionnaire method, as the limited time of the investigators precluded personal visits. Naturally the number reporting was far short of the total. In Iowa and Virginia no personal data were requested. The value of the data for some States is limited by the small number of workers reporting, but in others a majority or almost the full number questioned sent in reports. The figures, taken in connection with others, are of some indicative value; they will be found to reenforce the general tendencies revealed by other studies.

Age.—Of 817 night workers reporting their ages only 10 were 50 years old or more and only 55 (6.7 per cent) were 40 and over. One hundred and forty-seven women, or 18 per cent of those reporting, were under 20 years of age. All but a negligible proportion were in the years of development or of highest childbearing capacity, the years precisely when all the characteristic injuries of night work are most disastrous.

TABLE 4.—*Age of night workers, by State (from Women's Bureau surveys*[1])

State	Number of women reporting	Number of women who reported their age as—						
		16 and under 18 years	18 and under 20 years	20 and under 25 years	25 and under 30 years	30 and under 40 years	40 and under 50 years	50 years and over
Total	817	56	91	176	185	254	45	10
Per cent distribution	100.0	6.9	11.1	21.5	22.6	31.1	5.5	1.2
Alabama	93	15	19	26	5	21	4	3
Georgia	17	3	2	3	5	3	----	1
Chicago (candy)	5	----	----	3	2	----	----	----
Illinois	192	5	13	18	61	90	5	----
Kentucky	23	----	2	2	6	6	6	1
Mississippi	91	11	16	20	23	13	7	1
New Jersey	87	1	4	10	21	42	8	1
Ohio	140	----	2	51	31	45	8	3
South Carolina	106	13	22	28	17	23	3	----
Tennessee	63	8	11	15	14	11	4	----

[1] For dates of surveys see Table 1.

Conjugal condition.—Of 812 night workers reporting on conjugal condition, 259 were single and 553 were or had been married (including in the latter figure those widowed, separated, or divorced). The preponderance of married women elsewhere noted holds good here, there being 68.1 per cent of the total number in the married group. In Illinois, the only State where nearly all the women questioned

reported (181 out of 192) only 17.7 per cent of the number reporting their conjugal condition were single.

TABLE 5.—*Conjugal condition of night workers, by State (from Women's Bureau surveys* [1])

State	Number of women reporting	Number of women who were—		
		Single	Married	Widowed, separated, or divorced
Total	812	259	433	120
Per cent distribution	100.0	31.9	53.3	14.8
Alabama	108	51	45	12
Georgia	16	7	6	3
Chicago (candy)	5	1	3	1
Illinois	181	32	134	15
Kentucky	24	2	15	7
Mississippi	87	50	20	17
New Jersey	88	14	69	5
Ohio	139	38	70	31
South Carolina	103	38	50	15
Tennessee	61	26	21	14

[1] For dates of surveys see Table 1.

These two tables bear out the statement that night work inflicts its injuries not on older women, in which case it would not so gravely matter, but on women at the height of the reproductive period; not on the unmarried, who in most cases have a less responsibility, but on the married and in all probability (of those reporting here, 75.3 per cent are 20 and under 40 years of age) on the mothers of young children.

Nativity.—Other data of interest concern the nativity of the night workers within the groups studied. Of 859 women reporting, 646 were native-born Americans and 213, or approximately one-fourth, were foreign born. Of these foreign-born night workers there were two large groups—128 in Illinois, outnumbering the native born 2 to 1, and 73 in New Jersey, outnumbering the native born 5 to 1. No foreign-born night workers were reported in any of the Southern States included.

TABLE 6.—*Nativity of night workers, by State (from Women's Bureau surveys* [1])

State	Number of women reporting	Number of women who were—	
		Native born	Foreign born
Total	859	646	213
Per cent distribution	100.0	75.4	24.6
Alabama	120	120	----------
Georgia	17	17	----------
Chicago (candy)	5	2	3
Illinois	189	61	128
Kentucky	24	24	----------
Mississippi	92	92	----------
New Jersey	87	14	73
Ohio	157	148	9
South Carolina	107	107	----------
Tennessee	61	61	----------

[1] For dates of surveys see Table 1.

Nor can it be maintained, as is sometimes stated, that the hazards and injuries of night work are largely confined in the South to the Negro race, for of 2,064 night workers for whom the Women's Bureau secured wage data, only 77 were listed as colored and of these only 32 were found in Southern States.

Earnings.

It is generally supposed that a higher wage schedule constitutes an attraction to night work as compared with day work. This assumption is hardly borne out by the findings of the Women's Bureau surveys. So far as these data are representative, it would seem that irregularity in night work more than makes up for the few extra cents allowed the night worker in rates. In the week for which the pay roll was taken the earnings of night workers in the States for which such data were secured showed a tendency to drop below those of the day shift. Thus, in Alabama the median of the week's earnings of day workers was $8.80; for night workers it was $8.55.[5] In New Jersey the day median was $14.95 and the night median was $14.65, and even for women working a week of exactly 48 hours the median of the week's earnings was $16.40 for the day workers and only $14.85 for the night workers.[6] Again, in South Carolina the median for day workers was $9.50 and for night workers $9.40. Here, however, those night workers working at least 48 hours, together with those working on 5 nights a week, had the higher median of $13.10, the median for full-time day workers being $1.45 less, or $11.65.[7] Among the Chicago candy makers studied, the median of the earnings of the night workers was 10 cents more than the median for the day workers—$14.75 as against $14.65.[8] The median of the week's earnings of night workers in Tennessee was $10.50, while during the same period the median for day workers was $11.10. Women were engaged on night work in all but one of the textile groups and with the exception of woolen goods each group of night workers showed a median lower than that of the day workers.[9] In view of such equivocal returns it seems unlikely that the financial motive can play any appreciable part in the worker's choice of night work.

Hardships of night work.

Incidental evidence was secured by the agents of the Women's Bureau regarding the peculiar and often quite unnecessary hardships

[5] U. S. Department of Labor. Women's Bureau. Women in Alabama industries. Bul. 34, 1924, p. 57.
[6] U. S. Department of Labor. Women's Bureau. Women in New Jersey industries. Bul. 37, 1923, p. 41.
[7] U. S. Department of Labor. Women's Bureau. Women in South Carolina industries. Bul. 32, 1923, p. 46.
[8] U. S. Department of Labor Women's Bureau Women in the candy industry in Chicago and St. Louis. Bul. 25, 1923, p. 39.
[9] U. S. Department of Labor. Women's Bureau. Women in Tennessee industries. Bul. 56, 1927, p. 37.

that accompany the night work of women in this country. In connection with a system of employment in itself so fatiguing and injurious, it would seem natural that special pains should be taken to offset or minimize its harmful effects. Instead of seeking, in the phrase of the British Health of Munition Workers Committee, "the least harmful system of employing persons by night," burdens are placed upon the night shifts which no one would think of imposing upon the essentially easier and less fatiguing work of the day.

The lunch interval.—Thus, an adequate lunch hour is accepted as custom and necessity for the day shift, indispensable alike for the comfort of the workers and the maintenance of output. In the night shift, almost invariably longer and harder, since in the vast majority of cases the week's work is concentrated into five instead of six shifts, no parallel need of recuperation is recognized. More than half an hour is not commonly allowed for the midnight lunch, and in some plants even a short interval is penalized. Thus in one textile mill visited the workers were required, if they took a half hour's interval for lunch, to stay half an hour later in the morning. In two other mills working a 12-hour night shift, the workers were obliged to begin work at 5.40 p. m. to obtain 20 minutes for their midnight meal. Of 22 textile mills running night shifts in one State, one hour was allowed for lunch or rest in 4, half an hour in 6, and 15 minutes in 1, while in 11 no lunch interval whatever was provided, and the workers had to eat as they best might at their machines. In six of the last named the injustice to the night shift was emphasized by the full hour allowed the day shift for lunch. "Eating on the job" is a hardship by no means uncommon on the night shift. The schedules of some mills show notations by the investigators regarding no time allowance for lunch or rest during 12-hour night shifts, while in one the night shift ran from 6 p. m. to 7 a. m. with no time allowed away from the machines for the midnight meal.

Indifference to conditions.—Other instances of what seems a general lack of thought or effort directed toward saving the strength or insuring the comfort of night workers were observed by the agents. In one establishment women were found standing as they worked on processes that could have been handled quite as effectively in a sitting position. The foreman was asked why he could not provide seats. "If I would give them seats," his reply was, "they would fall asleep." Apparently it had occurred to no one that without the needless fatigue of standing they might be less ready to fall asleep.

Deceptiveness of scheduled hours.—Nor does a reasonable schedule necessarily mean reasonable hours of work, since there is always, in the absence of regulations against it, the possibility of overtime. In

a glass factory negro women were employed on three 8-hour shifts, but this comparatively easy schedule, the investigators found, was prejudiced by the fact of almost systematic overtime, without which there would have been "hardly enough workers to supply the machines." It was by no means unusual in this establishment for women to work two shifts in succession, or 16 continuous hours. In fact, one woman told the agents that she had worked a stretch of 21 consecutive hours, two 8-hour shifts and 5 hours of a third.[10]

In spite of the general absence of overtime at the periods during which the surveys were carried on, there were isolated instances of its abuse. Such instances, far from being discounted, should be emphasized as showing what inhuman strains industrial pressure or individual ambition may put upon the human machine in the absence of safeguards. In one factory visited two women were employed 13 hours a night and 78 hours a week. The records showed, however, that of 46 weeks' possible employment during the year (the plant being shut down during the remaining 6), one woman had worked for 28 weeks from 79 to 92 hours a week. In a hotel a girl of 16, employed for 6 hours a day as elevator operator, was assigned to an extra job at night as a runner for the servidor. She worked her 6 hours daily on the elevator and 8 hours more at night on her second job. When the elevator shifts changed, she worked 5 hours more, making a total of 19 hours. Such extreme cases are significant.

Length of over-all hours.—Even when actual hours of work are reasonable or short, the stretch of employment may make them as burdensome as much longer hours consecutively worked. In one establishment visited the scheduled hours of employment on the night shift were but 6½. It was learned by the agents, however, that these 6½ hours stretched over a 13-hour night "on call," each woman having 1 hour on duty and 1 hour off during the entire stretch. Especially in restaurant and hotel service are long over-all hours likely to add to the fatigue and confinement of employment, even where the hours of actual work fall within reasonable limits.

Summary.

The present status of women's night work in the United States, as indicated by the incidental findings of the Women's Bureau, may be summed up somewhat as follows:

Even in a season of industrial depression, night shifts are kept running and women are employed to supply them. They involve no large percentage, though they constitute considerable absolute numbers of women in industry, rising as high as 500, 700, or even 1,400 in some of the States in the limited groups studied.

[10] U. S. Department of Labor. Women's Bureau. Negro women in industry. Bul. 20, 1922, p. 20

Of all the night workers found, 3,260 were working 10 or more hours a night; nearly one-third of these (996) were working 11 or more hours.

The night shifts are largely composed of women in the prime of life; of married women; of native Americans in the South and of a preponderance of foreign-born women in States receiving a large proportion of immigrants; and, lastly, of white women.

While the wage rates of night workers are slightly higher than those of day workers, their earnings show a tendency to fall below the corresponding earnings of the day shift.

Finally, the essential strain and hardship of night work is needlessly intensified through lack of any thought or effort to economize the workers' strength, as, for example, by lack of provision for proper intervals or rest pauses, by failure to provide seats, or by occasional undue use of overtime.

THE FOREIGN EXPERIENCE

THE BERN CONVENTION [11]

The diplomatic conference of 1906.

In September, 1906, a memorable meeting was held at Bern, Switzerland. At the invitation of the Swiss Federal Council, the representatives of 14 European powers gathered in diplomatic conference, intent upon initiating the international protection of labor by the suppression of one of the age-old practices of industry, the night work of women. They had chosen this question as, in the words of M. Raoul Jay, "one of the most urgent, most important, and most easily solved" of industrial problems, ripe for solution, as it seemed, in the common sense of mankind, and indeed already adjudged before the bar of public opinion in the leading industrial States of Europe. The international convention submitted to the conference, and after full debate accepted and signed by the representatives of all the powers present, has been called the first article of the International Labor Code.

Terms of the convention.

The terms of the Bern Convention[12] established internationally two main principles in the prohibition of night work. They forbade the employment of women at night without distinction of age, and required that the night's rest should have a minimum duration of 11 consecutive hours, these hours to include the interval from 10 p. m. to 5 a. m. Such prohibition was to apply to all industrial undertakings employing more than 10 workers, except such as employed only members of the proprietor's family. Exceptions were allowed in cases of interruption of work due to force majeure (the interruption of operations by abnormal and nonrecurrent causes beyond the control of the proprietor), or to save irreparable loss in the case of work on raw

[11] This historical sketch is based on the following:

Le travail de nuit des femmes dans l'industrie: Rapports sur son importance et sa réglementation légale. Préface par Prof. Étienne Bauer, Directeur de l'Office Internationale du Travail. Jena, Fischer, 1903.

Pic, Paul. La protection légale des travailleurs. Paris, Alcan, 1909.

Jay, Raoul. La protection légale des travailleurs. Paris, Larose et Tenin, 1910.

Caté, Marcel. La Convention de Berne de 1906. Paris, Larose, 1911.

Hutchins, B. L., and Harrison, A. A history of factory legislation. Second edition, revised. London, King, 1911.

Goldmark, Josephine. Fatigue and efficiency. New York, 1912.

Mahaim, Ernest. Le droit international ouvrier. Paris, Larose et Tenin, 1913.

Turmann, Max. Problèmes sociaux du travail industriel. Paris, Le Coffre, 1921.

[12] See text in appendix, p. 69.

materials or materials liable to rapid deterioration. For seasonal industries, or other industries in cases of unusual circumstances, the sole concession made by the convention was the permission of an hour's reduction in the night's rest for 60 days in the year.

The convention further required that the signatory States should ratify the international agreement and should file their ratifications with the Swiss Federal Council not later than December 31, 1908; that they should insure fulfillment, moreover, of the terms of the agreement in their respective countries by harmonizing their legislation with its provisions. The convention was to come into force two years after the record of ratification was completed.

Contemporary comment.

The achievement of the diplomatic conference was hailed by the delegates present with an immense enthusiasm. They had laid the corner stone in the foundation of international labor legislation; they had opened a new way to justice and peace in industry. The president, M. Emile Frey, in his closing words at the final session, said:

> The Swiss people have followed your work with the most attentive solicitude, for they realize that a great problem has been under discussion here, the solution of which will be a landmark in the records of humanity. Is it possible to make the protection of the workers the object of international conventions which shall bind the contracting parties? If you had decided this question in the negative, the hopes of thousands would have been cruelly deceived; in deciding it in the affirmative you have inaugurated a new era in the social history of mankind. * * * There is the path which, according to all human foresight, leads to the peaceful solution of the social question. It shall be your claim to glory, gentlemen, to have made these first steps, and that glory will be inscribed in the annals of history.[13]

With the same feeling, that an almost Utopian dream had been realized, contemporary and later commentators write of the conference of 1906. "It should rightly be considered," writes Caté, in his monograph on the Bern Convention, "as one of the most glorious pages in the social history of nations."

Significance of the convention.

If now, in the face of such exalted language—in the face, indeed, of the labor legislation already effective in the more advanced countries—the actual terms of the Bern Convention may seem to some timid and restricted enough, it must be remembered that as a landmark, a milestone, a symbol, it has a significance quite beyond the actual specifications of its text. Like all agreements it is a compromise, and as such it was clearly recognized by the men who created it. Thus, at the Geneva Conference of 1906, Prof. Hector Denis, already looking beyond it to advances to be realized only 13 years later at Washington, offered a resolution to the effect that the provi-

[13] Caté, Marcel. La Convention de Berne de 1906. Paris, Larose, 1911, pp. 96–97.

sions of the Bern Convention "which limit the suppression of night work to shops employing at least 10 workers should be extended as promptly as possible to all factories." The limits set to the prohibited hours may be viewed as a concession in favor of backward countries, since the legislative provisions of the more progressive industrial States already had considerably bettered these. But the convention, even had its terms been much less drastic, would still have marked a new era in industrial history. For beyond the immediate urgent reform it aimed at, its epoch-making character lay in this, that for the first time labor and human welfare had been considered, like war and commerce, important enough for international agreement and treaty.[14] A way had been found while safeguarding the workers to disarm the ancient terrors of international competition.

THE HISTORICAL BACKGROUND

But the Bern Convention was the high-water mark of a tide that had been slowly rising in Europe for more than a generation—the slowly mounting, at last irresistible demand for the international protection of labor. The night-work treaty was no sudden achievement; it was the culmination of prolonged public-spirited effort. To view the conference of 1906 in its right proportions, it is necessary to take up briefly the earlier history of the long fight to abolish the night work of women, and in conjunction with it the origins of the international labor organization which at last was to make its suppression possible.

The English experience.[15]

The industrial revolution in England, taking place on a scale and with a swiftness unknown to the other countries of Europe, had effectively dramatized the abuses of the factory system in its reckless waste of human capital and especially in its exploitation of the economically weaker members of society, of women and children. As if for a parable to the world, the first industrial nation of Europe reaped the harvest of unrestricted competition in the racial deterioration that made the factory population of Lancashire a byword. Public opinion first made headway against the convenient economic doctrines that favored such competition in behalf of children and registered itself in the act of 1833, which fixed the length of the working day and prohibited night work between 8.30 p. m. and 5.30 a. m.; but it took 10 years more to rouse itself to the point of includ-

[14] One earlier labor treaty there had been, indeed, though between two nations only—the Franco-Italian treaty of April 15, 1904—as well as certain "bilateral agreements" on industrial accidents; but these had been of no great importance. See Mahaim, Ernest, Le droit international ouvrier, Paris, Larose et Tenin, 1913, p. 221; and Pic, Paul, La protection légale des travailleurs, Paris, Alcan, 1909, p. 162.

[15] Hutchins, B. L., and Harrison, A. A history of factory legislation, second edition, revised. London, King, 1911, Chapters I–V; and Le travail de nuit des femmes dans l'industrie: Rapports sur son importance et sa réglementation légale, Préface par Prof. Étienne Bauer, Jena, Fischer, 1903, p. viii.

ing women in a similar protection. Not until the shocking revelations of the Children's Employment Commission in its report of 1842 on mines and collieries, and the facts brought to light in regard to woman's labor in factories by the commission of 1843, was the Government startled at last into some action on behalf of the industrial mothers of England. In 1844 women were first included with children and young persons in the protected class; they were prohibited from employment between 8.30 p. m. and 5.30 a. m., and were forbidden to work more than 12 hours daily. By the act of 1844 Parliament recognized the truth that Jules Simon was to express for France a generation later: "If it be senseless to legislate for the mother without the child, it is surely no less a folly to legislate for the child without the mother."

Thus, historically and technically, the early prohibition of night work is indivisibly connected with the regulation of the length of the working day and overtime by fixed opening and closing hours. When the working hours of women in textile mills were reduced to 10 by the act of 1847 the efforts of Lord Shaftesbury to have the working day limited to the time from 6 a. m. to 6 p. m. were defeated in favor of the previously fixed hours, but his wisdom was proved by the subsequent difficulties of enforcement. These led in 1850 to a 10½-hour law with the legal limits of employment set at 6 a. m. and 6 p. m. and no margin therefore allowed beyond the needed meal hours. The benefits to enforcement of such rigidly limited hours are abundantly evident.

Other pioneers.[16]

The struggle over the factory acts was still at its height in England when Switzerland also, "smallest of countries, but most advanced in her social legislation," began the fight for the suppression of night work. After the efforts of a decade to regulate or abolish it either by Federal law or by intercantonal agreement had proved abortive, a single canton, Glaris, took the bold step in 1864 of legislating alone against this strongly entrenched though generally hated practice. Here the popular assembly, the Landsgemeinde, took the matter effectively in hand, and prohibited night work of all kinds for men and women alike. Thirteen years later the Swiss confederation, in the Swiss Federal law of 1877, followed the path blazed by Glaris by the total prohibition of night work for all workers. Thus Switzerland, more than a generation after the passage of the first English law against the night work of women, was the first nation on the Continent to follow England in the abolition of women's employment at night. Repeated efforts were made to repeal or amend the factory

[16] Le travail de nuit des femmes dans l'industrie: Rapports sur son importance et sa réglementation légale. Le travail de nuit des femmes en Suisse. Dr. Fridolin Schuler, Jena, Fischer, 1903.

law in favor of the employers, "but no one," wrote the veteran factory inspector, Doctor Schuler, "ventured to attack the prohibition of night work."

Slowly other countries followed the lead of England and Switzerland. On the other side of the world, New Zealand in 1881 prohibited night work for women. In 1885 Austria followed her neighbor Switzerland in abolishing the practice, in 1889 the Netherlands enacted similar and more drastic legislation, while Massachusetts a year later was the first of the United States to indorse the principle.

The rising protest.

But public opinion in civilized countries, outstripping the slow movement of legislation, was meantime gathering volume and insistence, and without observation was rallying to its aid international forces, without which, men were coming to feel, even so definite and limited a reform as the suppression of night work might be long of fulfillment. Vainly in 1818 Robert Owen had petitioned the Congress of Aix-la-Chapelle in behalf of an international regulation of the working day; and as vainly Daniel Le Grand, the Alsatian manufacturer and philanthropist, in the decades from 1840 to 1860 had addressed his series of "respectful appeals" for the international protection of labor to the unheeding Governments of Europe.[17] But the years following were to witness the rising power and ultimate victory of the ideas they stood for. It was significant of the relative urgency of the night-work question in men's minds that Le Grand's last petitions had been devoted solely to the international prohibition of women's night work. Now in the resolutions and proceedings of congresses as well as in a growing scientific literature there was registered the increasing public preoccupation with the need of international action for the protection of the workers and especially with the need of abolishing the employment of women by night. The first Socialist Internationale at the Geneva Congress in 1866 passed a vigorous resolution against this industrial practice; at the other end of the scale the International Congress of Hygiene and Demography, meeting at Vienna in 1887, indorsed the resolution of Doctor Schuler to the effect that "the limitation of working hours, and above all the prohibition of night work, must be demanded on grounds both of health and of morals."

The Berlin Conference.

Appeals of eccentric philanthropists and resolutions of congresses, socialist or scientific, while very well in their way, might have been long indeed in obtaining the effective consideration of governments.

[17] For this interesting figure in the history of French industry see Caté, op. cit., p. 7; Jay, op. cit., p. 343; Turmann, op cit., pp. 183–184; Bauer, op. cit., p. ix.

What the movement now needed was a press agent, and by one of the fortunate coincidences of history it obtained the services of a very conspicuous press agent. The Socialist movement in Germany was menacing the established order, strikes were threatening in the Ruhr, subversive ideas were in the air. The young Emperor, Wilhelm II, moved apparently to attempt some effective counterstroke, suddenly assumed an unexpected championship of the working class; he issued his famous rescript to the nations of Europe, summoning them in the name of an adequate protection of the workers to an international labor conference to be held at Berlin in March of 1890.

One Government alone, that of the Swiss Confederation, had been preoccupied for many years with the need of international action and its own responsibility for bringing it about. In 1876 Colonel Frey, the president of the Federal Council, had opened the session of that body with the question whether it were not the duty of Switzerland to try to bring about the conclusion of international treaties for the uniform regulation of the problems of labor. But the effort of the Swiss Council a few years later to stimulate diplomatic action on the part of some of the leading industrial States of Europe met with a cold response from Governments still indifferent enough to the conditions of the workers. Yet undiscouraged by official indifference, encouraged, rather, by pressure from workingmen's associations and from signs of a growing support in public opinion, Switzerland in 1889 was issuing invitations and making all arrangements for a conference of the European powers at Bern as the first step toward international agreements for the protection of labor, when suddenly the invitation of the German Emperor flashed through the columns of the European press.

What neither the modest proposals of the Swiss Government, nor the resolutions of workingmen's congresses and scientific bodies, nor the growing literature on the protection of labor could accomplish the imperial rescript did at a blow; it effectively challenged the world's attention and focused it on the claims and needs of labor. For the first time the protection of the workers assumed headline value. It was impossible to ignore the Emperor of Germany. The Government of Switzerland, with clear-sighted and courteous recognition of the superior value of the Berlin Conference to their common purpose, gracefully yielded place to the Emperor, and at Berlin for the first time the representatives of the powers met to consider the needs of the workers.

A stage on the road.

A gathering so heralded naturally aroused high expectations. Compared with the brilliant auspices and high hopes of the Berlin Conference, compared above all with its ambitious program,[18] the outcome

[18] This included work in mines, Sunday labor, and protection of children, young persons, and women.

has seemed to many so meager and disappointing as to constitute a setback to the hopes of labor. The conference resulted in no action or binding agreement, but merely in an exchange of views and some resolutions, tepid and timid enough, beginning, all of them, with the cautious formula, "It is desirable." But the achieved basis of agreement which these resolutions represented was of incalculable importance. Their tameness was the price of acceptance. Even so, the resolution against the night work of women was passed at the first reading by a majority of only two votes.[19] But the noncommittal resolutions of Berlin were a stage on the road to the binding international agreements made at the Bern and Washington Conferences. Labor, moreover, had achieved a new importance; the social question had for the first time figured on the order of the day of European Governments. From this point of view alone, said the Comte de Mun, one of the most ardent of the earlier champions of international labor legislation, the conference should rightly rank "among the most considerable events of the century."

Germany in her industrial code of 1891 and France in her law of 1892 gave legislative effect to the night-work resolution of the Berlin Conference. Indeed, the legislation of another great nation may fairly be counted among its results, for Italy by her law of 1902, before the Bern Conference had even been planned, took rank with enlightened industrial countries by prohibiting the night work of women.

A permanent international instrument.

But for international action on labor questions a permanent international instrument—not scattered conferences—was more and more evidently needed. It was by private initiative, after successive congresses had failed to take any action looking toward the creation of such an instrument, that committees were formed in the various countries with the object of founding the International Association for Labor Legislation. At Paris in 1900, at a Congress for the Protection of Labor called by these committees, this object was triumphantly realized.

First task of the new association.

The new association at its first meeting in 1901 fixed upon the suppression of night work as of paramount importance and urgency. It laid upon the new International Labor Office the task of an inquiry into "the actual status and effects of the night work of women in the various countries as well as the results obtained in the industries in which it has been suppressed." The reports of this inquiry were laid

[19] At the final vote the States were recorded as follows: Affirmative—Austria-Hungary, Germany, Great Britain, Luxemburg, Netherlands, Norway, Switzerland; negative—Belgium, France, Italy, Portugal, Spain; not voting—Denmark, Sweden. See France. Ministère des Affaires Etrangères. Conference Internationale de Berlin, 1890. Paris, 1890, p. 85

before the second meeting of the International Association for Labor Legislation, held at Cologne in 1902. No one who has read those admirable reports[20] can wonder that this meeting passed for the first time a resolution "with teeth," declaring that the night-work legislation already existing and its effects on both industry and the workers justified "the absolute interdiction in principle of night work for women," and further charging a commission with the duty of investigating "the means of introducing this general prohibition and of examining how the exceptions which still exist may be progressively suppressed." The commission was to report in two years. It was clear to all that the time for pious opinions and platonic resolutions was past. "What we want," M. Brants had said in his report on the question of night work, "is a practical resolution of a type to obtain something more than courteous deference from the Governments. We must have results which shall be translated into law."

The Bern Conference.

In the following year the commission charged the International Labor Office to request that the Federal Council of Switzerland should initiate an international conference. Warned by the experience of Berlin, they proposed a definite and strictly limited program, the prohibition by international conventions of two indefensible abuses—the night work of women and the use of white phosphorus in the match industry. They further required that the office should send memoranda on the questions at issue to the various Governments to be invited. On March 1, 1904, such memoranda accordingly were sent to 14 Governments, and at the meeting of the association in the same year at Basel it was announced that the first effective step to international labor legislation had been taken; the Swiss Government would convoke an international conference the following year at Bern for the protection of workers.

At Bern, then, in 1905, was written that "first article of the International Labor Code"—the international convention on the prohibition of night work of women in industry—to which at the diplomatic conference in the following year the representatives of 14 European powers set their hands. A great historic event, the signature of the first international labor treaty, had been consummated.

SEQUELS OF THE BERN CONVENTION

Ratification.

As has been seen, the terms of the Bern Convention required that the signatory States should ratify the international agreement and should file their ratifications with the Swiss Federal Council not later than December 1, 1908. This time limit was later extended to January 14, 1910, by which date all the participating States had ratified,

[20] Le travail de nuit des femmes dans l'industrie: Rapports sur son importance et sa réglementation légale. Jena, Fischer, 1903.

with the exception of Spain, to which a special extension of two years had been accorded, and Denmark. The convention, then, came duly into force on January 14, 1912.

The seven signatory States that had previously prohibited night work for women were well in advance of the provisions with regard to prohibited hours; the six that had previously prohibited the night work of children and young persons only had considerable legislative adjustments to undertake, and, with the exception of Belgium and Spain, which gave an extra hour to the "night," barely equaled the requirements of the convention.

Stimulus to legislation.

Yet the stimulus to national legislation of an internationally accepted standard is visible all along the line, when a review of the statutes of civilized States in the following years is made. Even countries that earlier had abolished the night work of women made legislative or administrative changes to harmonize their legislation with the provisions of the convention, or made it a point of pride to advance beyond them.

For example, Germany in 1908 lengthened the period of the night rest by one hour, making the prohibited hours of work for women 8 p. m. to 6 a. m., instead of 8.30 p. m. to 5.30 a. m. as previously fixed by the industrial code of 1891, and required for the first time 11 uninterrupted hours for rest. Furthermore, she limited to some degree the scope of exemptions and fixed a closing hour beyond which overtime might not be prolonged—in seasonal industries not beyond 10 p. m. and in cases of exceptional pressure of work not beyond 9. The Netherlands likewise gave an added hour to the definition of night, and affirmed the principle of the 11 hours' night rest required by the convention by making the prohibited hours 7 p. m. to 6 a. m. In France the prohibition of night work had been gravely compromised by the evil custom of "veillées"—the late overtime permitted to some half dozen exempted trades on 60 nights in the year—and more gravely still by a permanent exemption clause under which night work might be authorized in certain trades throughout the year. However, in 1910 these "veillées" were restricted to a single trade, that of mourning dressmaking and millinery; while in 1911 the limit of overtime was set at 10 instead of 11 p. m. to harmonize with the Bern Convention, the 11 hours' consecutive rest was written into the law, and the permanent exemption clause was repealed. Even Great Britain, after more than half a century's experience in the prohibition of women's night work, found that she had an exemption to withdraw in the case of the flax scutch mills. In 1907 she extended the application of the factory and workshop act more fully to laundries, and in the same year prohibited by administrative order night work in fruit factories between 10 p. m. and 6 a. m.

Even in countries prohibiting women's night work for the first time after the Bern Convention, its progressive stimulus to legislation may be noted. Belgium, for example, passed her first act prohibiting night work in accordance with the Bern Convention in 1911. Three years later she passed an amending act which made applicable to all industrial undertakings, irrespective of size, the prohibition that according to the convention was to apply only to establishments employing more than 10 persons.

Application to colonies and possessions.

Nor must there fail of emphasis the wise extension of the night-work law to backward or even quite uncivilized countries by the application of the convention to "colonies, possessions, or protectorates" of signatory States. In accordance with article 6, France and England as home Governments notified the Swiss Federal Council of the adherence to the convention of Algeria and Tunis for France, and for England of countries ranging from the high civilization of New Zealand to the primitive culture of Nigeria and the Fiji Islands Subsequent decrees applied the night-work provisions of the French code du travail to Martinique, to Guadaloupe, to Reunion, to French Guiana, and to Madagascar. If at first sight the extension of means of prevention to nonindustrialized and still primitive peoples seems merely a curious anomaly, on closer view it must appear as it really is, an exercise of far-seeing statesmanship. If industrial abuses are to be prevented, such prevention must precede and not follow the advent of industry and the special interests that make prevention difficult. Asia has offered new and terrible proof of this in recent years by the spectacle of nations untaught by western experience becoming suddenly industrialized and repeating after the lapse of a century the worst phases of the industrial revolution in the west.

Influence on nonsignatory States.

Nonsignatory States, moreover, felt the influence of the movement started at Bern, and one by one, as if hastening to measure up to the standards set by the conference, approached or exceeded the requirements of the international convention. Bosnia and Herzegovina, Liechtenstein, Serbia, Greece, had all, before the date set for the coming in force of the Bern Convention, fallen into line by prohibiting, with some hours of added stringency for good measure, the night work of women. The same impulse in the workers' affairs reached to Japan and India, both recording in their factory acts of 1911 the first legislative action of the social conscience in Asia. The same impulse was felt more explicably in the British dominions, in provinces as yet but little industrialized but sharing the British inheritance and the hard-won British knowledge of the need of factory legislation. In South

America Argentina made the first attempt on that continent to follow the example of the European powers by prohibiting women's night work in the capital, Buenos Aires.

The second conference of Bern.

And so, as years passed, the prohibition of night work met general sanction, and the steady and peaceful progress of international labor legislation might well have been considered assured.[21] With the night-work reform effective in Europe, a manifest and glowing success following upon its initiative, the Swiss Federal Council in 1913 invited the powers a second time to a conference at Bern, this one to deal with the night work of young persons and with women's hours of labor. Draft conventions were duly formulated; a diplomatic conference was projected for September of the following year. But in September, 1914, the European powers had other things to think of. The Federal Council sent notes to the Governments invited, canceling its invitations and postponing the conference to a more convenient season. "We feel sure," ran the letter, "that you will agree with our decision."

THE WORLD WAR AND THE REVIVAL OF NIGHT WORK

The breakdown of the labor laws.

Force majeure, the phrase familiar to industry, is not inappropriate to the gigantic interruption caused by the war; with such violence was the comity of nations suddenly rent asunder that it seemed as though some great natural cataclysm had occurred. And as force majeure—fire or flood or earthquake—traditionally abrogates all restrictions upon labor, so it was with the infinitely greater world catastrophe. The war carried with it the breakdown of more than industrial standards; what were labor laws that they should stand in the general ruin?

Under emergency powers labor legislation went by the board. Hours were recklessly lengthened, overtime, Sunday labor, and night shifts feverishly resorted to, in the effort to speed to the utmost the national production of war necessities. After almost a century of disuse England revived the practice of night work for women. Labor itself acquiesced in the overthrow of its hard-won, slowly achieved, protective standards. The experiment of industrial pressure "without stint or limit" could scarcely have been tried under more favorable circumstances. The spur of patriotic ardor, the urge of mass emotion, the incentive of unparalleled high wages, all did their part to defy the industrial experience of mankind.

[21] The other Bern Convention of 1906, prohibiting the use of white phosphorus in the manufacture of matches, also had been sanctioned, though with no such general consensus of opinion as the night-work treaty.

The return toward peace-time standards.

The history of the later years of the war is the history of the gradual withdrawal of war-time exemptions, the gradual restoration of the provisions of the labor laws. Overtime was found to defeat itself, overstrain to invoke diminishing returns. When the machines had been speeded to capacity, the workers straining to their limit, production had fallen. In the very interest of efficiency and in alarm at their failure to maintain output, the warring countries were forced to call a halt. One by one, under the imperative need of conserving labor power, the nations began to restore normal standards. This slow return to peace-time standards under increasing pressure of war was a striking demonstration of the value of the labor law, an ultimate proof of the wisdom—the national necessity—of safeguarding the health of the workers in war emergency as in peace. Of interest at this point is the conviction expressed by the French Undersecretary of State in an address delivered on June 6, 1916:

> The experience of war time has only proved the necessity—technical, economical, and even physiological—of the labor laws enacted before the war. It is in our legislation in times of peace that we shall find the conditions for a better and more intense production during the war.[22]

British testimony is not less emphatic. "The fact that it has been found necessary," said a factory inspector in a statement made to the British War Cabinet Committee on Women in Industry, "to revert to the Factory Act regulations step by step proved their value and has shown that these require even to be made more stringent in some respects."[23] "Much of this relaxation was found to be uneconomical and baneful," this committee says of the war-time exemptions, and states after an impressive summary:

> On the whole, the protection in normal circumstances given to women and young persons by the provisions of the Factory and Workshop Acts had amply justified itself by the unsatisfactory results of the relaxation which was to some extent necessary under the stress of war conditions.[24]

Slowly and step by step the Sunday rest was restored, overtime was cut off, working hours were reduced to a normal or nearly normal day. The night-work exemption lingered behind the others, since night shifts offered the obvious means to hard-pressed Governments of keeping the machines running without the exhaustion of the labor force entailed by overtime or inhumanly long hours. Yet the authorization of women's night work was progressively limited; the prohibition was restored for girls and young women under 16, under 18,

[22] Quoted in Bulletin du Ministère du Travail, July-August, 1916, p. 123.

[23] Great Britain. Report of the War Cabinet Committee on Women in Industry, 1919. Appendix III. Statement of Miss Rose E. Squire, deputy principal lady inspector of factories at the Home Office, p. 207.

[24] Ibid., p. 108.

under 21, and at last for pregnant women and nursing mothers. Had the war lasted longer, it is scarcely venturesome to assert that it would have seen the prohibition of night work for women reestablished with the other protective restrictions of the labor laws.

Specific experiences.

Two countries withdrew night-work exemptions granted. By December 1, 1915, the Netherlands had refused to continue authorizations of night work for women; and Russia in June of 1917 withdrew the exemptions, granted in 1915, for women's and children's night work in mines and for national defense. Hungary maintained its labor standards intact. Shortage of raw material and fear of unemployment sometimes aided the protection of the workers. Thus Austria, which had allowed no derogations from the night-work law until September of 1915, was forced only six weeks later to warn the provincial governments to issue no permits for women or children to work at night in cotton factories. Countries making intensive use of the night work of women and children found it necessary to mitigate its ill effects, as they best might, by throwing around the workers whatever safeguards of supervision and welfare provisions were possible.

THE WASHINGTON CONVENTION

So it was that the industrial history of the war proved a reenforcement of the best wisdom of peace. Labor legislation had suffered an interruption, not a setback; with the reestablishment of peace the claims of the workers received a new and unexampled emphasis. The Versailles treaty gave a special chapter to labor and instituted an international organization. Universal peace, it stated nobly, "can be founded only on the basis of social justice." When, therefore, the International Labor Conference was called at Washington in 1919, in accordance with the terms of the treaty, it was significant of the world's mood that no fewer than seven conventions protective of labor were adopted. Among these the prohibition of the night work of women was extended and completed. The delegates were able to take up the question where the Bern Convention had left it, with a conviction sobered and emphasized by the war. For in spite of war derogations, as was said by Miss Constance Smith in presenting the report of the special commission, "the point of view that night work for women is undesirable, that its prohibition should be as far as possible universal, has not been weakened by war experience."

ADVANCES OVER THE BERN CONVENTION

The new draft convention formulated at Washington was designed to bring the Bern Convention of 1906 up to date and to extend its application in accordance with the needs and opinions of the time. Chief and most important of its innovations was the application to all public and private industrial undertakings, irrespective of numbers employed, of the night-work prohibition, which by the Bern Convention had applied only to undertakings employing more than 10 workers. This was a change of prime importance, for the earlier convention, in excepting the smaller industrial establishments, had left unprotected precisely the women likely to need protection most. The Washington Convention, moreover, in omitting article 8 of the Bern agreement, dropped the delays therein provided for the coming in force of its provisions. The new convention was to become effective as soon as notification had been issued by the Secretary General of the League of Nations that two ratifications had been registered, and thereafter for each ratifying country on the date on which ratification was registered. The convention accordingly came into force on June 21, 1921.

PROGRESS OF RATIFICATION

Attention has been called to the wide influence on legislation of the international standard set up in the Bern Convention. Yet it took eight years from the time of the diplomatic conference, it will

be remembered, to secure the adhesion of 13 States. It was due in part, no doubt, to the superior prestige and greater representative strength of the Washington Conference, as well as to the march of public opinion in the intervening years, that the acceptance of the second night-work convention has been more rapid and general than that of the first. According to the ratification chart issued by the International Labor Office for December, 1927, eight years after the Washington Conference, ratification has been registered for 16 States, approved by parliament in another, and recommended to parliament by the Government in 10 others. This makes a total of ratifications completed or under way in 27 States. In 2 additional States, moreover—Japan and Poland—legislation has been passed looking toward the application of the convention, and in 4 others—Bolivia, Finland, Norway, and Portugal—such legislation is in progress or preparation. It would hardly seem open to question that the prohibition of women's employment at night is fast becoming universal in civilized countries.

Washington Convention on the night work of women

[Status of various countries according to the ratification chart of the International Labor Office in December, 1927]

Ratification			Application			
Ratification registered	Ratification approved	Ratification recommended	Legislative or other measures passed before adoption of convention	Legislative or other measures passed since adoption of convention	Legislation passed	Legislation in progress or preparation
Austria.		Argentina.		Austria.		Argentina.
Belgium.				Belgium.		Bolivia.
		Brazil.				Brazil.
Bulgaria.		Chile.	Bulgaria.			Chile.
Czechoslovakia.			Czechoslovakia.			
		Denmark.				Denmark.
Estonia.				Estonia.		Finland.
France.				France.		
		Germany.				Germany.
Great Britain.				Great Britain.		
Greece.	Hungary.			Greece.	Hungary.	
India.				India.		
Irish Free State.				Irish Free State.		
Italy.				Italy.		
					Japan.	
		Latvia.				
		Lithuania.				
Netherlands.				Netherlands.		
						Norway.
		Paraguay.			Poland.	
						Portugal.
Rumania.						Rumania.
Serb-Croat-Slovene Kingdom.					Serb-Croat-Slovene Kingdom.	
South Africa.			South Africa.			
		Spain.				
Switzerland.				Switzerland.		
		Uruguay.				Uruguay.

In addition to the countries shown on the chart, Sweden and Luxemburg, signatory to the Bern Convention, and Russia,[25] though not yet a member of the international organization, have legislated against night work.

Thus, at the close of 1927, 36 countries had abolished the night work of women in industry, or had taken steps, legislative or governmental, looking toward its prohibition. These nations covered the entire Continent of Europe, with the exception of Monaco, Albania, and Turkey; they included in Asia two great industrial countries, India and Japan; and in Africa the French dependencies Tunis and Algeria to the north, the Union of South Africa to the south, and between them such British dependencies as Uganda, Northern Nigeria, and the Gold Coast. The movement has included, moreover, the British Dominions, where the prohibition of night work has been for the most part of long standing, New Zealand, all the Australian States, and all but two of the Canadian Provinces—Yukon and Prince Edward Island, where industry has not yet penetrated. It has spread to Mexico and Central America, where Guatemala, Costa Rica, Nicaragua, Salvador, and Honduras have adopted an international convention of their own, including the prohibition of women's night work; and to South America, where Argentina and Brazil have a partial prohibition of night work and are taking steps, as are also Bolivia and Chile, to make the prohibition complete. The United States, through her failure to prohibit night work for women over the main part of her territory, stands alone among comparable States.

TESTIMONY REGARDING NIGHT WORK FOR WOMEN

In the preceding pages is presented a brief sketch of the long struggle in Europe and throughout the foreign world which ended in the suppression in most civilized countries of the practice of women's night work. The movement which began nearly a century ago in England, after slowly gathering force in Europe has spread to the other continents. It won its first international victory in the Bern Convention, and its finally effective triumph at Washington.

What was it that so deeply stirred the social conscience against an industrial usage never general, for the most part intermittent, affecting at worst only a minority of the women employed in industry throughout the world? It must be clear to any candid observer that apart from incidental hardships or needlessly bad conditions

[25] It should be noted, however, that a Russian circular of the Commissariat of Labor, issued in the spring of 1925, gave such general authorization to the employment of women by night as to make the previous prohibition practically nugatory. This may doubtless be regarded as a temporary emergency measure, incidental to the present conditions of production. (See Circular of the Commissariat of Labor of Apr. 13, 1925, quoted in Informations du Commissariat du Travail, No. 20, 1925.)

still surviving in certain forms of industry, there is something fundamentally wrong about night work, some deeper objection, intrinsic, inalienable, not to be cured by any reform of its conditions or surroundings. One can not see a revolt against a certain practice of industry so general as to seem a revolt of civilization itself without attempting some analysis of its object, without wishing to substantiate the case against it.

There is grave testimony against night work for women, and it is this testimony that everywhere, when fairly presented, has won its verdict from judges and legislators and governments. It is the testimony of doctors and scientists, of actuaries and public health experts, of sociologists and economists. More than that, it is testimony of forward-looking employers against backward ones, of efficient and successful industry against rule of thumb. The case was first drawn up in the reports of the inquiry made in 1901 for the International Association for Labor Legislation,[26] human documents of extraordinary interest and value, impressive above all in the fundamental agreement of their findings in all the leading industrial States of Europe. And it is a case that has gained increasing emphasis with every advance of the science of industrial hygiene. The pages following take up in order its medical, its social, and its economic phases.

THE MEDICAL TESTIMONY

The reversal of natural functions.

From the testimony taken nearly a century ago before the British Factories Inquiry Commission to the evidence at the hearings of a United States Senate committee in its investigation of night work in the Post Office Department, the characteristic and instinctive type of comment is that night work is against nature. "An unnatural, unwholesome, and demoralizing practice," said Henry and Edmund Ashforth, cotton spinners, recommending its abolition to the British Commission of 1832;[27] and "because night work is unnatural" the representative of the post-office clerks appealed to the Senate committee in 1922 for a reduction of hours in the night shift.[28]

Science has taken the empirical, instinctive comment of man, and now repeats and reenforces it, with a new emphasis and to more convincing purpose, by the testimony of physiologists and investigators.[29] It is "unnatural" to turn night into day, because man is a diurnal

[26] Le travail de nuit des femmes dans l'industrie: Rapports sur son importance et sa réglementation légale. Jena, Fischer, 1903.

[27] Great Britain. Factories Inquiry Commission. 1834. Supplementary report, p. 279.

[28] U. S. Senate Committee on Post Offices and Post Roads. 67th Congress, 2d session. Hearings of May 11 and 18, 1922, p. 54.

[29] For the following, see Great Britain, Health of Munition Workers Committee, Interim report, 1917, pp. 26–27; and Lee, Frederic S., The human machine and industrial efficiency. New York, Longmans, Green & Co., 1918, pp. 61 ff.

and not a nocturnal animal. The human machine is geared to work by day and rest by night. The activities of the human body are rhythmic. Scientists tell us that among the physiological rhythms of the body is that of temperature, which exhibits a distinct cycle during the 24 hours, varying one or two degrees from its maximum in the afternoon and evening to its minimum in the early hours of the morning. This rhythm is usually attributed to the variations of metabolism, or the building up and breaking down of tissue, during the course of the 24 hours, occasioned largely by the activities of the muscles. Experimentation in the laboratory has proved that this temperature rhythm may be reversed for animals by a complete reversal of activities and habits, and the same reversal was found possible for human beings by Linhard in his experiments with members of the Danish polar expedition of 1906–1908, during the silence and darkness of the Arctic night.[30] But such controlled experiments have little to do with the common human experiment of the night worker who tries to sleep in a waking and working world when he has completed his toil during the hours normally set aside for rest and sleep, and it will not be surprising to find that in his case the curve of temperature is "modified but not reversed,"[31] the lower temperatures still appearing in the night and early morning, though the day temperature may be reduced by sleep. "The basic objection to night work depends on the fact that it is unphysiological," writes Doctor Vernon, the medical investigator of the British Health of Munition Workers Committee, and more lately of the Industrial Fatigue Research Board. "The average industrial worker finds it impossible to effect a genuine reversal of habits when he is on the night shift."[32]

"I am not in favor of night work for anybody," Dr. Emery R. Hayhurst begins his medical argument against night work:

> It is unnatural for most forms of life to work at night and attempt to sleep in the day. The diurnal temperature, which varies in the human being, in whom it is highest at 2 to 6 p. m. and lowest at 2 to 6 a. m., is directly interfered with.[33]

Other bodily functions display a similar rhythm throughout the 24 hours; those, for example, of the digestive organs. According to Dr. T. B. Hyslop—

> The observations of Burch (Virchow's Archiv, 1858, Bd. XIV) seem to demonstrate that in sleep during the day the bodily functions continue and the stomach, etc., is active. At night time, however, their activity is diminished. Hence it is that nocturnal employments are antiphysiological and the bodily economy and metabolism can only be adjusted with great difficulty.[34]

[30] Report of the Danish Expedition to the Northeast Coast of Greenland, 1906–08. Copenhagen, 1910.
[31] Great Britain. Health of Munition Workers Committee, Interim report, 1917, p. 27.
[32] Vernon, H. M. Industrial fatigue and efficiency. London, Routledge, 1921, p. 90.
[33] American Journal of Public Health, May, 1919, p. 367.
[34] Encyclopedia Medica, Vol. XI, p. 195.

And the Italian physiologist, Dr. Luigi Carozzi, emphasizes as one of the losses of the night worker that "autoregulation of metabolism" which is one of the "normal characteristics of sleep." [35]

Thus night work is "against nature" in an exact and literal sense; it is the attempt to work against instead of with man's physiological rhythm; it aims vainly at a reversal of the physiological functions not practically possible to effect, urging brain and muscle to labor at a time when the bodily processes are naturally in abeyance and the total level of activity is depressed, when the whole set of the human organism is toward rest and sleep. "It imposes on a physiological organism attuned to one sequence of events," says Dr. Frederic S. Lee, "a different and abnormal sequence"; and, summing up his discussion of the subject, "Night work is unnatural, unphysiological, abnormal, and it must ever remain so." [36]

Loss of sleep.

Night work sins against nature primarily in the loss of sleep it involves. For more than a generation doctors and scientists throughout the civilized world have borne unanimous testimony to the inexorable need of sleep for health and vigor. It has been found by laboratory experiments that sleep is more necessary than food to animal life; that the physiological deficit caused by lack of sleep is a graver menace than that due to starvation. Deprivation of sleep for 4 or 5 days only has been proved fatal to puppies, while they may be deprived of food for 20 days or more and still be restored to normal health.[37] "Men as well as animals die sooner of lack of sleep than they do of hunger," writes a Swiss physiologist, Doctor Kraft:

> We may consider that we have experimental proof, corroborated by much general experience, of the fact that the deprivation of * * * sleep is sure to bring on severe and lasting injuries.[38]

This is because the elimination of fatigue poisons and the processes of tissue repair can be adequately carried on only in sleep. As Miss Goldmark says—

> So marvelous is our physical organism that, like a running stream, it purifies itself, and during repose these toxic impurities are normally burned up by the oxygen brought by the blood, excreted by the kidneys, destroyed in the liver, or eliminated from the body through the lungs.[39]

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[35] Carozzi, Luigi. Controindicazioni al lavoro notturno. Proceedings of the First International Congress on Industrial Diseases, Milan, 1906, p. 80.

[36] Lee, Frederic S. The human machine and industrial efficiency. New York, Longmans, Green & Co., 1918, pp. 70-71-72.

[37] De Manaceine, Marie. Sleep. London, Walter Scott, 1907, p. 65.

[38] Zur Frage der Nachtarbeit in den Bäckereien, Zeitschrift für Schweizerische Statistik. Vol. XVII. 1911. p. 292.

[39] Goldmark, Josephine. Fatigue and efficiency. New York, 1912, p. 13.

Most of all, the central nervous system requires sleep's restorative and suffers from its loss. Speaking of its delicate mechanism, Doctors Hough and Sedgwick write:

> The main principle of its hygienic care is to oil the bearings and clean and repair the machinery, by repose and sleep, before the danger of a breakdown is imminent. Rest, and especially the rest of sleep, is the one preventive * * * for these unfavorable conditions.[40]

In sleep, to use Doctor Stirling's image, "the nerve cells, though resting, are storing up matter, and are being flushed and cleaned,"[41] and "lack or insufficiency of sleep," according to Doctor Carozzi, "destroys the possibility of recuperating quickly from the metabolic losses, and of removing the poisonous residues of the processes of oxidation in the tissues."[42] "The physiological time for recovery is sleep," writes the German authority, Dr. Franz Koelsch:

> During healthy sleep the elimination of the fatigue products from the body is most complete * * * . But this absolutely necessary regeneration accomplished in normal sleep does not fully take place in the daytime.[43]

That last is the trouble: the practical impossibility of making up the sleep lost at night by equally deep, restful, and uninterrupted sleep in the day hours. "Doctors and hygienists are unanimous," says Doctor Epstein in his well-known study of the diseases of bakers, "in agreeing that day rest can not take the place of rest by night, and continued disregard of the need of sleep is sure to end in ruined health."[44]

With all this array of evidence against night work from the point of view of sleep Brückner takes issue sharply in a rather striking article published a few years since in a foreign journal of industrial hygiene.[45] He maintains that day sleep is in all respects as effective for hygiene as sleep by night, provided only that the curve of sleep drops equally far below the threshold of consciousness. But this surely is scientific argument in the void and not in a working world. The proviso may hold, indeed, in controlled experiments of the laboratory, with monkeys, for example, kept active by night and made to sleep by day in light-proof and sound-proof cages.[46] In relation to night workers, to a reader familiar with the conditions of

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[40] Hough, Theodore, and Sedgwick, William T. The human mechanism. Boston, Ginn & Co. 1906, p. 331.

[41] Stirling, William. On health, fatigue and repose. British Medical Journal, Dec. 6, 1913, p. 147.

[42] Carozzi, Luigi. Controindicazioni al lavoro notturno. Proceedings of the First International Congress on Industrial Diseases. Milan, 1906, p. 80.

[43] Krankheit und Soziale lage. Edited by Dr. M. Mosse and Dr. G. Tugendreich. Berlin, Lehmann, 1913, p. 159.

[44] Epstein. Handbuch der Arbeiterkränkungen. Die Krankheiten der Bäcker. Jena, Fischer, 1908, p. 477.

[45] Brückner, Hermann. Uber den Einfluss der Nachtarbeit auf den Gesundheitszustand der Arbeiterschaft. Zentralblatt für Gewerbehygiene und Unfallverhütung, October, 1921, pp. 218–219.

[46] A well-known experiment in this field. See Simpson and Galbraith, Transactions of the Royal Society of Edinburgh, Vol. XLV (Pt. I), 1905, p. 65.

labor it can hardly fail to seem an academic irony. For the working man or woman can not command the quiet and privacy of the leisure class. How far can the curve of sleep drop below the threshold of consciousness in the typical crowded home of the night worker, with the light and noise and bustle of daytime, the playing and crying of children; or in summer heat perhaps, which even by night renders sleep doubtful and by day puts anything more restful than an exhausted stupor out of the question? "Under the present social conditions," said Doctor Lee, conservatively, in his statement before the British Committee on Women in Industry, "the day's recuperation of the night worker is rarely equal to the night's recuperation of the day worker." [47]

Deprivation of sunlight.

A second unphysiological aspect of night work is the loss it entails to the workers of the tonic and stimulating effects of sunlight.[48] More and more the extraordinary hygienic properties of the sun's rays are emphasized by the medical profession; more and more is sunlight directly enlisted, as in heliotherapy, in the fight with disease, an ally even yet of unknown strength. Physiologists speak of its "mysterious influences on the human body," [49] its "potent stimulus to all the organic functions," [50] the stimulation of the skin that enables it to throw off the toxic wastes [51] and even of its effect on psychic energy, "that psychic elasticity which so strikingly influences the physical elasticity and resisting power." [52] "Man's body needs the stimulus of sunlight," writes Doctor Lee, "and is adapted to the atmospheric conditions of the day." [53]

Twenty years ago the important researches of the Italian physiologists had demonstrated the loss caused by the deprivation of sunlight in the coloring matter and iron of the blood. "We believe we have proved," writes the Director of the Parma Institute of Hygiene, Dr. G. F. Gardenghi, "that, under the influence of night work, a decrease occurs in the blood's coloring matter which after a short

[47] Great Britain. Report of the War Cabinet Committee on Women in Industry. 1919. Appendix III, p. 193.

[48] Interesting figures are furnished by recent Yale experiments on the albino rat, quoted by the Life Extension Institute in the June, 1925, number of its journal, How to Live. According to these experiments, rats exposed to sunlight showed from their first to their sixth month a fivefold increase of red cells, while rats kept in darkness showed in the same time somewhat less than a threefold increase. See Laurens, Henry, and Sooy, J. W. The effect of light and of darkness on blood cell number of the growing albino rat. Proceedings of the Society for Experimental Biology and Medicine, November, 1924.

[49] Lee, Roger I. Health and Disease; Their determining factors. Boston, Little, Brown & Co., 1917. p. 135.

[50] Italy. Ministero di Agricultura, Industria e Commercio. Ufficio del Lavoro. Inchiesta sul lavoro notturno dei fornai. Rome, 1906, p. 14.

[51] Mori, Ambrogio. La fisiopatologia del lavoro notturno e la legislazione Italiana. Il Ramazzini. October-November, 1907, p. 624.

[52] Hirsch, Max. Das Verbot der Nachtarbeit. Jahrbuch für Gesetzgebung, Verwaltung, und Volkswirtschaft im Deutschen Reich, Vol. XXV, 1901, p. 1258.

[53] Lee, Frederic S., op. cit., p. 61.

time becomes clearly perceptible and remains as a chronic condition of blood impoverishment." [54]

In this country the findings of the New York State Factory Investigating Commission in regard to its physical examination of 800 bakers have confirmed older observations on the chronic anemia and impoverished blood of night workers.[55] Similar testimony to the evils attendant on the deprivation of sunlight comes from Australia, where Dr. J. S. Purdy, former chief inspector of factories in Tasmania, in an address before the Australian Association for the Advancement of Science spoke of "the anemic appearance, the limited vitality, and the susceptibility to disease of those who habitually live or work under darkened conditions," and emphasized sunlight as "absolutely essential to the maintenance of health." [56]

Not only does lack of sunlight predispose to disease by depleting the blood and lowering the vitality; it directly favors the growth of disease germs. Light has been called "the cheapest and most universal disinfectant." [57] This germicidal influence of natural light has been discussed by Collis and Greenwood in an interesting passage in their valuable handbook on the health of the industrial worker:

> Sunlight is known to be inimical to the life of most pathogenic organisms; a gelatin plate evenly sown with microorganisms, covered with a photographic positive, and set to incubate in sunlight, will present a living reproduction of the picture, owing to the growth of organisms being densest where least light penetrates and least where most light penetrates. The tubercle bacillus in particular may be instanced as a microorganism of which the vitality is destroyed by direct sunlight and much impaired by exposure to daylight * * *. The more daylight, therefore, there is in the rooms where workers are congregated together, the less is the chance of the spread of infectious diseases and the better will be their general health.[58]

Nor can artificial lighting, however technically improved, however modern and perfect, replace from the point of view of hygiene the light of the sun.

Injury to sight.

It is not only that artificial illumination has not the health-giving qualities of natural light; it is not even that in its substitution for daylight disease germs are liable to multiply unchecked; it is well known that artificial light brings positive and unavoidable injury upon the night worker. The British Departmental Committee on Lighting in Factories and Workshops stated among the findings of its investigation in 1915:

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[54] Veränderungen des Blutes durch Nachtarbeit. Wiener Klinisch-therapeutische Wochenschrift, Vol. XIII, 1906, p. 700.

[55] New York State Factory Investigating Commission. Preliminary report, 1912, Vol. I, pp. 224–232.

[56] Purdy, J. S. Lighting and ventilation of factories, hours of labor and health. Journal of Industrial Hygiene, March, 1922, p. 350.

[57] Kruse, W. Ueber die hygienische Bedeutung des Lichtes. Zeitschrift für Hygiene und Infectionskrankheiten, Vol. XIX, 1895, p. 332.

[58] Collis, Edgar L., and Greenwood, Major. The health of the industrial worker. London, J. & A. Churchill, 1921, pp. 314–315.

We have found substantial consensus of opinion among witnesses of all classes that conditions involving the continuous use of artificial light are unnatural and entail greater strain upon the workers.[59]

Doctor Hope notes as a special disadvantage of night work "the necessity of working by artificial light, which * * * increases fatigue." [60] Fine work, which strains the eyes even in daylight, under artificial lighting puts upon them an added and often intolerable burden. In spite of the vast modern improvements in the science of lighting and the increasing attention everywhere devoted to the subject, a high percentage of shops and factories are still either insufficiently or improperly lighted. Collis and Greenwood speak of deficient light as leading to "a constant struggle, an important factor in the complex of 'eyestrain.'" [61] On the other hand, lighting, while sufficient, may be improperly distributed or so placed as to produce a glare, with effects no less injurious to eyesight than those of insufficient light. Nor is it possible in the close interdependence of the bodily mechanism for damage to be done to the eyes alone. Such injuries to eyesight are bound up with subtle and disastrous reactions on the nervous organism and on general health. Nervous deterioration and lowered physiological resistance to disease are the common consequences of eyestrain.

Fatigue.

"Such violations of the laws of nature bring on their own penalties," wrote one of the medical investigators of the International Association for Labor Legislation in his summing up of the case against night work.[62] Unnatural in its interference with the physiological rhythms, unnatural as involving loss of sleep and sunlight, unnatural in its forced dependence on artificial light, man's effort to reverse the order of nature in night work is in truth beset with menaces and penalties. But most of all, night work is penalized by fatigue, fatigue which tends, in case the work is long continued, to become cumulative and chronic. It is well here to remember the words of that wise economist and farseeing employer, Ernst Abbe, words no less true to-day than at the beginning of the century, when they were spoken:

The daily average of fatigue and expended strength must be absolutely balanced by fresh strength and recuperation, because the least deficit will accumulate gradually and will have ruinous effects.

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[59] Great Britain. Home Office. Departmental Committee on Lighting in Factories and Workshops. First report, 1915, Vol. I, p. x.

[60] Hope, Edward William, in collaboration with W. Hanna and C. O. Stallybrass. Industrial hygiene and medicine. New York, William Wood & Co., 1923, p. 578

[61] Op. cit., p. 317.

[62] Hirsch, Max. Interdiction du travail de nuit des femmes en Allemagne. In Le travail de nuit des femmes dans l'industrie Jena, Fischer, 1903, p. 21.

And again, of the worker:

It is the same as when he spends daily ever so little more than his income. If he keeps this up, there comes a time when he inevitably becomes bankrupt.[63]

The night worker is constantly overdrawing his physiological balance. The deficit of rest and sleep, small at first, gradually assumes disastrous proportions; there is no escape from physical bankruptcy. The system can not throw off its toxic wastes, and a chronic state of fatigue poisoning is the result. "The greater fatigue induced by night work,"[64] is a medical commonplace as well as a fact of common knowledge. "Anybody who knows anything about night work knows that it is physically exhausting," said Senator Walsh, of Massachusetts, when speaking in the Senate on the proposed curtailment of night hours in the Post Office Service.[65] Physicians speak of the "greater sacrifice of vital energy"[66] it involves, the "organic depletion,"[67] the lowered vitality. Because work done at night is against the physiological current, because the worker is in all probability already fatigued on entering the mill, such work is done at far heavier physical cost than an equal amount of work in the daytime. Long ago it was proved by the experiments of Italian scientists that work done by tired muscles requires disproportionate effort and a disproportionate time for the recuperation of those muscles;[68] these findings were strongly emphasized with respect to industrial workers by Prof. Stanley Kent's investigation of industrial fatigue for the British Home Office during the war.[69] And while night work is likely to be harder than day work, hour for hour, there is an added adventitious element of strain in the longer hours commonly worked; for the night shift is generally run for five nights only, and within that limit makes up the weekly hours of the six day shifts. "Practically all night workers," says Doctor Hayhurst, "experience difficulty, some call it agony, in keeping themselves keyed to the job between 2 and 5 a. m., the period of least functional activity in the human body."[70]

Health hazards through fatigue.—"Fatigue," in the striking words of Sir James Paget, "has a larger share in the promotion or trans-

[63] Abbe, Ernst. Die volkswirtschaftliche Bedeutung der Verkürzung des industriellen Arbeitstages. Papers read before the Economic Society, Jena, 1901. Complete works, Vol. III. Jena, Fischer. 1906. p 226.

[64] Vernon, op. cit., p. 97.

[65] Congressional Record, May 27, 1924.

[66] Herkner, Heinrich. Die Arbeiterfrage. Berlin, Guttentag, 1908, p. 286.

[67] Proust, Prof. A. Le travail de nuit des femmes dans l'industrie au point de vue de l'hygiene. Revue d'Hygiene et de Police Sanitaire, Vol. XII, 1890, p. 482.

[68] Goldmark, Josephine. Fatigue and efficiency. New York, 1912, pp. 33-34. See Mosso, Angelo, La fatica, Milan, 1891; Maggiora, Arnaldo, Ueber die Gesetze der Ermüdung, Archiv für Anatomie und Physiologie, 1890; and Carozzi, op. cit., p. 79.

[69] Great Britain. Home Office. Second interim report of an investigation of industrial fatigue by physiological methods. A. F. Stanley Kent. 1916, p. 16.

[70] Hayhurst, Emery R. Medical argument against night work. American Journal of Public Health, May, 1919, p. 367.

mission of disease than any other single causal condition you can name;" [71] and Collis and Greenwood remark on this dictum as "probably truer for industrial employment than for any other walk of life." [72] If true in general, this must be doubly true of night work, which intensifies every strain of industry. The authority on the diseases of bakers, Doctor Epstein, states that the impairment of health in these night workers "is shown not by special diseases but by a general weakening of the organism." [73] But this general weakening is the open sesame to all diseases. The most sinister aspect of fatigue is the loss of resistance by which the body becomes more and more readily a prey to disease and infection. Headache, dizziness, loss of appetite, insomnia, anemia, digestive and functional disturbances of all kinds, a formidable list of ailments of the body are likely to attack night workers; neuralgia and neurasthenia menace them; and tuberculosis and other infections find them easy victims. Fatigued animals, it has been proved, die from infections from which animals allowed to rest recover. Doctor Carozzi states that—

> there is danger, serious danger in night work, danger composed of many elements which manifests itself in slackened metabolism, a marked general weakening, precocious senility, disturbance of all the organic functions, [74]

while Doctor Hirsch brings a still more sweeping indictment—

> In a multitude of maladies and infirmities, as also in general depression and premature exhaustion of vitality, in moral, intellectual, and social retrogression and degeneracy we see the effect of that unnatural condition, night work.[75]

Higher morbidity of night workers.

Statistics are scanty for the comparative morbidity of day and of night workers, but such as exist, as well as many sources of general testimony, indicate a serious excess of sickness on the part of the night workers. This liability of night work was well understood in England more than a century ago. To the British Factories Inquiry Commission in 1832 the following statement was made by one of the Manchester doctors concerning night work:

> From my own experience I can assert that children especially (and likewise adults) are more exposed to disease than those employed in day work. When the typhus fever raged in Manchester in 1795–6 my infirmary reports demonstrated the greater liability to infection among night-working children than day workers.[76]

A rough but suggestive comparison may be made by means of some figures given by the factory inspectors of Alsace-Lorraine in 1888 and

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[71] Quoted by British Health of Munition Workers Committee. Industrial health and efficiency. Final report, 1918, p. 61.

[72] Op. cit., p. 79.

[73] Op. cit., p. 477.

[74] Op. cit., p. 80.

[75] Hirsch, Max. Interdiction du travail de nuit des femmes en Allemagne. In Le travail de nuit des femmes dans l'industrie. Jena, Fischer, 1903. p. 21.

[76] Great Britain. Factories Inquiry Commission. 1834. Answers to medical queries, p. 252.

1889. Here, indeed, in the case quoted, the hours of the night workers were shorter by 22 per cent than the hours of the day workers. The figures given, moreover, permit only the comparison of one mill having all day work with another of the same kind and capacity having part-time night work also. Any marked difference in the morbidity figures would, therefore, scarcely be expected, for the preponderance of day work in the second mill would tend to mask any excess sickness in the night-work figures, while the shorter hours in the night shift might naturally be thought to equalize the health hazard with that of the day. Yet the figures, per 1,000 women, appear as follows:[77]

Year	Illness in—			
	Mill I (day work only)		Mill II (day work and part-time night work)	
	Cases	Days	Cases	Days
1888	328	5, 641	429	8, 730
1889	309	5, 815	413	8, 865

The cases of illness in the first mill, working only by day, were thus only 76 per cent of those in the mill working both day and night, and the days of illness in the former were only 65 per cent of those in the latter.

To come nearer the present day, Doctor Frankel, of the Metropolitan Life Insurance Co., quotes the immediate result of long hours, overtime, and night work among one group of British munitions workers as "a rise in the percentage of sickness from 2.9 in July, 1914, and 2.4 in December, 1914, to 4 in the first quarter of 1915."[78] In Italy during the war the sickness rate of women in industry was especially high for women on the night shift, and two or three nights' work, it was said, seemed to cause as much fatigue as a couple of weeks of day work.[79] Here in America the report of the Illinois Industrial Survey in 1918 comments on the impaired health of women night workers in the Chicago stockyards. According to officers of the Infant Welfare Society, "the extensive employment of married women on night shifts has meant an enormous increase of undernourishment and other diseases among mothers as well as babies and young children in their families."[80]

[77] Herkner, Heinrich. Die Reform der deutschen Arbeiterschutzgesetzgebung. Archiv für soziale, Gesetzgebung und Statistik. Vol. V, 1892, p. 240, footnote. Hirsch, Max. Das Verbot der Nachtarbeit. Jahrbuch für Gesetzgebung, Verwaltung, und Volkswirtschaft im deutschen Reich. Vol. XXV, 1901, pp. 1265–1266.

[78] Frankel, Lee K., and Fleisher, Alexander. The human factor in industry. New York, Macmillan, 1920, p. 121.

[79] Il Lavoro, May 31, 1920.

[80] Illinois Industrial Survey. Report, 1918. Hours and health of women workers. p. 68.

"The least harmful system of employing persons by night."

Warned by the British experience of wasteful production in the first year of the war, the Health of Munition Workers Committee, appointed in 1915, was keenly alert to the dangers of overstrain in general and especially of long hours, overtime, and night work. In one of its early memoranda is this statement:

> Taking the country as a whole the committee are bound to record their impression that the munitions workers in general have been allowed to reach a state of reduced efficiency and lowered health which might have been avoided without reduction of output by attention to the details of daily and weekly rests.[81]

Frankly recognizing the undesirability of night work, sensible indeed of its disadvantages and dangers, yet accepting it as an unquestioned war necessity, this committee found no accurate data available "upon which conclusions could be based as to the least harmful system of employing persons by night."[82] The members therefore "directed their effort to the consideration of those safeguards which would reduce its risks to a minimum."[83] An intensive study of health in relation to night work, especially in the case of women, was projected by the committee, but this investigation seems unfortunately never to have been completed, the well-known study of the comparative efficiencies of day work and night work[84] remaining without any correlated study of health. Yet in its medical inquiries as well as in passing references elsewhere the committee's observations on night work from the point of view of hygiene are of considerable interest and significance.

The committee declared in favor of "discontinuous night work," the system of day and night shifts alternating weekly or fortnightly, as against the continuous system. Continuous night work was condemned on grounds of inferior output and bad time keeping; and so far as these are held to be a gauge of health, the implication was against it on the score of hygiene as well. Night work for women under the discontinuous system "proved less exhausting than had been feared," and the committee ascribed this result in part to the high wages and better nutrition among the workers. Yet Dr. Janet Campbell, in her study of the health of women in munition factories, reports as follows on 134 women workers reviewed:

> The numbers are too small to form anything but a rough guide, but tend to show that for the first six months of factory life the work is usually fairly well borne and the effects of night duty show little ill result. In the 6–12 months' interval the strain begins to produce effects on the weaker members of the fac-

[81] Great Britain. Health of Munition Workers Committee. Memorandum No. 7. Industrial fatigue and its causes. 1916, p. 10.

[82] Ibid. Interim report. Industrial efficiency and fatigue. The comparative efficiencies of day work and night work in munition factories. 1917, p. 27.

[83] Ibid. Memorandum No. 4. Employment of women. 1916, p. 4.

[84] Ibid. Interim report, 1917, p. 119.

tory, and an increased amount of headache, dizziness, and sleeplessness is experienced, especially on night work.[85]

The committee, moreover, showed an increasing concern as to the latent effects of overstrain, and in particular of possible overwork on the untraced numbers of workers who had left the factories. Recommending "a further substantial reduction in the hours of work," the last of their memoranda states:

It may be true that no serious breakdown of health has as yet been observed among the great mass of workers, but it can not be assumed that this condition will continue indefinitely. The effect of the strain may even have been already more serious than appears on the surface, for while it is possible to judge roughly the general condition of those working in the factory to-day, little information is available concerning the large number of workers who for one reason and another, and often because they find the work too arduous, are continually giving up their job.[86]

In her second inquiry, published in the final report of the committee, Dr. Janet Campbell stresses the same note, pointing out how questionable are the grounds of any assurance as to the health of women workers not immediately under observation in the factories:

It is clear that the examination of women actually employed at any given moment in the factories will not reveal a complete picture of the effect the work is having upon health and physique. Those who have been able to remain for a year or more in continuous employment without a breakdown are to some extent the results of a physiological selection and represent the most physically fit among the women workers. An examination of this kind takes no account of the women who have dropped out of employment because they were unable to support the strain of long hours, night shifts, or heavy work.[87]

Representatives of the workers themselves are in no doubt as to the effect of night work on health and physique. The Standing Joint Committee of Industrial Women's Organizations went on record in 1917 as to the suffering of the women workers from overstrain, and expressed the gravest apprehensions as to its future consequences:

The long hours of work, and especially the night work, with the additional strain of frequent Sunday shifts, have, however, had a very serious effect on the well-being and health of the workers. The young women have suffered greatly from this strain, and observation has shown not only the soundness of the previous prohibition of night work, but also the failure from the point of view both of the worker and of output, of the long shifts.

Both for married women and the younger workers the present conditions suggest very serious problems. We fear that the women now working will feel their

[85] Great Britain. Health of Munition Workers Committee. Interim report, 1917. Industrial efficiency and fatigue. Inquiry into the health of women engaged in munition factories. p. 117.

[86] Ibid. Memorandum No. 20. 1917. Weekly hours of employment. pp. 6-7.

[87] Great Britain. Health of Munition Workers Committee. Final report. 1918. Appendix B. A further inquiry into the health of women munition workers. p. 143. In the earlier inquiry, however, an investigation into the health of married women in one factory, by means of two examinations at an interval of six months, showed that of the 210 women first examined scarcely more than half (116) were found at work at the second visit. Of those leaving, 26 per cent had left "for reasons of health," a figure not including 15 per cent who had left because of pregnancy. (Interim report, p. 116.)

strength lessened in many instances for the remainder of their lives and we realize the perilous results when we remember the burden of motherhood which they may be bearing now or in the future.[88]

Only the future can tell the whole story of the war strain. In commenting on the long hours in munitions work, an article in the Women's Industrial News in October, 1916, gives an impressive warning:

There is no doubt whatever that the nation will pay in the long run for the strain of the last two years. Men are not run to a sensational death like a hunted hare or stag, but the slow effect of perpetual strain is shown in organic disease, nervous disease, and general physical debility. It will take another generation before we are free from the effects of these two years.[89]

Such was the showing in regard to overstrain, of which night work was a prominent factor, in the oldest and most advanced industrial nation, with the great munitions industry under the supervision of a committee of public health and industrial experts, with high wages, good food, and unusual provisions for the workers' welfare—in short, with all done that might be to mitigate the evils of overstrain.

How the laissez-faire system works may be seen from a passage in the Japan Year Book for 1918 on night work in the spinning mills—a picture of the effects on the workers of a rapid and unregulated development of the factory system in a country new to large-scale industry.

With regard to the spinning mills, female workers are put to night work every seven or eight days. Night work affects the workers' health so severely that at the end of a week they lose considerable weight. This loss may be partly recovered during the succeeding week on the day shift, but the night work, though intermittent, ultimately wrecks the health of the workers. None can stand the strain more than a year, when death, sickness, or desertion is the inevitable outcome. The consequence is that 80 per cent of the female workers leave the factories every year through various causes, but this loss is immediately replenished by new hands.[90]

Overtime.

It should not be forgotten, in considering the ill effects of night work from the point of view of health, that late overtime is night work in its most injurious form, night work superimposed upon all the fatigues and stresses of the day, straining the physical and especially the nervous organism to its breaking point. The worker on the night shift has had some hours of rest, however scanty, since her last shift of work; the fatigued day worker goes on with night work in the guise of overtime without even a breathing space. So it is, as Prof. Stanley Kent says, that—

[88] Standing Joint Committee of Industrial Women's Organizations. Report presented to the Joint Committee on Labor Problems after the War The position of women after the war. London, Cooperative Printing Society (Ltd.), 1917, p. 10.

[89] Arnott, Page. The shorter working day. Women's Industrial News, October, 1916, p. 60.

[90] Japan Year Book, 1918, p. 304. See also statement of conditions in the preamble to the Government factory bill of 1911, Bulletin of the International Labor Office, English edition, 1911, p. xxvii ff.

Overtime labor is more harmful to the worker than labor performed during ordinary hours. It is therefore *physiologically extravagant.*[91]

The British Health of Munition Workers Committee, frankly admitting, as has been seen, that night work is undesirable, however necessary in the national crisis, judged it to be at least less disastrous to health and output than overtime.[92] Professor Loveday in his study of the causes and conditions of lost time speaks of overtime as leading to loss of time through fatigue and sickness, and states further—

The hours gained are more costly than the hours lost, and, coming as a rule at the end of a long day, their cost is altogether disproportionate to their output; and the resulting fatigue which drives some men to bed produces lassitude and decreased efficiency in many of those who continue to attend regularly, so that the output of normal hours also declines.[93]

One group of men studied in this connection was "a body of about 180 extremely keen and steady men in heavy machine shops." Among these Professor Loveday found that—

The amount of time lost avoidably was wonderfully low, considering the nature of the work, but the total time lost shows a great increase, owing to the remarkable rise in the sickness rate.[94]

From June 2, 1915, to June 6, 1916, this rate was almost tripled, rising from 3.1 to 8.4.[95] Such figures speak for themselves on the score of economy as well as hygiene.

Even where night shifts are not a part of industrial practice, and no exceptional pressure exists, night work in its worst aspect is thus liable to creep into industry under the name of overtime. The absence of night-work prohibition with a closing hour strictly defined leaves the door open to every degree of abuse. This has been proved true again and again in this country. Even in States limiting daily and weekly hours, without the safeguard of a fixed closing time one working day—to take a case by no means unusual—may actually be imposed upon another at midnight and no law except nature's be broken. The New York State Department of Labor found laundry workers in 1912 employed until midnight or after on a total working schedule of 14½ hours;[96] the State Factory Investigating Commission obtained records of women in the canning factories working 16 or 17 hours out of the 24;[97] and Miss van Kleeck in her study of

[91] Great Britain. Home Office. Second interim report of an investigation of industrial fatigue by physiological methods A. F. Stanley Kent, 1916, p. 16.

[92] Great Britain. Health of Munition Workers Committee. Memorandum No. 5. Hours of work. 1916, p. 8.

[93] Ibid. Interim report. Industrial efficiency and fatigue. The causes and conditions of lost time. 1917, p. 44.

[94] Ibid., pp. 53, 54.

[95] Percentage ratio of hours lost by sickness to gross normal hours less leave.

[96] New York State Factory Investigating Commission. Second report, 1913, vol. 1. Night work of women in factories. p. 202.

[97] Idem.

women in the bookbinding trade found hours of overtime workers running as high as 16, 18, 19½, and even 21½ and 22 hours.[98] In each one of the cases last mentioned the girl had started work in the morning and worked through the day and evening into the night. Marked detriment to health in much less sensational cases of overtime was established by testimony given to the Illinois Industrial Survey. One physician's statement ran as follows:

> During the Christmas rush when certain departments were forced to work overtime, and even on Sundays, the acute sicknesses among the girls increased to a large extent—that is, the condition that made them remain home for one or two days on account of sickness. In some departments, not affected by the Christmas rush, it was not necessary to work overtime or on Sundays, and the girls in these departments did not suffer with these acute sicknesses at the rate of other departments.[99]

The accident hazard.

Night work is not only a menace to health; it tends to raise the accident rate. Accident studies, while finding a lower absolute number of accidents on the night shift because of the smaller number of workers employed, generally have shown a rise in the accident rate, which has been commonly ascribed to the effects of fatigue on the one hand and of insufficient lighting on the other. "Work at night," says Doctor Florence, "with its reversal of habits and its artificial illumination, is usually, though not universally, found associated with a higher accident rate."[1] In a review of earlier material available on the subject in the United States and Germany, together with the results of his own investigations, Mr. Lucian W. Chaney, of the Bureau of Labor Statistics, in 1922 found two cases of higher rates by day in plants with an average total employment of some 30,000 workers, as compared with six cases of higher rates by night in plants with an average total employment of some 110,000 workers.[2] Brückner, on the other hand, maintains in the article already quoted that, owing to the absence of traffic in the factory, the comparatively small amount of work being done, and the slowed rate of output, the accident hazard of the night work is very low.[3] And in England during the war, according to investigations made by the Industrial Fatigue Research Board of lathe work in munitions plants, the ratio of accidents to output has been shown to fall during the night shift, even when output records tended to rise.[4] These findings, interest-

[98] van Kleeck, Mary. Women in the bookbinding trade. New York, Russell Sage Foundation, 1913, p. 144.

[99] Illinois Industrial Survey. Report, 1918. Hours and health of women workers, p. 47.

[1] Florence, P. Sargant. Economics of fatigue and unrest. London, Allen & Unwin, 1924, p. 353.

[2] U. S. Bureau of Labor Statistics. Causes and prevention of accidents in the iron and steel industry, 1910–1919. Bulletin No. 298. 1922, p. 178.

[3] Zentralblatt für Gewerbehygiene und Unfallverhütung. October, 1921, pp. 223-224.

[4] Great Britain. Industrial Fatigue Research Board. Report No. 19.

ing though they are, are confined, as Doctor Florence points out, to a "somewhat narrow range of operations" and call for further experience "before generalization is possible." "However," Florence sums up his discussion of the evidence—

> the thorough investigations for the United States Bureau of Labor Statistics seem to establish night work as very definitely more hazardous than day work. In one large steel plant the annual frequency rate of accidents during the years 1905 to 1913 averaged in the day shift 142 per thousand workers, in the night shift 214 per thousand. In a machine-building plant the annual rate for the years 1907 and 1910 combined was, in the day shift 75.87 per thousand workers, in the night shift, 146.94. In another machine-building plant where accidents not disabling from work were counted in, the rate for the year 1913 was, in the day shift 413.58 per thousand workers, in the night shift 624.29.[5]

Artificial lighting and accidents.

Danger on the night shift is almost inevitably associated with the use of artificial lighting. According to the estimates of certain insurance companies, 25 per cent of all accidents are due to bad light. In a recent special study made by the International Labor Office, it was found that industrial accidents vary inversely with the amount of sunlight, their highest frequency being in November and December.[6] This excess of winter accidents has been stated to range as high as 50 to 100 per cent.[7] The same seasonal distribution of accidents was noted by the statisticians of the British Departmental Committee on Lighting in Factories and Workshops in their study of notified industrial accidents in 1913–14. The committee found such accidents 29 per cent more frequent during hours of artificial than during hours of natural lighting.[8] For most industries, according to the calculations, the probable accident rate per hour is far higher under artificial than under natural light, the excess in some cases running as high as 40 per cent. Purdy quotes figures to the effect that 75 per cent of the accidents in factories occur after 4 p. m.,[7] and the investigators of the Public Health Service found the natural rapid descent of the accident curve in the afternoon, due to the decreasing number of workers, "abruptly checked" in the hour and a half preceding sunset.[9] Accidents to the eye were more common in night shifts than in day shifts, according to the Health of Munition Workers Committee, owing to the need of bringing the eyes nearer to the work. In certain munitions plants "foreign bodies in the eye were from 7 to 27

[5] Op. cit., pp. 295, 298.

[6] L'hygiene de l'oeil et le travail industriel International Labor Office. Etudes et Documents, No. 6, June, 1923, p. 89.

[7] Purdy, J. S. Lighting and ventilation of factories, hours of labor and health. Journal of Industrial Hygiene, March, 1922, p. 351.

[8] Great Britain. Home Office. Departmental Committee on Lighting in Factories and Workshops. First report, vol. 1, 1915, p. xii, and Appendix IX.

[9] U. S. Public Health Service. Comparison of an 8-hour plant and a 10-hour plant. Bulletin No. 106, 1920, p. 131.

per cent more numerous in the night shift than in the day shift, and the effect was most marked in the worst-lit factory." [10]

To this serious hazard of insufficient light on the one hand or of a light often too intense on the other, dazzling and blinding the eyes, is added the hazard of the "depressed physiological condition," as Doctor Lee has called it, of the sleepy and tired night worker.[11] Flagging attention, loss of alertness and precision, slowed reaction time, all heighten the possibility of mistakes and the ever-present danger of industrial accident.

In a large steel mill studied, the excessive night hazard shows a tendency to decrease with the passage of years, and the night rate of accidents to approximate the day rate, in one case even falling below it. This tendency is probably due in large part to the increased efficiency of modern factory lighting. It is quite possible indeed that so far as higher rates at night depend on imperfect illumination, the evil can be abated or in great measure cured, as can also whatever hazard may attach to less rigorous supervision in the night shift. But "the most difficult problem," as Mr. Chaney says, a problem still insoluble, remains in "the worker's condition at night." [12]

The physical surtax.

"Scientific investigations everywhere," writes Irene Osgood Andrews in an impressive summary of the evidence, "have shown that the work of women at night is exceptionally injurious."

> Insufficient, broken, and irregular sleep, lack of sunlight, irregular meal times, disarrangement of the normal customs of life, injury to eyesight, increased chance of accidents—all of these factors combine to lower vitality, to weaken the power of disease resistance, to produce impoverished blood and anæmia, to weaken the female reproductive functions, and generally to increase morbidity and mortality.[13]

"To children and to women night work is a source of incalculable injury which often lasts through life," [14] runs some of the foreign testimony; it has "most disastrous consequences to the health of the feminine sex;" [15] it is "disproportionately more harmful to a woman's physique than to a man's." [16] On the basis of these premises, as has been seen, the conclusion of the foreign world has been the absolute prohibition of night work for women. Nor has war experience done

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[10] Hope, op. cit., p. 670.

[11] Lee, Frederic S., op. cit., p. 77.

[12] U. S. Bureau of Labor Statistics. Causes and prevention of accidents in the iron and steel industry, 1910-1919. Bulletin No. 298, 1922, p. 179.

[13] Kober, George M., and Hayhurst, Emery R. Industrial health. Pt. V, Ch. I. Women wage earners. Irene Osgood Andrews. Philadelphia, Blakiston, 1924, p. 1038.

[14] Crisafulli. Frenastenia e deliquenza in rapporto a taluni ordinamenti del lavoro Proceedings of the First International Congress on Industrial Diseases. Milan, 1906, p. 149.

[15] Chazal, A. L'interdiction du travail de nuit des femmes dans l'industrie francaise. Paris, Pedone, 1902, p. 8.

[16] Herkner, Dr. Heinrich. Die Arbeiterfrage. Berlin. Guttentag. 1908. p. 286.

anything to lessen this fixed and reasoned opposition. Doctor Vernon, reviewing the war evidence in 1921, states unequivocally:

> The general conclusion to be drawn from observations on day and night workers is that night work for women is only permissible in very exceptional circumstances, such as in war time, and should not be allowed in peace time.[17]

More forcibly still do the American physiologists express themselves. "Outside of great emergency or absolute industrial necessity all night work should be abolished and more so for women than for men,"[18] says Doctor Hayhurst. And Doctor Lee, writing during the war, would permit no exception even in war time. "What is a physical tax on man is," in his arresting phrase, "a physical surtax on woman, and it can not be allowed that this form of burden is justifiable even in the emergency of war."[19]

THE SOCIAL TESTIMONY

From the point of view, then, of the human machine, a heavy indictment can be brought against night work for women. The discussion thus far has been limited to the case as stated by physicians and hygienists, by actuaries and research workers. But the worker is not an isolated unit of production; she is a social being, daughter, wife, mother, the center of a human circle, an asset or a loss to family and society.

It is an evasion of the issue to discuss the case of working men and women as if, apart from physical equipment, they entered industry on an equal footing. If women are handicapped physiologically in the industrial race, they are socially still more heavily handicapped. For, quite aside from any question of physical inferiority or susceptibility to disease, the present constitution of society imposes upon women in industry a double, an inevitable, burden.

The double burden.

The individual.—Speaking of certain scientific experiments in the reversal of physiological rhythms, the British Health of Munition Workers Committee in 1917 says that they—

> show clearly, at least for the period of the experiments, that the accustomed routine of day work and night rest can be reversed, without injury to health or efficiency, but they also show that a necessary condition is that the workers must either be endowed with more than common powers of self-control to enable them to surmount the temptation to make the best of both worlds, or must live under strict discipline.[20]

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[17] Vernon, op. cit., p. 95.

[18] Hayhurst, Emery R. Medical argument against night work. American Journal of Public Health, May, 1919, p. 368.

[19] Lee, Frederic S., op. cit., p. 70.

[20] Great Britain. Health of Munition Workers Committee. Interim report, 1917, p. 27.

And again, in connection with men's superior fitness for night work:

> Men do not naturally take so much part in domestic work as women, and the temptation to burn the candle at both ends is, from this point of view, smaller.[21]

"Temptation" is a word that echoes strangely here in contrast with the often crushing burden of necessity to which the woman night worker is subject. The man, weary with the day's or the night's toil, comes home to find his meal prepared, his shirt washed, his bed made ready. Not so with the woman worker, who must do all these things for herself and for others. The woman comes back from work to shoulder duties as laborious in the home as she has left behind in the factory. She hurries home from the long night shift in the mill to prepare the family breakfast, dress the children and get the older ones off to school, perhaps to do a heavy washing or ironing or cleaning before she snatches the few hours of sleep which are all she can spare from the pressing needs of the household. The necessity of getting the family supper rouses her to cook a hasty meal, after which she sets out, still weary and unrefreshed, to begin the long pull of the next night's work. While such conditions are possible, there is a sharp sense of irony in hearing woman complacently included, as she traditionally is, in the "protected classes."

From all over the world comes the same story of lack of sleep overstraining human endurance. The French Commission of Inquiry whose work formed the basis of the night-work legislation of 1892 found that "the sleep of these women does not exceed five hours, and it is an interrupted sleep." [22] To bring it nearer home, the New York State Factory Investigating Commission learned in its inquiry on night work in 1913 that "the married women who worked on night shift had on an average only about four and one-half hours of sleep in the daytime." [23] In 1917 the University of Chicago Settlement made an intensive study of a small group of working mothers employed at night in the packing houses. For these 46 women the hours of sleep were found to range from one to three or four. On Monday, Tuesday, and Wednesday, the washing and ironing days, most of the women did not sleep at all. [24] A study of night work in the Rhode Island textile mills in 1918 yielded detailed figures for a larger group. For 156 married women night workers the hours of sleep were reported as follows: [25]

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[21] Ibid., p. 40.

[22] Belgium. Bureau of Labor. Le travail de nuit des ouvrières de l'industrie dans les pays étrangers. Maurice Ansiaux, 1898, p. 37.

[23] New York State Factory Investigating Commission. Second report, 1913, vol. 1, Night work of women in factories, p. 195.

[24] McDowell, Mary E. Mothers and night work. The Survey, Dec. 22, 1917, p. 335.

[25] Kelley, Florence. Wage-earning women in war time: The textile industry. Journal of Industrial Hygiene, October, 1919, p. 274.

Hours of day sleep	Number of women
Total	156
1 and less than 2 hours	1
2 and less than 3 hours	5
3 and less than 4 hours	19
4 and less than 5 hours	23
5 and less than 6 hours	41
6 and less than 7 hours	25
7 and less than 8 hours	25
8 and less than 9 hours	11
9 and less than 10 hours	5
10 and less than 11 hours	1

Thus only 17 of these 156 women were having the 8 hours' sleep accepted as the physiological norm at night. Nearly a third of the whole number were having less than 5 hours, more than half (57 per cent) less than 6 hours. These figures, moreover, were thought if anything to overstate the amount of sleep obtained, as the women were generally in favor of night work and fearful lest the investigators might interfere with it. A study of a hundred night workers in the textile mills of Passaic in 1920 made an even worse showing. "Over two-thirds slept no more than five hours daily," says the report; "40 not more than four." [26]

And what sort of sleep is it that the night worker gets, scanty and inadequate in length as it is? Not in any solid or restful stretch, no chance for the "sleep curve" to fall far enough below the threshold of consciousness to bring recuperation, but sleep by snatches, taken whenever the chance offers, interrupted by street noises or the talk and quarrels of neighbors; interrupted more insistently by the multitudinous demands of the family—meals to get, housework to do, babies to be attended to, and children to be cared for or disciplined. These women lie down half dressed, ready to jump up at any emergency, as the Passaic study puts it; often their only chance of a little quiet is to take the babies to bed with them. Doctor Hayhurst touches off the situation very vividly:

> If all in one household worked by night and slept by day, the disturbance would not be so great, but when noon meals have to be prepared for school children and others, the condition can only be appreciated by a picture of what would be the condition if a household was interrupted each night at 1 to 2 a. m. for meals and by people going and coming throughout the night.[27]

And the packing-house report gives another graphic picture:

> "Can't they go to sleep for a few hours after they return to their homes?" has been a question asked quite frequently. They might if there were not a

[26] De Lima, Agnes. Night-working mothers in textile mills. National Consumers' League and Consumers' League of New Jersey. December, 1920, p. 9.

[27] Hayhurst, Emery R. Medical argument against night work. American Journal of Public Health. May, 1919, p. 367.

husband who demanded his breakfast at 6.30 since his daily tasks begin at 7. They might if the babies did not get up at the same time the rest of the family did, or if the older children did not have to go to school.[28]

"Oh, well, they make it up at the end of the week," said one of the Rhode Island mill men to the investigators during the textile survey. "You see they don't work Saturday or Sunday nights, and there is a good long stretch for them to sleep."[29] But nature is not so easily appeased, and there is scientific evidence to show that the deficit of sleep is not readily repaired; sleep often remains permanently reduced both in quantity and quality.[30]

That the deficit of rest and sleep is not actually repaired, in spite of the comfortable assurances of employers, is shown clearly enough by the characteristic appearance of the night workers, for the stigmata of this practice are the same everywhere. Observers speak of them as "worn looking and pale," "hollow eyed and listless," with "drawn white faces," "lines of exhaustion about the mouth," and "nervous, feverish movements." "The effect of the double burden on the health of the women was obvious," says the Passaic report.

Before the study was completed the investigator was able to distinguish the night workers among a group of women. Insufficient sleep leaves unmistakable traces.[31]

The strain of the twofold job perhaps has hardly been given its due emphasis by male writers, whose inexperience naturally leads them to minimize the home duties of the woman wage earner. "Frequently the employed woman," write Collis and Greenwood, "* * * has to perform a multiplicity of household duties, not perhaps onerous in themselves but which, when added to the day's toil, considerably deplete her energies."[32] How these duties, "not perhaps onerous in themselves," appear to women may perhaps be indicated by the case of the girl in a British munitions factory who preferred the 12-hour to the 8-hour shift because with the shorter shift, as she explained, she would have to help with the housework. An industrial physician of high standing, herself a woman, Dr. Janet Campbell, has summed up the situation admirably for the War Cabinet Committee on Women in Industry in the following words:

The great physical strain placed upon the woman who is industrially employed and also has a home and family to manage is often unrealized because the woman shoulders this heavy burden patiently as a matter of course and without complaint. That she is often surprisingly successful, though at the expense of her own youth and physical vigor, is no reason why the nation should be

[28] McDowell, op. cit., p. 335.
[29] Kelley, op. cit., p. 275.
[30] Kraepelin, Emil. Ueber geistige Arbeit. Jena, 1897, p. 20. Löwenfeld and Kurella. Grenzfragen des Nerven- und Seelenlebens. Wiesbaden, Bergmann, 1906, Vol. VI, pp. 51, 55, 56.
[31] De Lima, op. cit., p. 13.
[32] Op. cit., p. 238.

content to allow its mothers to wear themselves out in a life of colorless drudgery and a continual struggle with difficulties which frequently prove too great to overcome and of the results of which there is ample evidence in the sickness returns under the national health insurance act.[33]

But surely, some one will say, this case is put unfairly. Why all this concern about married women, who are, after all, but a fraction of the night workers? What of the case of unmarried women, young or old, and of childless widows without home responsibilities, who can sleep all day if they will? These women, whose case is indeed different, will be considered presently, though it may be said in passing that the instance is rare where a woman industrial worker, whatever her situation, is without responsibility for duties outside the factory, whether for herself or others. However, due emphasis of the case of the married women is justified for two reasons: It is the case which calls for chief concern and consideration as that of greatest hardship, and though this would be true if the group were in the minority, as a matter of fact, married women are the great majority.[34]

"As would be expected," says the report of the War Cabinet Committee on Women in Industry, "the physical strain of factory work is greatest among married women with children and domestic responsibilities,"[35] and the showing of night work during the war as "less exhausting than had been feared" had in Dr. Janet Campbell's statement a significant exception—"the case of married women with children."[36] And these, precisely, are the women who fill the night shifts. The typical night worker is the young mother. Most of the women on night shift are married, the investigator of the New York State Factory Investigating Commission reported in 1913.[37] Of a group of 100 especially studied, 77 were married and 5 widowed; of these 82 women 75 had children, and of the children 97 were under 5 years of age. In the survey of night work in 39 textile mills in Rhode Island 244 night workers were visited. Of these 80 were single, 135 married, and 29 widowed, deserted, or divorced. Only 16 of the married were without children.[38] Thus, in one inquiry 82 per cent of the night workers studied were married, and in the other 67 per cent. In Passaic, moreover, where night work is very prevalent, especially among the foreign born, and where the night workers were found by "knocking indiscriminately at doors of tenements," all but 4 of 100 night workers were married and 92 had children. "It is the young married women with young children who work on the night shift."[39]

[33] Great Britain. Report of the War Cabinet Committee on Women in Industry. 1919 Memorandum on the health of women in Industry, p. 236.

[34] Certainly in peace times; under war conditions girls enter the night shifts in larger numbers

[35] Great Britain. Report of the War Cabinet Committee on Women in Industry, 1919, p. 107

[36] Great Britain. Health of Munition Workers Committee. Interim report, 1917, p. 119.

[37] New York State Factory Investigating Commission. Second report, 1913, vol. 1. Night work of women in factories, p. 196.

[38] Kelley, op. cit., pp. 274, 276.

[39] De Lima, op. cit., pp. 5, 8, 9.

The family.—These women who fill the night shifts go out to work, as the Children's Bureau puts it, not from sheer wayward preference for industrial life but for economic reasons.[40] If the husband's pay envelope contains too little, the wife's must supplement it, and she chooses the night shift so that she may care for home and children during the day. This has been the motive urged in defense of night work, this the great human plea, dwelt upon by employers, repeated almost with the iteration of a catchword—these women ask for night work so that they may be with their children during the day.

It is said frequently that the American home is the foundation of the country's greatness. It is literal and sober truth to say that night work is its mockery and ruin. The night-working mother has no leisure for her home, no common relaxation or recreation with husband or children. Evening, the focus of family life, the only time when the workingman's household can gather together, she never knows at home. Her hurried supper eaten alone, she must set out to the mill, often before her husband returns from his day's work. Motion pictures, free concerts or lectures, libraries—none of these things exist for her. Home is only a second workshop and a place in which to sleep and eat. The Kansas Court of Industrial Relations, in a decision shortening the working hours of freight-train crews, refused to sanction prevailing hours not only because they were "very trying upon the physical strength of the men," but because of their "encroaching unduly upon their social rights."[41] But the social rights of the night workers have still to be recognized.

Nor can the wife and mother suffer these losses alone. The home loses in her its natural center; her husband loses her companionship, the children her affection and influence at the very time they need it most. On the material side, also, home and family are the losers. Of necessity, hard and long though the household tasks may be, they are cut down to the minimum possible. Cooking is neglected and meals are inadequate and unsuitable. Is it any wonder if the night worker fails to accomplish, in the hours stolen from needed rest, the task of supplying proper food and keeping home and children clean and orderly, duties for the accomplishment of which the average housewife needs a full day? Some few—superwomen, as it must seem—carry the double burden successfully and perform both jobs with seeming efficiency. For the most part the failure of the home job is clearly enough evidenced by the typical night worker's home—the untidy and disordered rooms, the unkempt, neglected, sickly-looking children, the mother a weary and irritable drudge whose task as her vitality fails grows more and more hopeless. The reactions

[40] U. S. Department of Labor. Children's Bureau. Report of the Chief, 1917, p. 14.

[41] U. S. Department of Labor. Bureau of Labor Statistics. Kansas Court of Industrial Relations. (Case of Joplin & Pittsburg Railroad Co.) Bulletin No. 322, 1923, p. 17.

on the children of the mother's fatigue and overstrain also must be taken into account. Observers speak of these mothers' "high-strung nerves, their great irritability at the children's slightest annoyance." [42] "These children are not only not mothered, never cherished," says the Rhode Island textile study, "they are nagged and buffeted." [43] The mother neglects them in spite of her utmost efforts. "Some of these poor mothers leave their kids to shift for themselves like alley cats," said a Passaic woman to the consumers' league investigator; "no food, no clothes, no soap and water; no wonder they get sick. But what else can they do? Nobody can be in the mill and at home too." [44]

"When you mus' sleep, you can't tell what happen to them," [44] said one of the mothers who had gone on the night shift in order to be with her children by day. The older ones run wild while the mother sleeps, and too often take the first steps toward later delinquency. "Children run the streets, play truant, turn into petty thieves, get inadequate meals, and in general are neglected," [45] runs more of the Passaic testimony. Especially for the girls left without a mother's care in the evening, the situation is full of moral hazards. "The worst consequences of a mother's working at night," said a well-known social worker, "do not fall upon her—serious as they are—but upon the older children left to their own devices." [46]

In other cases the result of the mother's night work is to throw premature and disproportionate burdens on the older children. The Connecticut Bureau of Labor, reporting in 1916 on the conditions of wage-earning women and girls, emphasized this not infrequent hardship as a "sociological problem."

> It is an unfortunate and not uncommon occurrence where women are working to find girls of 11 and 12 and older coming back from school and practically doing a woman's work and taking care of the younger children, of whom there is always a large number, getting ready the supper, and doing the various household duties, etc. This takes away from the physical and mental strength of the child. It would be interesting data to learn how these children stand in their school studies in comparison with others not so burdened.[47]

Such data are in effect given in a recent study by the Children's Bureau of the children of wage-earning mothers. The report states:

> The children whose mothers were employed were found to suffer in a number of ways. The school records of the children in school were on the whole unsatisfactory and compared very unfavorably with those of a group of children not selected on the basis of the employment of the mother.[48]

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[42] McDowell, op. cit., p.335.
[43] Kelley, op. cit., p. 276.
[44] De Lima, op. cit., p. 13.
[45] Ibid., p. 12.
[46] Kelley, op. cit., p. 279.
[47] Connecticut. Bureau of Labor. The conditions of wage-earning women and girls. 1916, p. 132.
[48] U. S. Department of Labor. Children's Bureau. Children of wage-earning mothers. Helen Russell Wright. Publication No. 102, 1922, p. 76.

And again, "over one-third of the whole number were not up to the standard grade in their schooling." [49]

This inferiority, says the bureau, is readily explained by the relatively high absence rate of this group of children, which is found in individual instances to be due to the need of their help at home. While no specific figures for night workers' children are available, the reaction of home burdens on the one hand and of truancy on the other must be certainly not less marked on their school records.

Here, then, is the balance sheet of the night worker's devotion: A broken family life, a disordered home, neglected or overworked children. It is the crowning irony of her situation that her sacrifice has been in vain.

The unmarried night worker.

Reference has been made to the situation of the unmarried night worker. Generally speaking, she is in the minority, yet it is a minority deserving of serious consideration. It will be seen that in her case the objections to the practice of night work are somewhat different from those that have been discussed.

To girls and unmarried women the loss of sleep at night is evidently less serious than to the wives and mothers whose case has been considered, since the former group can generally make up in part at least for the inferior quality of day sleep by longer hours. It would be idle to assume, however, that in the case of these night workers there are no home burdens to be added to the basic strain of the night shift in the factory, since in the present constitution of society unmarried women in the families of working people rarely are exempted by force of their wage-earning status from a share in the housework. Especially from girls who have the daytime hours at home some sharing of the household tasks is sure to be expected. Data collected by the Women's Bureau (Table 5, p. 11) show that of 812 night workers reporting on marital status, 31.9 per cent were unmarried. Of 558 women reporting on living condition only 9½ per cent were living independently—that is, not at home or with relatives. Even supposing all the "independent" group to be unmarried, it is clear that they are only a small relative proportion. And in this group there will be at the minimum the girl's own washing, ironing, and sewing to be attended to, and probably some cooking of meals as well. For the great majority of unmarried women living in families, some fatigue due to housework in the daytime must be added to the physical tax of night work in the factory.

Since in most cases they are not starved for sleep like the more heavily burdened married women, the effects of night work on health are neither so swiftly evident nor so marked in the case of the

[49] Ibid., p. 68.

unmarried. But nature can not be cheated in their case either, and if they continue on the night shifts, health inevitably is undermined through the depletion of nervous energy and the beginnings of anemia. Most of the single night workers are young girls. In the Rhode Island inquiry it was found that of 80 unmarried women more than half were under 21 and nearly three-fourths were under 24.[50] It can scarcely be doubted that in the period of marriage and motherhood these girls will reap for themselves and their children the effects of overstrain in their earlier years. Potential mothers as they are, it is the State's imperative concern to see that the vitality they should pass on to their children is not prematurely sapped or endangered by night work.

But night work has another and even more serious aspect of danger in connection with the girls and young women who constitute so large a proportion of the unmarried night workers. The chief inspector of factories and workshops in Great Britain, reporting for 1914 in the first stress of the war emergency, stated that "In many places parents simply refuse to allow their daughters to work on night shifts to avoid exposing them to risks that they prefer they should not run." [51] It is obvious that the lack of supervision common at night, together with the darkness about the mill, may be fraught with possibilities of annoyance, insult, or worse to these young workers. In only 2 of the 39 mills studied in the Rhode Island inquiry was there a woman supervisor on the night shift, and "usually the night superintendent went through the mill only once or twice." [52] Even if conditions in mill or work place are beyond criticism, there are always the dangers of dark and lonely streets to girls dismissed at the least frequented hours of night or early morning. Sometimes the shift ends during the night interval in the car service, and the girls must either wait about or face perhaps a long and lonely walk home. It is no criticism upon the standards of our working girls to demand that they should not be subjected to such conditions in connection with their work.

THE ECONOMIC TESTIMONY

In the previous pages something of the heavy indictment of world-wide experience brought against night work on the medical and on the social side has been considered. A bird's-eye view of the human and social wastes that attend this practice has been attempted. To balance these human losses it would seem that there must be some extraordinary gain, some exceeding advantage to business or industry, that should outweigh the hardships of the workers or reconcile us in some measure to their sacrifice.

[50] Kelley, op. cit., p. 280.
[51] Great Britain. Chief Inspector of Factories and Workshops. Report, 1914, p. 45.
[52] Kelley, op. cit., p. 280.

Nothing, in fact, could be further from the case; there is a century of evidence on the subject. "We disused night work in 1826," said the representative of Richards & Co., linen manufacturers, to the British Factories Inquiry Commission in 1834. "After pursuing that system for five years, I am of the opinion there is no advantage in it to the proprietor." [53] "The prohibition of night work would be beneficial to the trade," was the statement of a cotton spinner.[53] And nine years later the Children's Employment Commission summed up the testimony of "almost all classes of witnesses" by the statement that "no countervailing advantage is ultimately obtained from it, even by the employers." [54] Nor has the experience of intervening years furnished any reason to change this verdict. In lowered production and inferior work for higher wages industry pays its share of the bill for defiance of hygienic law.

The only logical resort to night work, it might be said, is under emergency as desperate as that faced by the British Health of Munition Workers Committee when it reported that if the night workers produced "any appreciable quantity of manufactured articles" [55] their employment was justified in the national crisis. This was, as the committee frankly avowed, "taking a short and not a long view of the subject," a view surely never permissible in a nation's normal life. But even so, as has been pointed out, England found that continuous night work did not pay.

Lowered output.

The investigations of the Health of Munition Workers Committee—

were not primarily aimed at comparing the output of day work with that of night work, as the case against night work was considered to be sufficiently established; some of the data, however, permit a comparison to be made, and in each case the comparison is to the detriment of night work. [56]

Especially was this true in the case of the women workers.

A few women of rare physique withstand the strain sufficiently to maintain a reasonable output, but the flagging effort of the majority is not only unproductive at the moment, it has its influence also upon subsequent output, which suffers as in a vicious circle.[57]

Industry was forced, as has been seen, to resort to discontinuous shifts, week and week or fortnight and fortnight about. By this system the production on the night shift was found rarely to fall much more than 10 per cent below that of the day shift, and for the most part approximately to equal it.[58] Yet it has been acutely commented by one of the committee's own investigators that since the same workers were measured against each other, night shift against day shift, it can not

[53] Great Britain. Factories Inquiry Commission. Supplementary report, 1834, p. 17.
[54] Great Britain. Children's Employment Commission. Second report, 1843, p. 72.
[55] Great Britain. Health of Munition Workers Committee. Interim report, 1917, p. 26.
[56] Ibid., p. 40.
[57] Ibid., Memorandum No. 4, Employment of women, 1916, p. 4.
[58] Ibid., Final report, 1918, p. 47.

be estimated how much the day production lagged on account of the hang over of fatigue from the night shift, nor how much the weekly output was therefore depressed below that of continuous day work.[59] In one instance, of a fuse factory, Doctor Vernon obtained "definite proof that the harmful influence of night work does continue into the day-shift week." [60]

In America the Illinois Industrial Survey Commission, in the course of its investigation in 1918, made a comparative analysis of day and night output in a printing plant. Here a group of day workers, studied for 11 weeks, produced an average of 4,409 pieces per hour—

while equally experienced night workers, studied during the same period, produced an average of 3,892 pieces per hour, or about 12 per cent less than the day workers.[61]

Investigators of the Public Health Service, in their intensive study of industrial working capacity, obtained interesting figures of war-time production on the 12-hour night shift in a large munitions factory. Here the curve of night work was characterized by the deep decline of output in the second spell and its complete or almost complete cessation in the last 40 minutes. A process in fuse making called "spin top cap" showed an average day output in the second spell of 93.6 per cent of the hour of maximum efficiency. In the night shift the average output of the second spell dropped to 76 per cent.[62]

Lost time.

The Public Health Service bulletin calls attention to the "repeated interruptions of work due to the need of sleep and recuperation."

One of several detailed studies was made on the night of August 6, when normal weather conditions prevailed * * *. Fourteen men were observed * * * with the object of ascertaining the time lost in eating and sleeping. Of these, only three neither ate nor slept during working hours * * *.

On the night of August 8, the weather being again normal, a count made of the number of men asleep each quarter of an hour toward the end of the night shift showed as follows:

Hour a. m.	Number of men sleeping	Hour a. m.	Number of men sleeping
3. 30	5	5. 15	2
3. 45	3	5. 30	2
4. 00	4	5. 45	4
4. 15	0	6. 00	2
4. 30	4	6. 15	14
4. 45	1	6. 30	2
5. 00	5		

[59] Florence, P. Sargant. Economics of fatigue and unrest. London, Allen and Unwin, 1924, p. 252.
[60] Vernon, H. M. Industrial fatigue and efficiency. London, Routledge, 1921, p. 94.
[61] Illinois Industrial Survey. Report, 1918, Hours and health of woman workers, p. 20.
[62] U. S. Public Health Service. Comparison of an 8-hour plant and a 10-hour plant. Bulletin No. 106, 1920, pp. 62, 151.

Seventy-four men were under observation, 42 per cent of whom were found asleep at different times between 5 and 7 o'clock.[63]

From observers of night work everywhere comes similar testimony. An official of one of the largest Passaic mills told the consumers' league investigator that the night's output was inferior in quality "because the workers get so tired that they fall asleep over their machines and spoil much material." [64] From an English munitions plant Doctor Florence reports that—

A personal visit to the cartridge case department at night showed that girls tend to drop straight off to sleep immediately their machine breaks down and they need no longer work.[65]

Women especially sacrifice food to sleep, with consequent increase of fatigue in the end. In the Rhode Island survey it was found that many night workers used their lunch hour at night for sleeping.

With a roll of waste under their heads for a pillow they stretched out on the bare floor and dropped into the sleep of exhaustion.[66]

The same situation obtained in England, according to the Health of Munition Workers Committee:

In one factory visited at night the manager stated that fatigue prevented many of the women from making the effort to go from their work to the mess room though in itself the room was attractive. In another, visited also at night, several women were lying, during the meal hour, beside their piles of heaped-up work; while others, later, were asleep beside their machines, facts which bear additional witness to the relative failure of these hours.[67]

Slowed rate of production.

Not only is much time thus lost on the night shift, but the rate of production tends to be retarded, even though the workers are on the job. The Public Health Service investigators speak of—

the progressive slowing of the rate of output during the night, through the increase of time required for each operation. A time study made during the night of August 10, 1917, of men engaged in fuse drilling and lathe work showed that during the course of the night the length of time taken to perform six separate operations increased nearly one-half.[68]

The serious effect of artificial light on the rate of output must also be taken into account. "Every unnecessary hour under artificial light," write Collis and Greenwood, "means a direct loss of production and makes the task of the worker more difficult than it need

[63] Ibid., pp. 153–154.
[64] De Lima, op. cit., p. 8.
[65] Great Britain. Health of Munition Workers Committee. Interim report, 1917, p. 32
[66] Kelley, op. cit., p. 276.
[67] Great Britain. Health of Munition Workers Committee. Memorandum No. 4. Employment of women. 1916. p. 4.
[68] U. S. Public Health Service. Comparison of an 8-hour plant and a 10-hour plant. Bulletin No. 106, 1920, p. 154.

be."[69] What this loss means in figures has been established for some industries by the careful studies of the Industrial Fatigue Research Board in England. Thus the efficiency of silk weavers, according to Elton, falls 10 per cent below its daylight value when the work is done by artificial light.[70] And Mr. H. C. Weston has proved in another study that the efficiency of linen weavers under artificial lighting falls below its daylight value by approximately 11 per cent.[71] Less recently the evidence before the British Departmental Committee on Lighting in Factories and Workshops brought out a case in a coil-winding factory where, owing, as the witness believed, to artificial lighting, "the workers were only able to wind sufficient coils at nighttime to earn 4s. 7d., whereas in the daytime they were able to wind sufficient coils to earn 8s. 4d."[72] While this last instance may be ascribable in part to the "depressed physiological condition" of the night worker, the studies of weavers, it should be emphasized, were undertaken in the daytime.

Further liabilities.

Other liabilities combine with those cited to make night work uneconomic—injury to machinery constantly kept in motion and often not properly cleaned and oiled; higher overhead for heat, light, power, etc.; increased risk of accidents; and all these things for a reduced and inferior product.

But the case against night work is drawing powerful support from an unexpected quarter. The economic effects of uncontrolled night operation have brought about a vigorous reaction from within that stronghold of women's night work in this country, the textile industry itself. A recent issue of the Textile World printed a symposium of expert industrial opinion on the night shift,[73] with the hope, as the introductory article states, of awakening manufacturers "to the knowledge that the operation of a night shift is not the certain method of permanently spreading overhead and cutting operating costs that it is commonly credited to be." Written "merely from the standpoint of the economic welfare of the industry" and with "no humanitarian cant," these articles constitute powerful documents for the suppression of night work, even though the authors leave the door open for its

[69] Collis and Greenwood, op. cit., p. 118.

[70] Great Britain. Industrial Fatigue Research Board. Report No. 9. Textile Series, No. 3, 1920, p. 33.

[71] Ibid. Report No. 20 Textile Series, No. 5, 1922, p. 26.

[72] Great Britain. Home Office. Departmental Committee on Lighting in Factories and Workshops. Report, 1915, Vol. II, Minutes of evidence, p. 88.

[73] The night shift as viewed from practical and sociological standpoints: Its control must precede the effective stabilization of production. Introduction by Charles H. Clark; Night operation is only temporarily profitable for cotton mills, by Ralph E. Loper; Analysis of textile working conditions proves uncontrolled night work a liability, by Arthur T Bradlee. Textile World, Feb. 4, 1928, pp. 137–142.

practice under exceptional circumstances. They are supported, it seems, by enlightened opinion in the industry itself. "Many southern manufacturers," says one of the contributors, "have expressed the wish that night work could be stopped, but each is naturally afraid of being placed at a disadvantage with his neighbor."

Mr. Ralph E. Loper (of Ralph E. Loper & Co., textile cost engineers) is a specialist in textile cost accounting whose cost methods have been adopted, it is said, by cotton mills representing fully 20 per cent of the country's spindleage. For the benefit of such mill executives as may be considering whether or not they should undertake night operation, Mr. Loper presents a careful analysis of the problem "in the light of the actual experiences of managements who have operated day and night shifts for many years," and finds that total costs may be reduced only about 2 per cent by the operation of two shifts.

There are three advantages which mill managements usually expect from night operation:

1. A lower manufacturing cost.
2. Twice as much product on which to make a profit for the mill.
3. Twice the volume of sales by which to double the profits of the selling house.

Every executive realizes that his fire insurance, State and local taxes, executive salaries, and some other items of overhead are fixed charges. If the production can be doubled, the cost per pound for these items would, therefore, be cut in half. Against these savings there are certain items of cost which increase on night work. For example: In most sections it is customary to pay employees 10 per cent higher wage rates at night. The efficiency of operatives is lower at night. In well-run weave rooms this will normally be from 5 to 8 per cent below day operation.

In order to give proper weight to these and other important factors, a study of the results obtained by several well-run plants was made * * * These mills paid 10 per cent higher wage rates at night, but were able to entirely offset this by savings in yard, office and general labor. The production at night was 94 per cent of the day production per hour.

Mr. Loper's tabulations indicate—

that well-run mills now operating 55 hours per week, and maintaining their own villages can reduce their total costs about 2 per cent by operating two shifts.

"In itself", he continues—

this 2 per cent reduction in cost is not sufficient inducement to warrant a mill in enlarging its village and incurring fixed charges which must be borne permanently by the daytime product in case they later decide to discontinue their night shift

Mr. Loper's article goes on to prove the supposed profit from double product and double sales illusory, and concludes with "a few of the disadvantages frequently encountered." The list is of interest as bearing out and supplementing objections to night work already presented:

1. Most operatives prefer to work days and skilled workers can usually find daytime employment. The result is that the mill starts out with a handicap running nights.

2. Unless the labor supply is unusually large, the organization of a new night force causes a temporary shortage and results in bidding between mills for help, thus increasing the cost to each.

3. The quality of work produced at night is not so good, resulting in more second-quality cloth.

4. The machinery is not so well cared for when run two shifts.

5. Industrial accidents are more frequent on night work.

6. The extra investment in a larger village carries with it fixed charges which must be paid out of the profit on the daytime operation if the mill finds it advisable to discontinue night operation.

In view of the slight reduction in manufacturing cost and the very detrimental effect on the market of excess production, it seems evident that during normal periods of business, night operation does not permanently pay textile mills.

Overproduction, it must be emphasized, is the constant peril of the textile industry. The cotton shortage and the extraordinary markets of the war period made night work highly profitable and resulted in an immediate and large expansion of night operation. With the exception of the depression of the year 1919–20, if the North Carolina figures (see p. 6) may be taken as a reliable index, night work in the South has maintained itself at its war-time volume and has even made notable increases. To-day the picture has changed completely, according to Mr. Loper. The high profits of the war period have been replaced in many eastern mills by loss. The great threat to the industry throughout the States is excess production. Maximum daytime production exceeds normal demand, both domestic and foreign. Curtailment has been attempted with partial success, but the permanent menace to stabilization is the night shift. Textile leaders, writes Mr. Charles H. Clark, "are conscious of the fact that the unrestricted night operation of plants, that is possible in most of the cotton manufacturing States, is the most menacing factor of excess productive capacity." Furthermore—

We are suffering to-day from uncontrolled overproduction; in 10 of the last 14 months the industry's machinery was operated more than 8,500 million spindle hours, and in two of these months over 9,000 million spindle hours. All previous production records were broken thereby, and it was not daytime but nighttime operation of a large percentage of the machinery that is responsible for present dull and unprofitable business. With about one-third of the southern and a small percentage of the northern spindleage organized for both day and night operation we have a potential monthly average of about 1,000 million spindle hours that can be credited to night operation of machinery. And the number and capacity of night-and-day mills is steadily increasing. Nearly all northern mills that move South become night-and-day mills and their potential productive capacity is more than doubled. It is estimated that approximately 50 per cent of the southern spindleage operated regularly on a day-and-night shift is controlled by northern capital. The night shift, therefore, is not a sectional problem.

"Economically unsound and a menace to the industry," Mr. Clark calls the night shift as commonly operated. His reasons are—

First. It maintains a surplus reservoir of potential production, that, because of its assumed ability to reduce operating costs, is opened wider and wider as demand recedes, thus increasing overproduction, resulting in larger inventory losses for night-shift than for day-shift mills, and delaying or defeating organized curtailment and control of production.

Second. For the first time we have a visual demonstration that organized control of production is possible through legal dissemination of statistics, and also a demonstration of that control being dangerously delayed and partially defeated by the night shift.

Third. The slight temporary cost advantage that night-and-day mills may have over day-shift mills, operating upon highly competitive staple goods, is proved to be more than absorbed in the depression that always follows unbridled night operation.

Fourth. It is only a question of time before normal growth of the industry will catch up with the labor supply, at which time day-shift mills will have an important advantage in the competition for labor unless the night shift is paid much higher wages.

Fifth. It is only a question of time before most States north and south will restrict the employment of women and minors in factories at night.

More than two years before, Mr. Arthur T. Bradlee, a prominent cotton executive, had made the same diagnosis of the condition of the industry and given the same warning. His article, written just before his death in 1925, is printed for the first time by the Textile World. In part it is as follows:

There can be little doubt that production has been in excess of demand, and while periodical curtailment may temporarily improve the situation, with the advent of improved conditions so brought about we may expect a return to the full day-and-night product by those who have been so running in the past, as well as a constant addition to their ranks by others in an endeavor to place themselves on a par to meet the competition of their neighbors. This will again lead to overproduction, unprofitable operation, and material loss. The mills of the South, previously a small unit, have grown until they alone are now one of the largest units of production in the world, and the possible double running of their 17,500,000 spindles as soon as there is a profit on their product is a constant menace to the continuation of such profit and the stability of the market.

* * * * * * *

If we are producing too many goods for the demand it is to the advantage of every mill, every stockholder, and every operative that overproduction should be stopped. Continuous, steady operation is necessary to the welfare of all three. There can be no question as to which is the more profitable and satisfactory condition for all three, between continuous, full-day operation as contrasted with unsteady, intermittent and part-time day-and-night operation. Short time is unprofitable to all; and the higher wages that must necessarily accompany intermittent or curtailed employment may far offset any advantages arising from the double shift.

Mr. Bradlee finds the experience of foreign countries impressive. He has taken the pains to present a review of the foreign legislation

on hours and night work, and in his comment calls attention to the "lonely position of the United States."

> Of all the countries of major production the United States apparently stands alone in its continuation of night work by women; in fact, during the period that the very laws previously stated have been put into effect abroad, the United States has been rapidly increasing night operation in the Southern States.

He goes on to question—

> whether the unbridled license for night operation is really an asset or a liability in the form of a boomerang. Practically every other country has discontinued it. Is it really an asset for the South?

And he answers his own question with no uncertain emphasis:

> If it were known to-day that night work was to be discontinued I am confident that it would very quickly place the mills of the South at least in assured profitable operation and it would remove from the entire cotton textile trade of the country, from manufacturer to retailer, the present doubt they have of the permanency of any improvement or stability in values—a doubt that arises from the ever-present threat of possible rapidly increased production to the point of over-production.

About the same time that Mr. Bradlee's article was written, an article in the Daily News Record quoted a statement from an important New York business man, substantiating from the merchandising end the testimony of the production experts, and favoring on the same ground of overproduction the compulsory abolition of the night shift. His statement runs:

> Cotton mills won't do what is best for themselves, so the only step to take would be to compel them to recognize that the creating of surplus production unnecessarily is the greatest injury which can be inflicted upon the market. * * * We can merchandise the normal day production of the cotton mills of this country at a profit to the cotton mills. There is no market, on the other hand, for the large surplus which soon piles up on certain types of goods after night run has been abused. We had the experience last year of what this means, and we want to take action soon to avoid any possibility of repetition.
>
> The idea of reducing overhead through night work is a fallacy. It may work in a few cases, but in the great average the eventual losses through resulting poor markets more than offset any saving in overhead. Night runs are responsible for mills taking orders at lower prices in the belief that the reduced costs through this overtime makes the low bid price seem fair. Competition of this character can have but one result—huge losses for the textile industry. [74]

And this modern man of business seeks the remedy where the Lancashire cotton spinners sought it nearly a hundred years ago—in legislation which shall protect the economically enlightened employer and the industry itself from the shortsighted competition of the mills still practicing night work.

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[74] Daily News Record. Fairchild Publications, New York Mar. 23, 1925.

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APPENDIXES

Appendix A.—TEXT OF THE BERN CONVENTION, 1906

INTERNATIONAL CONVENTION FOR THE PROHIBITION OF NIGHT WORK OF WOMEN EMPLOYED IN FACTORIES AND WORKSHOPS

ARTICLE 1. Industrial night work shall be prohibited for all women without distinction of age, with the exceptions hereinafter noted. This agreement shall apply to all industrial establishments employing more than 10 men and women; in no case shall it apply to those establishments in which only members of the proprietor's family are employed. Upon each of the contracting States devolves the duty of defining what shall be understood by "industrial establishment." Among these shall be included, in any case, mines and quarries, as well as industries for the manufacture or working up of raw materials. On this last subject legislation in the individual States shall fix the limit between industry on the one hand and agriculture and commerce on the other.

ART. 2. The night rest contemplated in the preceding article shall have a minimum duration of 11 consecutive hours; in those 11 hours, whatever else be the legislation of each State, shall be included the interval from 10 o'clock in the evening to 5 o'clock in the morning. In the States in which the night work of adult women employed in industry has not yet been regulated, however, the length of uninterrupted rest may, temporarily, for a period of not over three years, be limited to 10 hours.

ART. 3. The prohibition of night work may be suspended (1) in case of force majeure—the interruption of operations by abnormal and nonrecurrent causes beyond the control of the proprietor; (2) in case the labor is applied either to raw materials or materials in course of manufacture which may be liable to very rapid deterioration, when it is necessary to save the materials from inevitable loss.

ART. 4. In industries affected by the seasons and, in case of exceptional circumstances, for all industries, the length of uninterrupted night rest may be reduced to 10 hours for 60 days a year.

ART. 5. Upon each of the contracting States devolves the duty of adopting the administrative measures which may be necessary to insure, within its territory, the strict execution of the provisions of this agreement. The Governments shall inform each other, through diplomatic channels, of the laws and regulations upon the subject of this agreement which are, or may hereafter be, in force in their respective countries, and shall report periodically to each other concerning the operation of these laws and regulations.

ART. 6. The terms of this agreement shall be applicable to a colony, possession, or protectorate only in case a notification to that effect shall be given to the Swiss Federal Council by the home Government concerned. The home Government, in announcing its application to a colony, possession, or protectorate, may give notice that the agreement will not apply to those native industries over which supervision would be impossible.

ART. 7. In States outside of Europe, as well as in colonies, possessions, or protectorates, when the climate or the condition of native populations demands it, the length of uninterrupted night rest may be less than the minimum fixed by this agreement on condition that in compensation rest shall be granted during the day.

ART. 8. This agreement shall be ratified and the ratifications shall be filed not later than December 31, 1908, with the Federal Council of Switzerland. A report of the filing of the ratification shall be prepared, of which a duly certified copy shall be sent through diplomatic channels to each of the contracting States.

This agreement shall go into effect two years after the completion of the report. The period to elapse before enforcement is increased from 2 to 10 years—

1. For the manufacture of unrefined beet sugar.

2. For the combing and spinning of wool.

3. For day work in mines when this work is interrupted for at least four months a year by climatic conditions.

ART. 9. The States not signing this agreement may declare their adherence to it by an act addressed to the Swiss Federal Council which shall communicate such act to each of the other contracting States.

ART. 10. The delay provided in article 8 for the entrance of this agreement into force shall begin, for the States not signing it, as well as for colonies, possessions, or protectorates, from the date of their adherence to it.

ART. 11. This agreement may not be renounced either by the States signing it, or by the States, colonies, possessions, or protectorates which subsequently agree to it, before the expiration of a period of 12 years from the completion of the report of ratifications. It may then be renounced from year to year. The renunciation shall become effective one year after it shall be sent in writing to the Swiss Federal Council by the Government concerned, or, in case of a colony, possession, or protectorate, by the home Government concerned; the Federal Council shall immediately communicate such renunciation to the Government of each of the other contracting States. The renunciation shall have effect only for the State, colony, possession, or protectorate in the name of which it shall be sent.

Appendix B.—TEXT OF THE WASHINGTON CONVENTION, 1919

DRAFT CONVENTION CONCERNING EMPLOYMENT OF WOMEN DURING THE NIGHT

The General Conference of the International Labor Organization of the League of Nations,

Having been convened at Washington by the Government of the United States of America, on the 29th day of October, 1919, and

Having decided upon the adoption of certain proposals with regard to "women's employment during the night," which is part of the third item in the agenda for the Washington meeting of the conference, and

Having determined that these proposals shall take the form of a draft international convention,

Adopts the following draft convention for ratification by the members of the International Labor Organization, in accordance with the labor part of the treaty of Versailles of June 28, 1919, and of the treaty of St. Germain of September 10, 1919:

ARTICLE 1. For the purpose of this convention, the term "industrial undertaking" includes particularly—

(*a*) Mines, quarries, and other works for the extraction of minerals from the earth.

(*b*) Industries in which articles are manufactured, altered, cleaned, repaired, ornamented, finished, adapted for sale, broken up or demolished, or in which materials are transformed, including shipbuilding, and the generation, transformation, and transmisson of electricity or motive power of any kind.

(*c*) Construction, reconstruction, maintenance, repair, alteration or demolition of any building, railway, tramway, harbor, dock, pier, canal, inland waterway, road, tunnel, bridge, viaduct, sewer, drain, well, telegraphic or telephonic installation, electrical undertaking, gas work, water work, or other work of construction, as well as the preparation for or laying the foundations of any such work or structure.

The competent authority in each country shall define the line of division which separates industry from commerce and agriculture.

ART. 2. For the purpose of this convention, the term "night" signifies a period of at least 11 consecutive hours, including the interval between 10 o'clock in the evening and 5 o'clock in the morning.

In those countries where no Government regulation as yet applies to the employment of women in industrial undertakings during the night, the term "night" may provisionally and for a maximum period of 3 years, be declared by the Government to signify a period of only 10 hours, including the interval between 10 o'clock in the evening and 5 o'clock in the morning.

ART. 3. Women without distinction of age shall not be employed during the night in any public or private industrial undertaking, or in any branch thereof, other than an undertaking in which only members of the same family are employed.

ART. 4. Article 3 shall not apply—

(*a*) In cases of force majeure, when in any undertaking there occurs an interruption of work which it was impossible to foresee, and which is not of a recurring character.

(*b*) In cases where the work has to do with raw materials or materials in course of treatment which are subject to rapid deterioration, when such night work is necessary to preserve the said materials from certain loss.

ART. 5. In India and Siam the application of article 3 of this convention may be suspended by the Government in respect to any industrial undertaking, except factories as defined by the national law. Notice of every such suspension shall be filed with the International Labor Office.

ART. 6. In industrial undertakings which are influenced by the seasons and in all cases where exceptional circumstances demand it, the night period may be reduced to 10 hours on 60 days of the year.

ART. 7. In countries where the climate renders work by day particularly trying to the health, the night period may be shorter than prescribed in the above articles, provided that compensatory rest is accorded during the day.

Art. 8. The formal ratifications of this convention, under the conditions set forth in Part XIII of the treaty of Versailles of June 28, 1919, and of the treaty of St. Germain of September 10, 1919, shall be communicated to the secretary general of the League of Nations for registration.

ART. 9. Each member which ratifies this convention engages to apply it to its colonies, protectorates, and possessions which are not fully self-governing—

(*a*) Except where owing to the local conditions its provisions are inapplicable; or

(*b*) Subject to such modifications as may be necessary to adapt its provisions to local conditions.

Each member shall notify to the International Labor Office the action taken in respect to each of its colonies, protectorates, and possessions which are not fully self-governing.

ART. 10. As soon as the ratifications of two members of the International Labor Organization have been registered with the secretariat, the secretary general of the League of Nations shall so notify all the members of the International Labor Organization.

ART. 11. This convention shall come into force at the date on which such notification is issued by the secretary general of the League of Nations, but it shall then be binding only upon those members which have registered their ratifications with the secretariat. Thereafter this convention will come into force for any other member at the date on which its ratification is registered with the secretariat.

ART. 12. Each member which ratifies this convention agrees to bring its provisions into operation not later than July 1, 1922, and to take such action as may be necessary to make these provisions effective.

ART. 13. A member which has ratified this convention may denounce it after the expiration of 10 years from the date on which the convention first comes into force, by an act communicated to the secretary general of the League of Nations for registration. Such denunciation shall not take effect until one year after the date on which it is registered with the secretariat.

ART. 14. At least once in 10 years the governing body of the International Labor Office shall present to the general conference a report on the working of this convention, and shall consider the desirability of placing on the agenda of the conference the question of its revision or modification.

ART. 15. The French and English texts of this convention shall both be authentic.

Appendix C.—PRINCIPAL NIGHT-WORK LEGISLATION OF FOREIGN COUNTRIES

(As of December 31, 1927)

[NOTE.—Under "prohibited hours," in right-hand column, the persons covered by the prohibition are these: 1, women; 2, children; 3, women and children; 4, women and girls; 5, apprentices under 16; 6, females under 18, males under 16; 7, men and women; 8, all employees.]

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours
Austria	Act of May 14, 1919. (Leg. Ser. 1919, Aust. 7.)	Industry and commerce.		8 p. m. to 5 a. m. After 10 p. m. in cases of day shifts.[3]
	Act of July 28, 1919. (E. B. 14, 1919, p. 111.)	Mines	1	([2]).
Belgium	Royal order coordinating legal provisions on employment of women and children, Feb. 28, 1919. (E. B. 14, 1919, p. 21.)	Mines, industries, building, transport, offices, etc., and within year of coming into operation, retail shops, hotels, etc., commercial undertakings.		9 p. m. to 5 a. m.[3]
	Act of June 14, 1921, putting in force provisions of Washington Convention. (Leg. Ser. 1921, Bel. 1.)			([3]).
Bulgaria	Act approved Apr. 5/18, 1917; passed June, 1917. (E. B. 13, 1918, p. 26.)	All industrial undertakings, workshops, commerical, building, and transport undertakings. (Agriculture excepted and home work unless dangerous or unhealthy.)		8 p. m. to 6 a. m.[3]
	Regulations for rendering cumpulsory labor service by young women, Mar. 8, 1922. (Leg. Ser. 1922, Bulg. 1.)			8 p. m. to 6 a. m.[1]
Czechoslovakia	8-hour day act, Dec. 1918.[1] (E. B. 14, 1919, p. 26.)	Undertakings subject to Industrial Code or carried on as in factories; agriculture; forestry; commerce.		10 p. m. to 5 a. m.[3]
	Collected acts and orders, No. 81, Mar. 18, 1922, giving effect to Washington Convention. (First Annual Report, International Labor Conference, 1923, Report of Director, p. 70.)			
Estonia	Act of May 20, 1924. (Leg. Ser. 1924, Est. 1.)	Industrial undertakings. (Mines, extractive industries, manufactures, shipbuilding, electrical works, construction, transport.)		9 p. m. to 5 a. m; or, if two or more shifts, 10 p. m. to 5 a. m.[3]

[1] Recommendation concerning the night work of women in agriculture of the International Labor Conference of Geneva, 1921, is applied by act cited.

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Continued

Country	Legislation	Undertaking covered	Minimum number of employees	(Prohibited hours see note on p. 73)
France	Act of Jan. 24, 1925, amending articles 20a–28, Bk. II, of the Code du Travail et de la Prévoyance Sociale. (Leg. Ser. 1925, Fr. 1.)	Factories, workshops, mines, quarries, etc.		10 p. m. to 5 a. m.[3]
French dependencies, etc.:				
Algeria	Decree of Jan. 5, 1909, (E. B. 4, 1909, p. 80.)	Factories, workshops, mines, quarries, etc.		9 p. m. to 5 a. m.[1]
French Guiana.	Decree of Feb. 7, 1924. (Leg. Ser. 1924, Fr. 2.)	Works, factories, quarries, yards, workshops, or their dependencies.		8 p. m. to 6 a. m.[3]
Guadaloupe	Decree of Sept. 7, 1913. (E. B. 11, 1916, p. 83.)	Works, factories, quarries, yards, workshops, or their dependencies.		8 p. m. to 6 a. m.[3]
Madagascar	Decree of Sept. 22, 1925. (Leg. Ser. 1925, Fr. 11.)	General		9 p. m. to 5 a. m.[3]
Martinique	Decree of Feb. 12, 1913. (E. B. 11, 1916, p. 74.)	Works, factories, quarries, yards, workshops, or their dependencies.		9 p. m. to 5 a. m.[3]
Morocco	Decree of July 13, 1926. (Leg. Ser. 1926, Mor. 1.)	Factories, workshops, work yards, laboratories, kitchens, cellars and wine sheds, warehouses, shops and offices, loading and unloading, theaters, circuses, and other places of entertainment and their dependencies.		9 p. m. to 5 a. m.[3]
Reunion	Decree of May 22, 1916. (E. B. 11, 1916, p. 207.)	Works, factories, quarries, yards, workshops, or their dependencies.		8 p. m. to 6 a. m.[3]
Tunis	Decree of June 15, 1910. (E. B. 11, 1916, p. 5.)	Factories, workshops, mines, quarries, etc.		9 p. m. to 5 a. m.[3]
Germany	Industrial Code. (Stier-Somlo, 1923 edition, secs. 134i, 136, 137, 154.)	Industrial establishments.	10 or more	8 p. m. to 6 a. m.; or 10 p. m. in cases of two or more shifts.[3]
		Foundries, shipbuilding yards, docks, tobacco factories, mines, salt works, etc., establishments using mechanical power, tailoring and underclothing establishments.	Irrespective of number.	
		Brick fields, open-air mines and quarries.	5 or more	
	Notification of Nov. 25, 1909. (E. B. 5, 1910, p. 73.)	Fruit or vegetable preserving establishments.	10 or more	10 p. m. to 4.30 a. m.[1]
	Notification of June 4, 1910. (E. B. 6, 1911, p. 9.)	Dairies, etc	10 or more	9 p. m. to 4 a. m.[1]
Great Britain	Factory and workshop act, 1901 (1 Edw. VII, ch. 22):			
	Sec. 24	Textile factories		6 p. m. to 6 a. m. or 7 p. m. to 7 a. m.[3]
	Sec. 26	Nontextile factories		6 p. m. to 6 a. m. or 7 p. m. to 7 a. m. or 8 p. m. to 8 a. m.[3]
	Sec. 29	Workshops not employing children or young people.		10 p. m. to 6 a. m.[1]

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Continued

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours (see note on p. 73)
Great Britain—Continued.	Act of Aug. 9, 1907, harmonizing legislation with Bern Convention. (E. B. 2, 1907, p. 38.)	Flax scutch mills		(1).
	Factory and workshop act, Aug 28, 1907 (7 Edw. VII, ch. 39; E. B. 2, 1907, p. 265.)	Laundries		7 p. m. to 6 a. m. or 8 p. m. to 7 a. m. or 9 p. m. to 8 a. m.[1]
	Order of Secretary of State, Sept. 11, 1907. (E. B. 2, 1907, p. 389.)	Fruit preserving		10 p. m. to 6 a. m.[1]
	Act of Dec. 16, 1911. (E. B. 9, 1914, p. 9.)	Coal mines		9 p. m. to 5 a. m.[1]
	Act of Dec. 23, 1920 (incorporating Washington Convention in law). (10 and 11 Geo. V, ch. 65; Leg. Ser. 1920, G. B. 9.)	Any industrial undertaking.		10 p. m. to 5 a. m.[1]
British dependencies, etc.:				
Ceylon [2]	Ordinance, July 30, 1923, putting into effect provisions of Washington Convention. (Leg. Ser. 1923, Cey. 1.)	Any industrial undertaking.		10 p. m. to 5 a. m.[1]
Fiji Islands	(2).			
Gibraltar	(2).			
Gold Coast [2]	Ordinance No. 11, 1921. (Int. Lab. Conf., 1924, Final report, p. 943.)	Industrial undertakings.	More than 10	"During the night."[1]
India	Indian factories amendment act, July 1, 1922. (Amended act, Leg. Ser. 1922, Ind. 1.)	Factories as defined in amended act: Any premises wherein not less than 20 persons are simultaneously employed and mechanical or electrical power is used in making * * *	20	7 p. m. to 5.30 a. m.[1]
		or wherein not less than 10 persons are simultaneously employed * * * whether power is used or not, if declared by local Government to be a factory.	10	
Isle of Man	Act of Oct. 27, 1908, promulgated July 5, 1909. (E. B. 11, 1916, p. 215.)	Any factory in which shift system approved by inspector is not in force.		8 p. m. to 6 a. m.[1]
Leeward Islands.	(2).			
Northern Nigeria.	Proclamation of Oct. 2, 1912. (E. B. 8, 1913, p. 52.)	Industrial undertakings.	More than 10	10 p. m. to 5 a. m.[1]
Trinidad [2] and Tobago.	Ordinance of Feb. 26, 1912. (E. B. 8, 1913, p. 45.)	Industrial undertakings.	More than 10	10 p. m. to 5 a. m.[1]
Uganda Protectorate.	(2).			
Greece	Act No. 4029 of Jan. 24–Feb. 6, 1912. (E. B. 7, 1912, p. 285.)	Factories, industrial concerns, and workshops, quarries and mines; building, etc., commercial firms and stores, restaurants and hotels, transport.	Irrespective of number.	9 p. m. to 5 a. m.[1]

[1] Great Britain had adhered to Bern Convention as home country on Feb. 21, 1908.

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Con'inued

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours (see note on p. 73)
Greece—Contd	Act of May 28, 1914			6.30 p. m. to 8 a. m., Apr. 1 to Sept. 30: 5.30 p. m. to 7.30 a. m., Oct. 1 to Mar. 31.
	Decree of July 4, 1925. (Leg. Ser. 1925, Gr. 3.)	Dairies		11 p. m. to 5 a. m.[1]
Hungary	Act No. 2275, June 24–July 6, 1920, putting Washington Convention in effect (Offic. Journ. July 1, 1920). Circular No. 23 of Ministry of National Economy, July 16, 1920.[3]			
	Act No. 53 of 1908, incorporating Bern Convention, Dec. 24, 1908. (E. B. 5, 1910, p. 117.)	Provisions same as Bern Convention.		
	Sec. XIX, Laws of 1911, Aug. 14, 1911. (E. B. 7, 1912, p. 211.)			
	Act of Mar. 24, 1923, incorporating Washington Convention in Hungarian law. (Leg. Ser. 1923, Hung. 2.)	Provisions same as Washington Convention.	General	8 p. m. to 6 a. m.[2]
	Act of Mar. 4, 1925, incorporating in Hungarian law the recommendation of the Geneva Conference, 1921, on night work of women and children in agriculture. (Int. Lab. Office, Industrial and Labor Information, Apr. 6, 1925, pp. 7–8.)			(2).
Italy	Royal decree amending act of Nov. 10, 1907, Mar. 15, 1923. (Leg. Ser. 1923, It. 4.)	Any place where manual work of an industrial nature is done, with or without aid of power machines.	Irrespective of number of workers.	10 p. m. to 5 a. m.[2]
Japan	Factory act, amended by act of Mar. 29, 1923. (Leg. Ser. 1923, Jap. 1.)[4]	Factories	10 or more	10 p. m. to 5 a. m.[2]
Liechtenstein	Industrial Code, Dec. 13, 1915.	Industrial occupations.		8 p. m. to 6 a. m.[2]
Lithuania (Memel Territory).	Notification Mar. 3, 1927. Unpublished material of Int. Lab. Off.	Corn mills (steam power).		8.30 p. m. to 5.30 a. m.[5]
Luxemburg	Act of Aug. 3, 1907, adopting Bern Convention. (E. B. 2, 1907, p. 99.)	Provisions same as Bern Convention.		
	Grand Ducal Resolution, Dec. 10, 1907. (E. B. 2, 1907, p. 392.)			
Netherlands	Act of May 20, 1922, amending labor act, 1919. Consolidated text promulgated by decree of July 21, 1922. (Leg. Ser. 1922, Neth. 1.)	Industries other than mining.		6 p. m. to 7 a. m. In cases of exemption, 10 p. m. to 5 a. m.[5]
		Shops		11 p. m. to 6 a. m.[7] 8 p. m. to 8 a. m.[2]

[3] See First Annual Report. Proceedings of the International Labor Conference, 1924, p. 1095.
[4] Not yet in force.

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Continued

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours (see note on p. 73)
New Zealand	Factories act, 1921-22 (No. 42), Feb. 6, 1922.	Factories. (Any place in which 2 or more persons employed in any handicraft, or in preparing or manufacturing goods for trade or sale; every bakehouse, every building with mechanical power, electricity and gas works, or employing an Asiatic.)	2 or more	6 p. m to 8 a. m.[3]
		Laundries		7 p. m. to 7.45 a. m.[3]
Poland	Act of Dec. 18, 1919 (prohibiting night work for all workers). (Leg. Ser. 1920, Pol. 1.)	Industry and commerce.		9 p. m. to 5 a. m.; or in cases of 2 shifts, 10 p. m. to 4 a. m.[3]
	Constitution of the Polish Republic, Mar. 17, 1921, sec. 103. (Leg. Ser. 1921, Pol. 3.)	"Branches of manufacture injurious to their health."		
	Act of July 2, 1924. (Leg. Ser. 1924. Pol. 2.)	Industry and commerce.		8 p. m. to 6 a. m.; or in cases of 2 shifts, 10 p. m. to 5 a. m.[3]
Portugal	Decree of June 24, 1911. (E. B. 6, 1911, p. 188.)	Provisions same as Bern Convention[1]		
	Decree No. 8244 of Minister of Labor, July 8, 1922. (Leg. Ser. 1922, Port. 2.)	Commercial establishments.		7 p. m. to 9 a. m.[3]
		Industries		8 p. m. to 7 a. m.
	Decree of Oct. 29, 1927. (Leg. Ser. 1927, Port. 6, A and B.)			([2])
Rumania	Draft Labor Code, Bk. III, pt. 1, secs. 360-405.	Provisions same as Washington Convention[1]		
Russia	Labor code, 1922, Ch. XIII.[5] (Leg. Ser. 1922, Russ. 1.)	All persons performing work for remuneration, including home workers.		10 p. m. to 6 a. m.[3]
	Order of the All-Russian Central Executive Committee respecting the bringing into operation of the Labor Code of the Russian Federative Socialist Soviet Republic (1922 edition), Nov. 9, 1922. (Leg. Ser. 1922, Russ. 1.)			
	Circular of the Commissariat of Labor, Apr. 13, 1925, authorizing night work of women.[6]	All branches of production except those especially unhealthy.		
Serb Croat-Slovene Kingdom.	Worker's protection act, Feb. 28, 1922. (Leg. Ser. 1922, S. C. S. 1.)	All undertakings carrying on handicrafts, industry, commerce, transport, mining, and similar activities.		10 p. m. to 5 a. m.[3]
South Africa	Factories act, May 8, 1918. (Stat. 1918. No. 28, secs. 1, 15.)	Factories: (a) Any premises in which mechanical power is used to make goods for trade, sale, food, drink.		6 p. m. to 7 a. m. In cases of exemption 9 p. m. to 5 a. m.[1]

[5] Informations du Commissariat du Travail, No. 12, 1923.
[6] Informations du Commissariat du Travail, No. 20, 1925.

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Continued

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours (see note on p. 73)
South Africa—Continued.	Factories act, May 8, 1918. (Stat. 1918. No. 28, secs. 1, 15.)—Continued.	Factories—Continued. (*b*) Laundries, dye works. (*c*) Industrial undertakings not under mechanical power (mines excepted).	If 3 or more	
Spain	Act of July 11, 1912. (E. B. 7, 1912, p. 398.)	Workshops and factories.		9 p. m. to 5 a. m.[1]
Sweden	Act of Nov. 20, 1909. (E. B. 5, 1910, p. 66.)	Industrial undertakings. (Provisions same as Bern Convention.)	More than 10	10 p. m. to 5 a. m.[1]
Switzerland	Act of June 27, 1919. (E. B. 14, 1919, p. 205.)		6 or more if mechanical power used; 6 or more if no mechanical power used, if including 1 or more young persons; 11 or more adults if no mechanical power and no young persons.	10 p.m. to 5 a.m.[1]
	Administrative order, Oct. 3, 1919. (E. B. 14, 1919, p. 215.)	Factories		(3)
	Act of Mar. 31, 1922 (giving effect to Washington Convention). (Leg. Ser. 1922, Switz. 2.) Adminstrative order, June 15, 1923. (Leg. Ser. 1923, Switz. 1.)	Workshops. (All industrial undertakings to which the Federal act of June 18, 1914, as amended by the act of June 27, 1919, does not apply.)		10 p.m. to 5. a.m.[1]
Australia: New South Wales.	Factory and shops act Nov. 16, 1896, as amended by act of Dec. 29, 1909. Consolidated in act of Nov. 26, 1912. (E. B. 10, 1915, p. 264.)	Factories. (Undertakings employing 4 or more persons in any handicraft, or in preparing or manufacturing articles for trade or sale; laundries, dye works; bakehouses; undertakings using mechanical power; any place employing 1 or more Chinese.)	4 or more 1 or more	6 p.m. to 6 a.m.[1]
Queensland	Factory and shops act, Dec. 28, 1900, as amended by act of Apr. 15, 1908. Consolidated. (E.B. 4, 1909, p. 205.)	Factories. (Any premises in which 2 or more persons, including the occupier, are engaged in any handicraft or in preparing, etc., or manufacturing articles for trade or sale; bakehouses; laundries; any place in which 1 Asiatic is engaged; premises using mechanical power.)	2 or more 1	6 p. m. to 6 a. m. In cases of overtime, after 9.30 p. m.[6]
South Australia.	Industrial code, Dec. 9, 1920. (Leg. Ser. 1926, Austra 1, Appendix, sec. 340 (1) (c).)	Factories. (Any place in which any 1 person is employed at manual labor by way of trade or purposes of gain in or incidental to any handicraft; making, altering, etc., any article; claypits and quarries; electricity and gas works.)	1	After 9 p. m.[1]

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Continued

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours (see note on p. 73)
Australia—Con.				
Tasmania	Factory act of Jan. 13, 1910, amended Jan. 10, 1912. (E. B. 8, 1913, p. 395.)	Factories. (Any premises in which 4 or more persons are employed in any handicraft or in preparing or manufacturing articles for trade or sale, bakehouses, claypits and quarries, electricity and gas works; premises in which mechanical power is used; every building in which 1 Asiatic is employed.)	4 or more 1	After 9 p. m.[3]
		Typesetting	1	9 p. m. to 6 a. m
Victoria	Factories and shops act, 1915, as amended to 1923.	Factories or workrooms. (Any place where 4 or more persons not Chinese, or 1 or more Chinese, are employed in any handicraft or in preparing or manufacturing articles for trade or sale; laundries and dye works, clay pits and quarries, electricity and gas works; any place in which 1 or more persons employed in which mechanical power is used; furniture works and bakehouses.)	4 or more 1 or more 1 or more	After 9 p. m.[3]
Western Australia	Factories and shops act, 1920. (Stat. 1920, No. 44, secs. 4, 32.)	Factories. (Any building in which 4 or more persons are engaged in any handicraft, or in preparing articles for trade or sale, including laundries; any place in which 1 or more Asiatics are engaged; any place using mechanical power for preparing goods; any clay pit or quarry.)	4 or more 1 or more	6 p. m. to 8 a. m
Canada:				
British Columbia	Factories act, Mar. 7, 1908, with amendment of Mar. 6, 1915. (Stat. 1915, ch. 25.)	Factories. (Any premises of description mentioned in Schedule A or added thereto by lieutenant-governor in which are employed 3 or more workers; any place in which mechanical power is used to prepare goods or manual labor used by way of trade.)	3 or more	8 p. m. to 7 a. m.
	Amending act, Mar. 29, 1919. (Stat. 1919, ch. 27.)	Laundries		7 p. m. to 7 a. m.[3]
	Act of Apr. 2, 1921, adopting Washington Convention. (Stat. 1921, ch. 46.)	Industrial undertakings (as defined by convention.)		8 p. m. to 7 a. m.[3]

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Continued

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours (see note on p. 73)
Canada—Contd.				
Alberta	Factories act, Apr. 5, 1917. (Stat. 1917, ch. 20, sec. 26.)	Shops, offices, and office buildings in towns of population exceeding 5,000; all factories in province. Factories—any building of description mentioned in Schedule A or declared to be factories by lieutenant governor; any place in which mechanical power is used to prepare goods or manual power used by way of trade.	More than 5.	
	Amending act, Apr. 13, 1918. (Stat. 1918, ch. 32.)	----------	----------	11 p. m. to 7 a. m.[1]
Manitoba	Revised Statutes of 1913, ch. 70.	Any building of description mentioned in Schedule A * * * or added thereto by lieutenant governor; any place where mechanical power is used to prepare goods or manual labor used by way of trade.	3 or more	10 p. m. to 7 a. m.[2]
New Brunswick.	Factories act, 1919, consolidated and amended Apr. 24, 1920. (Stat. 1920, ch. 54.)	Factories (places where 10 or more persons are employed in any handicraft or in manufacturing goods for trade or sale, or where mechanical power is used) and laundries.	10 or more	10.30 p. m. to 6 a. m.[4]
Nova Scotia	Act of Apr. 4, 1901. (Stat. 1901, ch. 1.)	Factories (places where mechanical power is used for the manufacture or finishing of goods or to which factories act is applied by governor in council).	----------	9 p. m to 6 a. m.[3]
Ontario	Factory, shop, and office building act. (Revised Statutes of 1914, ch. 229.)	Factories (places of description mentioned in schedule or added thereto by lieutenant governor; places using mechanical power in preparing goods or manual power by way of trade).	More than 5	Factories, 6.30 p. m. to 7 a. m.; shops, 6 p. m. to 7 a. m. Even in cases of exemption, 9 p. m. to 6 a. m.[3]
Quebec	Revised Statutes of 1909, sec. 3837.	All manufactories, works, workshops, work yards, and mills of every kind.	----------	9 p. m. to 6 a. m.[3]
	Act Mar 14, 1912, ch. 36.	Cotton and woolen factories.	----------	6.30 p. m. to 7 a. m.[3]
Saskatchewan	Factories act, Dec. 18, 1909. (E. B. 7, 1912, p 263.)	Any building of the description mentioned in Schedule A or added thereto by the lieutenant governor; any place where mechanical power is used to prepare goods or manual labor exercised by way of trade.	6	After 6.30 p. m. In cases of exemption, 10 p. m. to 7 a. m.[3]

APPENDIX C.—*Principal Night-Work Legislation of Foreign Countries*—Continued

Country	Legislation	Undertaking covered	Minimum number of employees	Prohibited hours (see note on p. 73)
Argentina	Act of Sept. 30, 1924. (Leg. Ser. 1924, Arg. 1).	Industry and commerce.		8 p. m. to 7 a. m. in winter; 8 p. m. to 6 a. m. in summer.[3]
Salta	Act of Aug. 28, 1923. (Leg. Ser. 1923, Arg. 6.)	Factories, workshops, or undertakings of any kinds, within the radius of the capital.		9 p. m. to 6 a. m.[3]
Brazil (San Paulo).	Health act, Dec. 29, 1917. (E. B. 13, 1918, p. 25.)	Factories		"At night."[3]
Peru	Act of Nov. 25, 1918. (E. B. 14, 1919, p. 186.)	Work carried on in all kinds of occupations on behalf of an employer.		8 p. m. to 7 a. m.[3]
Mexico	Decree No. 30, act regarding contracts of work, Oct. 27, 1916. (E. B. 12, 1917, p. 92.)	Factories, workshops, or agricultural employments.		"Night."[3]
	Constitution of the United States of Mexico. Adopted Jan. 31, 1917; promulgated Feb. 5, 1917. (E. B. 13, 1918, p. 52.)	Industrial undertakings.		"Night."[3]
		Commercial undertakings.		After 10 p. m.[3]
Guatemala Salvador Honduras Nicaragua Costa Rica	International Convention for the Unification of Protective Laws for Workmen and Laborers. Signed at Washington, Feb. 7, 1923. (Leg. Ser. 1923, Int. 2.)	"Work"		7 p. m. to 5 a. m.

Appendix D.—NIGHT-WORK LEGISLATION IN THE UNITED STATES

(As of December 1, 1927)

State	Prohibition of night work	Limitation of night work	Occupations or industries specified
California.			
Industrial Welfare Commission Orders, Nos. 7a and 8a, 1923.	10 p.m. to 6 a.m.		Laundry and dry cleaning industry. Dried fruit packing industry.
Industrial Welfare Commission Orders, Nos. 11a and 15a, 1923.	11 p.m. to 6 a.m.	In continuous processes where a permit to work at night is granted by the industrial commission, time and one-half must be paid.	Manufacturing industry. Nut cracking and sorting industry. *Exceptions:* In continuous processes under a permit from the industrial commission.
Connecticut.			
In "Session Laws of Connecticut," 1925, ch. 208, pp. 3997-3998, and in same, 1927, ch. 144, pp. 4230-4231.	10 p.m. to 6 a.m.		Public restaurant, café, dining room, barber shop, hairdressing or manicuring establishment, photograph gallery, any manufacturing, mechanical, or mercantile establishment. *Exceptions:* Hotels. In the event of war or other serious emergency, governor may suspend limitations where he deems it necessary.
In "Session Laws of Connecticut," 1925, ch. 158, pp. 3933-3934.	After 10 p.m.		Any bowling alley, shoe-shining establishment, or billiard or pool room.
Delaware.			
In "Revised Statutes of Delaware," 1915, sec. 3135, p. 1457, and in "Sessfon Laws of Delaware," 1917, ch. 230, pp. 741-742.	10 p.m. to 6 a.m.		Mechanical or manufacturing establishment, laundry, baking or printing establishment, office or dressmaking establishment. *Exceptions:* Canning or preserving, or preparation for canning or preserving of perishable fruits and vegetables.
		If any part of a female's work is performed between 11 p.m. and 7 a.m. not more than 8 hours of work in any 24 are permitted.	Mercantile establishments, telephone and telegraph office or exchange, restaurant, hotel, place of amusement.
Indiana.			
In "Burns's Annotated Indiana Statutes," 1926, Vol. III, sec. 9411, p. 21.	10 p.m. to 6 a.m.		Manufacturing.
Kansas.			
Public Service Commission Order, No. 5, Aug. 1, 1927.		Maximum hours shall not exceed 12 for total work time plus rest time and sleep time for all operators regularly employed after 10.30 p. m.	Telephone operators.
Ibid., No. 1, Aug. 1, 1927	9 p. m. to 6 a. m.		Laundry occupation, i. e., laundries, dyeing, dry cleaning, and pressing establishments.

Ibid., No. 2, Aug. 1, 1927	9 p. m. to 6 a. m.		Manufacturing occupation, i. e., all processes in the production of commodities. Florists' shops and candy-making departments of confectionery stores and bakeries also are included. *Exceptions:* Millinery workrooms, dressmaking establishments, hemstitching and button shops, and alteration, drapery, and upholstery departments of a mercantile establishment may obtain permission from the women's division of the public service commission to operate under the mercantile order.
Ibid., No. 3, Aug. 1, 1927	After 9 p. m.		Mercantile establishments; includes all establishments operated for the purpose of trade in the purchase or sale of any goods or merchandise, and includes the sales force, the wrapping employees, the auditing and checking force, the shippers in the mail order department, the receiving, marking, and stock room employees, sheet music saleswomen and demonstrators, and all employees in such establishments in any way directly connected with the sale, purchase, and disposition of goods, wares, and merchandise. *Exceptions:* Regularly registered pharmacists. The women's division of the public service commission may permit mercantile establishments to remain open one day per week until 10 p. m. in agricultural communities, for any specified number of weeks between June 1 and September 15.
Maryland.			
In "Annotated Code of the Public General Laws of Maryland," 1924 (ed. by George P. Bagby), Vol. II, art. 100, secs. 54–57, pp. 3104–3105.		If any part of a female's work is performed before 6 a.m. or after 10 p. m., not more than 8 hours' work in any one day is permitted.	Manufacturing, mechanical, mercantile, printing, baking, or laundering establishment. *Exceptions:* Canning, preserving, or preparing for canning or preserving of perishable fruits and vegetables.
Massachusetts.			
In "General Laws of Massachusetts," 1921. Vol. II, ch. 149, sec. 59, p. 1565.	10 p. m. to 6 a. m.		Manufacturing.
	6 p. m. to 6 a. m.		Manufacture of textile goods.
Nebraska.			
In "Compiled Statutes of Nebraska," 1922, Civil Administrative Code, Title IV, Art. II, secs. 7659–7661, pp. 2360–2361.	10 p. m. to 6 a. m.		Manufacturing, mechanical, or mercantile establishments, laundry, hotel, or restaurant, office in metropolitan cities and cities of the first class. *Exceptions:* Public service corporation.
New Hampshire.			
In "Public Laws of New Hampshire," 1925, ch. 176, secs. 14–21, pp. 680–681.		If any female works at any time between the hours of 8 p. m. and 6 a. m. on more than 2 nights per week, not more than 8 hours of work are permitted in any 24 hours or more than 48 hours of work in any week.	Manual or mechanical labor in any employment. *Exceptions:* Household labor and nurses, domestic, hotel, and boarding house labor, operators in telephone and telegraph offices, and farm labor, manufacture of munitions and supplies for the United States or the State during war time, mercantile establishments on the 7 days preceding Christmas, provided annual weekly average does not exceed 54 hours.

APPENDIX D.—*Night-Work Legislation in the United States*—Continued

State	Prohibition of night work	Limitation of night work	Occupations or industries specified
New Jersey.[1]			
In "Session Laws of New Jersey," 1923, ch. 144, pp. 312-313.	10 p. m. to 6 a. m.		Any manufacturing, mercantile establishment, any bakery, laundry, or restaurant. *Exceptions:* Canneries engaged in packing a perishable product, such as fruits or vegetables.
New York.			
In "Session Laws of New York," 1927, ch. 453, pp. 1133-1135.	10 p. m. to 6 a. m.		Factory, i. e., mill, workshop, or other manufacturing establishment, laundries.
Idem	10 p. m. to 7 a. m.		Mercantile establishment. *Exceptions:* Dec. 18-24; writers or reporters in newspaper offices.
In "Cahill's Consolidated Laws of New York," 1923, ch. 32, sec. 182, p. 1198.	10 p. m. to 6 a. m.		Work in or in connection with restaurants in cities of the first and second class. *Exceptions:* Singers and performers of any kind, attendants in ladies' cloak rooms and parlors, employees in or in connection with the dining rooms and kitchens of hotels or in connection with employees' lunch rooms or restaurants.
Ibid., sec. 183, p. 1198	10 p. m. to 7 a. m.		Custody, management of, or operation of elevator for freight or passengers in any building or place. *Exceptions:* If the industry occupying the building starts work at 6 a. m., the elevator operator may begin work at that hour. Women over 21 years in hotels.
Ibid., sec. 184, p. 1198	10 p. m. to 6 a. m.		Conductor or guard on any street surface, electric, subway, or elevated railroad.
Ibid., sec. 185, p. 1198	10 p. m. to 7. a. m.		Messenger for a telegraph or messenger company in the distribution, transmission, or delivery of goods or messages.
North Dakota.			
Minimum Wage Department Order, No. 1, 1922.	1 a. m. to 5 a. m.		Public housekeeping occupation, i. e., the work of waitresses in restaurants, hotel dining rooms, boarding houses, and all attendants employed at ice-cream and light-lunch stands and steam table or counter work in cafeterias and delicatessens where freshly cooked foods are served, and the work of chambermaids in hotels and lodging houses and boarding houses and hospitals, and the work of janitresses and car cleaners and of kitchen workers in hotels and restaurants and hospitals.
	11 p. m. to 7 a. m.		Elevator operators.

Minimum Wage Department Order, No. 3, 1922.	After 9 p. m.		Mercantile establishment, i. e., the work of those employed in establishments operated for the purpose of trade in the purchase or sale of any goods or merchandise, and includes the sales force, the wrapping force, the auditing or checking force, the shippers in the mail-order department, the receiving, marking, and stock room employees, and sheet-music saleswomen and demonstrators and cigar-stand girls.
Ohio.			
In "Page's General Code of Ohio," 1926, Vol. I, sec. 1008–1, p. 413.	10 p. m. to 6 a. m.		Ticket sellers.
Oregon.			
Industrial Welfare Commission Order, No. 37, 1919.	After 6 p. m.		Mercantile occupation in Portland, i. e., the work of those employed in establishments operated for the purpose of trade in the purchase or sale of any goods or merchandise, and includes the sales force, the wrapping employees, the auditing or check inspection force, the shoppers in the mail-order department, the receiving, marking, and stock room employees, and music saleswomen and demonstrators. *Exceptions*: Cigar stands in hotels; confectionery stores.
Industrial Welfare Commission Order, No. 38, 1919.	After 8.30 p. m.		Mercantile occupation outside of Portland, i. e., the work of those employed in establishments operated for the purpose of trade in the purchase or sale of any goods or merchandise and includes the sales force, the wrapping employees, the auditing or check inspection force, the shoppers in the mail-order department, the receiving, marking, and stock room employees, and sheet-music saleswomen and demonstrators. *Exceptions:* Cigar stands in hotels; confectionery stores.
Industrial Welfare Commission Orders, Nos. 39 and 41, 1919.	After 8.30 p. m.		Manufacturing occupation, i. e., all processes in the production of commodities. Includes the work performed in dressmaking shops and wholesale millinery houses, in the workrooms of retail millinery shops, and in the drapery and furniture covering workrooms, the garment alteration, art needle work, fur garment making, and millinery workrooms in mercantile stores, and the candy-making department of retail candy stores, and of restaurants. *Exceptions:* Fruit and vegetable drying, canning, preserving, and packing establishments. Laundry occupation, i. e., all the processes connected with the receiving, marking, washing, cleaning, and ironing and distributing of washable and cleanable materials, the work performed in laundry departments in hotels and factories.
Industrial Welfare Commission Order No. 45, 1919.	11 p. m. to 7 a. m.		Elevator operators.

[1] This law contains no enforcement provision and therefore is without effect.

APPENDIX D.—*Night-Work Legislation in the United States*—Continued

State	Prohibition of night work	Limitation of night work	Occupations or industries specified
Pennsylvania.			
In "Digest of Pennsylvania Statute Law," 1920, secs. 13540, 13541, and 13543, p. 1331.	10 p. m. to 6 a. m.		Manufacturing establishment. *Exceptions:* Managers, superintendents, or persons doing clerical or stenographic work.
Porto Rico.			
In "Session Laws of Porto Rico," 2d sess., 1919, No. 73.	10 p. m. to 6 a. m.		Any lucrative occupation. *Exceptions:* Telephone operators or telegraphers, artists, nurses or domestics, over 16 years of age.
South Carolina.			
In "Code of Laws of South Carolina," 1922, Vol. II, Criminal Code, ch. 7, sec. 35, p. 137.	After 10 p. m.		Mercantile establishments.
Washington.			
Industrial Welfare Committee Order, No. 23, 1921.	After 12 midnight		Elevator operators.
Wisconsin [1]			
Industrial Commission Order, No. 1, 1917	6 p. m. to 6 a. m.		Manufactories and laundries. *Exceptions:* Pea canneries.
Industrial Commission Orders, Nos. 2 and 3, 1917.		If any work performed between 6.30 p. m. and 6 a. m. it shall be limited to 8 hours per night, 48 hours per week.	Mechanical or mercantile establishment, restaurant, confectionery store, telegraph or telephone, express or transportation. *Exceptions:* Work may be done on one night per week without bringing establishment under this ruling.
In "Wisconsin Statutes," 1925, secs. 103.01–103.02, pp. 1134–1135.		If any woman works at any time between the hours of 8 p. m. and 6 a. m. on more than one night per week, not more than 8 hours of work in any one night or more than 48 hours of work in any one week are permitted.	Place of employment, i. e., manufacturing, mechanical, or mercantile establishment, laundry, restaurant, confectionery store or telegraph or telephone office or exchange, or any express or transportation establishment.
Ibid., sec. 103.02, pp. 1134–1135		If any woman works at any time between the hours of 9 p. m. and 6 a. m., not more than 9 hours of work in any one night or more than 54 hours in any one week are permitted.	Hotels.

[1] Wisconsin has an industrial commission order prohibiting night work for women on street railways, but no women are employed in such a capacity in Wisconsin.

PUBLICATIONS OF THE WOMEN'S BUREAU

[Any of these bulletins still available will be sent free of charge upon request]

No. 1. Proposed Employment of Women During the War in the Industries of Niagara Falls, N. Y. 16 pp. 1918.
No. 2. Labor Laws for Women in Industry in Indiana. 29 pp. 1919.
No. 3. Standards for the Employment of Women in Industry. 8 pp. Third ed., 1921.
No. 4. Wages of Candy Makers in Philadelphia in 1919. 46 pp. 1919.
*No. 5. The Eight-Hour Day in Federal and State Legislation. 19 pp. 1919.
No. 6. The Employment of Women in Hazardous Industries in the United States. 8 pp. 1921.
No. 7. Night-Work Laws in the United States. (1919.) 4 pp. 1920.
*No. 8. Women in the Government Service. 37 pp. 1920.
*No. 9. Home Work in Bridgeport, Conn. 35 pp. 1920.
*No. 10. Hours and Conditions of Work for Women in Industry in Virginia. 32 pp. 1920.
No. 11. Women Street Car Conductors and Ticket Agents. 90 pp. 1921.
No. 12. The New Position of Women in American Industry. 158 pp. 1920.
No. 13. Industrial Opportunities and Training for Women and Girls. 48 pp. 1921.
*No. 14. A Physiological Basis for the Shorter Working Day for Women. 20 pp. 1921.
No. 15. Some Effects of Legislation Limiting Hours of Work for Women. 26 pp. 1921.
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