UNITED STATES DEPARTMENT OF LABOR
BULLETIN OF THE WOMEN'S BUREAU, NO. 43 STANDARD AND SCHEDULED HOURS
OF WORK FOR WOMEN IN INDUSTRY

A STUDY BASED ON HOUR DATA FROM 13 STATES
U. S. DEPARTMENT OF LABOR James J. Davis, Secretary WOMEN'S BUREAU MARY ANDERSON, Director

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## STANDARD AND SCHEDULED

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From 13 States
FANCETT COLLECTION


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## CONTENTS

Part I. The significance of working hours in industrial employment The need for the shorter working day
The short working day and its relation to output
The worker's time outside the plant
The importance of the shorter working day for women
Home responsibilities.
Part II. Standards for the length of the working day in the United States State hour laws_
Trade union agreements. and 2 cities
Scheduled daily hour
State standards


 Standards of the various industries

Saturday hour
Lunch periods
Hours of night workers

Changes in scheduled hours
Laegal limitations and the relation between scheduled and legal hours_
Part V. Summary


## TEXT TABLE

1. Number of women and of establishments in the States and industries included
2. Scheduled daily hours in three leading industries
3. Scheduled weekly hours in three leading industrie
4. Relation of Saturday hours to daily hours
5. Scheduled hours of night workers, by industry
6. Scheduled hours of night workers, by industry $-2-2-2 e^{2}$
7. Legal hours and scheduled hours for women workers-Daily
8. Legal hours and scheduled hours for women workers-Weekly

## APPENDIX TABLES


II. Scheduled daily hours, by industry
III. Scheduled weekly hours, by locality
IV. Scheduled weekly hours, by industry
V. Scheduled Saturday hours, by locality
VI. Scheduled Saturday hours, by industry
VII. Length of lunch period, by locality
VIII. Length of lunch period, by locality
III. Length of lunch period, by industr
IX. Scheduled hours for night workers
X. Scheduled daily and Saturday hours
XI. Changes in scheduled weekly hours between date of original study and September, 1922

## LETTER OF TRANSMITTAL

United States Department of Labor,
Women's Bureat, Washington, July 8, 1924.
SIR : I have the honor to submit a report on standard and scheduled hours for women in industry. This report is compiled from investigations of hours in 13 States, and 2 cities.
In order that we might have up-to-date and uniform material we sent a questionnaire to the same firms visited by our agents asking for the scheduled hours for one week in September, 1923. Eightyfive per cent of the firms answered the questionnaire, so that the report contains information on the hours worked for 162,792 women employed in 1,709 plants in 13 different States and in 2 cities besides the States.

The report was written by Miss Ruth I. Voris, assistant editor. Respectfully submitted.

Mary Anderson, Director.
Hon. James J. Davis,
Secretary of Labor.

distribution of Women included in hour Study

# STANDARD AND SCHEDULED HOURS OF WORK FOR WOMEN IN INDUSTRY 

## PART I

## THE SIGNIFICANCE OF WORKING HOURS IN INDUSTRIAL EMPLOYMENT

## THE NEED FOR THE SHORTER WORKING DAY

With the ever-increasing strain of industrial life that has accompanied the development of machinery the question of the length of the working day has assumed greater and greater importance. When handicraft trades were carried on in the home the worker put in a long day, but it was not a day of continuous and intensive labor. During the early period of the factory system these long hours were carried over into the new situation and it was common for cotton mills in England to be operated 15 or 16 hours daily.

Step by step, reductions in the length of the scheduled working day have come, due in some instances to the demands of the employees, in others to the wisdom of far-sighted employers, while in many cases the reduction has been brought about through the efforts of disinterested individuals who had at heart the general social welfare. The need for the shortening of the working day has arisen from changes in the conditions of industrial life which have increased the strain of factory work. Josephine Goldmark in her study on efficiency and fatigue ${ }^{1}$ considers the outstanding elements in modern industry which make the greatest demands upon human energies to be the speed and complexity of machine production, the noise, and the monotony of the work due to extreme subdivision of processes among many employees. In illustrating the extent to which the worker is kept at a high tension of speed and attention by her work, Miss Goldmark describes the intricacies of the operations in telephone exchanges, clothing factories, and textile mills, all three of which industries employ large numbers of women.

In the needle trades, although the introduction of power machines has brought about a considerable saving in human energy it has greatly increased the complexity of the work and has made more exacting demands upon the attention of the worker.

[^0]In the textile industry, also, the improvement of machinery has affected seriously the problems of the workers. With the perfection of mechanical devices the number of looms which one person is expected to tend has been greatly increased. While it is generally conceded that new automatic attachments enable a weaver to run a larger number of machines with no greater effort than was previously taken to run a smaller number, this is true only within limits. In spite of automatic stops the strain on the attention is considerably increased when one person is expected to tend 24 looms.

Monotony of work has increased with subdivision in industry and the loss of craftsmanship. Its development has been more or less inevitable. Scientific study has indicated that what would be classed as light work may become, where continuously repeated, more damaging physiologically than heavier work which affords some opportunity for variety.

The noise of machinery is a constant accompaniment to the work of the factory day, and adds to its strain. Constant noise definitely increases the effort of attention and thus adds to fatigue.

Speed, complexity, monotony, and noise seem to be necessarily associated with our modern industrial life. Since these causes of strain are with us to stay, the problem becomes one of planning hour schedules and other conditions of work so as to reduce the amount of fatigue and to allow more time for renewing strength between periods of work. It has already been pointed out that with the development of high speed in industrial life there has come a gradual reduction of the working day. No one any longer thinks in terms of a 14 or 15 -hour day and attention is now directed toward an 8 -hour standard.

At each step in the reduction of the length of the working day there have been those employers who have cried out that industry could not continue to exist profitably under the handicap of the shorter working day. They have talked of the proportionate curtailment of output which would bankrupt the industry and in so doing would react to the injury of the worker himself. There were economists in England in the nineteenth century who went even so far as to propound the theory that the profits of all industry were derived entirely from the last hour's work. While no one attempts to argue from such tenets at present, there are still thosefortunately only a minority-who insist that industry can not stand the introduction of the 8 -hour day or $51 / 2$-day week. The important thing to consider is whether there is any truth in the argument against this standard schedule or whether the contention is basea on principles wholly unsound, arising from a shortsighted view of even their own welfare on the part of the opponents.

## THE SHORT WORKING DAY AND ITS RELATION TO OUTPUT

Does the shortened working day curtail production or does it not? Those in favor of reduction of hours may argue for their side, and the opposition may wax equally eloquent over the disorder which such a course would cause, but a satisfactory answer and adjustment can be found only through a scientific and unbiased study of the actual relation of output and fatigue. Much prejudice and misinformation have entered into the arguments pro and con. Preconceived notions have hampered discussion and even investigation and hence have checked real progress along this line. There have been, however, a number of outstanding attempts to view the situation in an unbiased way and to make careful scientific studies of the problem of output and fatigue. Some of them have been carried out on a large scale by the keeping of an accurate record of output and of lost time for whole establishments under two different hour schedules. In others, investigation has been limited to a selected group of workers in order to make sure that the two periods for which results were recorded were identical in all respects except in regard to the length of the working day.
The earliest practical demonstration of the feasibility of shortening the working day was given by Robert Owen in Manchester, England, in the early part of the nineteenth century. It was customary at that time to run the cotton mills 15 or 16 hours a day, but Robert Owen reduced the hours of his mill, first from 16 to $121 / 2$, then to $111 / 2$, and finally to $101 / 2$ daily. With each reduction it was reported that there was no substantial decrease in the output of the plant. ${ }^{2}$
Toward the latter part of the century an engineering firm in Sunderland reduced the weekly hours of its factory from 54 to 48 . Careful account was kept of the labor costs of the product, and the records showed that they were less under the 48 -hour schedule than under the 54. The men lost much less time and their work was more efficient. ${ }^{\text { }}$
At about this same time the Salford Iron Works, a general engineering firm of Manchester, which employed approximately 1,200 men attempted a similar experiment. The working week was reduced from 53 to 48 hours, the records showing a reduction in lost time from 2.46 per cent under the old régime to 0.46 per cent under the new, together with an increase in production for the 48 -hour schedule.*
As a result of the success of this change the English Government became interested in the possibilities of a shorter working week and

2 Rae, John. Eight hours for work. London, 1894. p. 16.
${ }^{2}$ Vernon, H. M. Industrial fatigue and efficiency. London, 1921. p. 65.

- Goldmark, Josephiue. Fatigue and efficiency. New York, 1917. p. 138.
tried it out in the shops under the war office. The majority of the workers in these shops were on piece rates, which remained unchanged after the reduction in hours. A comparison made 11 years after the inauguration of the new system showed that wages, however, had remained at the same level, in spite of the shortened day. ${ }^{5}$
The Engis Chemical Works, in Liege, Belgium, changed from a system of 12 -hour shifts under which the men actually worked 10 hours to a three-shift system under which the men worked $71 / 2$ hours. Within six months the men were producing as much in their $71 / 2$ hour shift as they had previously done in 10 hours. ${ }^{6}$
In 1900 and 1901 a comparison was made of the production of the Zeiss Optical Works, of Jena, Germany, under a 9 -hour régime with its output after a reduction to an 8 -hour day. Records of output estimated by earnings were kept for 233 steady workers over a period of a year. In order to judge the effects of the change in the length of the working day more exactly, the figures were compiled separately for the following groups of workers: Those doing exclusively handwork, those whose work was part hand and part machine, and those who were doing straight machine work. The percentage of hourly increase in the production for these three different groups ranged from 16 per cent to 18.4 per cent, while the total earnings, with no change in rate, increased by 3.3 per cent.
During the World War the need was felt for adopting working arrangements which would prove the most efficient in the long run. The Industrial Fatigue Research Board of England made a number of careful studies of the various factors conducive to fatigue in different industries, in some instances giving special attention to output in relation to hours. In one national shell factory the work of 43 women engaged on the "ripping" operation in turning 6 -inch shells was closely observed under a system of two 12 -hour shifts and under a system of three shifts of 7 to 8 hours each. A decided increase in hourly output together with less idle time and with higher efficiency in the use of machinery was reported for the shorter shift. ${ }^{8}$
The same board also made a study among men engaged in tinplate manufacturing. In the plant studied a reduction from an 8 -hour to a 6 -hour shift was accompanied by an increase of 10 par cent in hourly output. ${ }^{9}$
Doctor Vernon, in his book on industrial fatigue and efficiency, sums up in the following tabular form the results of some investigations made by the Industrial Fatigue Research Board of the hours

[^1] on output in tin-plate manufacturing. London, 1919. 29 p. (Its Report No. 1.)
and output of the employees engaged on different kinds of work in a large fuse factory:

| Operation | Speeding up of operation possible | Reduction in weekly hours of actual work | Alteration of total out put affected |
| :---: | :---: | :---: | :---: |
|  |  |  | Per cent |
| Men sizing | Throughout and without limit. | 58. 2 to $50.4=7.8$ | $+19$ |
| Women turning fuse bodies. | Throughout, to a limited extent. | 66. 0 to $47.5=18.5$ | +13 |
| Women milling screw thread. | For a fifth of the total time taken. | 64.9 to $48.1=16.8$ | -1 |
| Youth's boring top caps. | Not at all-.------------ | 70.6 to $54.5=16.1$ | $-7$ |

These figures easily justify the two main conclusions drawn by the author that " $(a)$ when the hours of work are very long, a reduction of hours may lead to a distinct increase of total output; (b) the effect produced depends on the character of the operation, being greatest in those which are chiefly dependent on the human element and least in those which are chiefly dependent on the mechanical element." ${ }^{10}$

In the United States the Federal Public Health Service, together with the committee on industrial fatigue of the Council of National Defense and the committee on fatigue in industrial pursuits of the National Research Council entered upon an investigation of certain industrial conditions brought into prominence by the war-time demands for production. A study was made of the variations in actual hourly output and the variations in hourly incidence of accidents in two factories, one running under an 8 -hour and the other under a 10 -hour schedule. Two large factories in the metal-working industry were chosen, one operating a 10 -hour day shift and 12 -hour night shift, while the other ran three 8 -hour shifts. Although the products of the two plants were not the same, the processes were sufficiently similar to make comparison possible. It is not necessary to take up here a detailed description of the methods and findings of the investigation. Every effort was made to conduct the study in a scientific manner and to make no unwarranted conclusions, recognizing always the limitations of the material available. The report published by the Public Health Service gives the following summary of conclusions:
A comparison of the 8 -hour and 10 -hour systems leads to the conclusion that the 8 -hour system is more efficient. This is evidenced by-

1. Maintenance of output.-The day shift: The outstanding feature of the 8 -hour system is steady maintenance of output. The outstanding feature of the 10 -hour system is the decline of output.
2. Lost time.-Luder the 8 -hour system work with almost full power begins and ends approximately on schedule, and lost time is reduced to a minimum Under the 10 -hour system work ceases regularly before the end of the spell, and lost time is frequent
3. Stereotyped or restricted output.-Under the 10 -hour system artificial limitation of output is widely prevalent. Under the 8 -hour system output varies more nearly according to individual capacity.
4. Industrial accidents. - (a) In the absence of fatigue, accidents vary directly with speed of production owing to increased exposure to risk.
(b) The breaking up of this regular variation by fatigue is indicated by-
(1) The rise of accidents with the fall of output.
(2) The disproportionate rise of accidents with the rise of output and the absence of a proportionate fall of accidents with the fall of output in the final hours of the day
(c) The importance of fatigue in the causation of accidents is emphasized by the fact that the higher accident risk accompanies the deeper decline of working capacity-
(1) In the second spell as compared with the first.
(2) In muscular work as compared with dexterous and machine work.
(3) At the 10 -hour plant as compared with the 8 -hour plant.
(d) The level of the accident rate varies inversely with the experience of the workers. ${ }^{11}$

The National Industrial Conference Board, an organization of employers in this country, also has done some research work on the subject of hours and output. In general, their conclusions are less favorable to the adoption of the short working day than have been those of other investigators. On the whole their methods seem less exact than those of the other studies to which reference has been made. Investigations made at two different dates took account of the effect of a reduction of the hours in a considerable number of plants in the following industries: The manufacture of cotton, woolen, and silk textiles; boot and shoe manufacturing; and metal products manufacturing. In the first of these reports the material on reduced hours related for the most part to 1917. Most of the figures for the later study were returned in 1920. The basis of both studies was a questionnaire filled out and returned by the various manufacturers, and the material obtained was not altogether uniform. The length of the working week after reduction varied in the different plants, and findings were not correlated with the length of the week from which the reductions were made. In its first report the board summarizes its findings as follows:
In the northern cotton industry reductions to less than 56 hours per week involved a loss in output in more than 90 per cent of the establishments, and in a majority of cases this loss was aporoximately proportional to the reduction in time.
In the wool manufacturing mdustry a reduction to a 54 -hour schedule resulted in a loss in output, though this loss was somewhat less pronounced than in the cotton industry.
II U. S. Public Health Service. Comparison of an 8 -hour plant and a 10 -hour plant Washington, D. C., 1920. p. 26. (Its Public Health Bulletin No. 106.)

In the silk industry a considerable proportion of the mills reported that the output was maintained after shortening schedules to less than 54 hours per week and in a number of cases, indeed, to 50 hours per week.
In the boot and shoe industry it was found that maximum production could be maintained on a schedule substantially less than 54 hours per week
Analysis of the evidence submitted by metal manufacturing establishments indicated that, while a universal reduction to a 50 -hour week would involve indicated that, while a universal reduction to a 50 -hour week would involve
loss in production, nevertheless, a 50 -hour week could be rather generally introduced without seriously curtailing output. In a number of establishments production was reported as maintained with a 48 -hour schedule, but it appeared that a general reduction to a 48 -hour week in the metal manufacturing industries would result in a decided loss in output. ${ }^{12}$
In the later report of the National Industrial Conference Board dealing with the same subject, reductions of schedules to an even shorter week than in the preceding study were made, in all cases to a week of 48 hours or less. Almost the same conclusions were reached as in the earlier study. By far the largest proportion of cases showed a decrease in output, although some firms did report a maintenance of the former level, and others even an increase. In not all instances was the decrease in output proportionate to the decrease in hours, thus indicating at least some improvement in hourly production. ${ }^{13}$ The data of both reports reveal the fact that practically no attention was paid to the length of time for which the new schedule had been in force. Some detailed statements given indicate that, in at least part of the plants, records were used from the period immediately following the change. On the other hand, the findings of the British studies reveal a point of view that it seems advisable to indorse. They emphasized the fact that an interval of some months is often required to obtain the full benefit in output from shortened hours, the length of time varying in different occupations and ordinarily bearing some relation to the complexity of the work. ${ }^{14}$ Accordingly, it is not surprising that the National Industrial Conference Board, which made no allowance for the disadvantages of a transitional period, should arrive at a somewhat different conclusion in their reports.
To a limited extent there is agreement between the findings of this board and the result of some of the English investigations. The greater the amount of handwork and the more important the application of the individual, the more likely are the chances for reducing hours and yet maintaining output.
Whether the reports of any of these investigations are to be taken as altogether conclusive is not the important question. The real

[^2]gain lies in the fact that such studies are being made at all, that governments, employers' organizations, and individuals are seeing the need for concrete facts relating to the problem of the length of the working day and that investigations are being made to collect such facts.

## THE WORKER'S TIME OUTSIDE THE PLANT

The consideration of hours in relation to output does not cover the whole field of study connected with the determination of the length of the most desirable working day. In referring to the interpretation of the phrase "the proper length of the working day," Professor Kent who has contributed to English research on industrial fatigue states: "It may, perhaps, be taken now to mean a day of such length as to yield to capital a just and sufficient return, to labor adequate wages, with necessary opportunities for leisure, relaxation, and amusement." ${ }^{15}$ The same authority suggests that although "we may soon be able to say how long the day may be; how short it should be is a more difficult problem. ${ }^{16}$
Doctor Vernon also suggests that not all the material is at hand for fixing a satisfactory working day when investigations concerning hours and output have been made.
Having fixed as accurately as possible the hours of maximum production, when the workers are near their limit, we shall be in a better position to decide on the hours which may reasonably be expected under normal conditions of industry. Such hours ought to be very distinctly shorter than those required for maximum production in order that the workers may have each day a period of leisure at their disposal, and retain a surplus of energy which they can devote to other pursuits such as household work and gardening, to they can devote to other pursuits such as household
games and other forms of relaxation, or to education.
The worker is not merely a unit in production-he is an individual in society, with a many-sided life to live. The worker needs time not only for rest and the replacing of the energy used during the day's work, but he needs time for recreation and self-improvement as well. Home responsibilities also often make heavy demands upon the worker's time after hours. All these sides of the hour problem must be considered by the person who aims to form an unbiased and sound judgment on the length of the working day best suited to modern needs.
Even if home responsibilities are not heavy, it is not desirable that unremitting and monotonous work should fill all the waking hours of any individual. If a person is to develop normally, to

[^3]have a sane and wholesome outlook on life, he should have some opportunity for recreation as well as for education and selfimprovement.
The development of workers' education movements by organization of the workers themselves, extension courses of universities, and evening classes in public schools for adults are all offering opportunity for the worker to continue the education which he has had to give up in order to earn a living. In any State which aims to be a democracy and whose satisfactory functioning depends upon the intelligent participation of its citizens, the education of the manual laborer is of vital importance. If, however, the men and women in industry return home late at the end of an exhausting day's toil, they are in no mood nor condition to study or attend classes in the evening. The continued growth of adult education indicates that the workers are ready to take advantage of such opportunity; that it is not a far-fetched plea to ask time for education for the wage earners of the country.
THE IMPORTANCE OF THE SHORTER WORKING DAY FOR WOMEN
The problem of the shorter working day is of importance for all workers, but develops a special significance when related to the needs of women in industry.
The safeguarding of women in industry is necessary not primarily because of a striking difference in the physical strength of women and men but because of the need for conserving women's energies in the interest of the race. It is particularly imperative to have short industrial hours, since so many of them are called upon to perform two jobs-one as wage earners in factories, mills, or stores, the other as home-makers attending to household duties and caring for the family.

## Home responsibilities.

Although men frequently have some home responsibilities it is a well established fact that women, on the whole, carry a much heavier burden in this respect. Special emphasis, therefore, must be laid on the fact that the problem of home responsibilities makes a shorter working day of even greater necessity to the woman in industry than to the man. The time which the average working woman puts in at the plant or factory does not include all her day's work. The following statement compiled from various State studies made by the Women's Bureau of the United States Department of Labor indicates that the large proportion of working women live at home:

| State | Number of |  |
| :---: | :---: | :---: |
| Alabama | 3, 139 | 90.3 |
| Arkansas | 2, 561 2,919 | 83. 0 |
| Karsas | 5, 620 | 85. 7 |
| Kentucky | 5, 628 | 89.6 |
| Maryland | 6,720 | 87.9 |
| New Jersey | 12, 877 | 83. 9 |
| Ohio | 16, 249 | 88.7 |
| Rhode Island | 2, 529 | 92.2 |
| South Carolina | 3, 732 | 93.9 |

In view of visits made by the agents of the Women's Bureau to the homes of many of these women it is safe to say that the majority of them had very definite home responsibilities in the form of washing, cleaning, cooking, and mending. Investigations prove that many married women, mothers of families, return to their homes at the end of a day in a store or factory to meet all those duties to which the average housewife devotes much of her day. Mending, cooking, and cleaning too frequently must occupy many women engaged in industrial labor by day until well into the night. Nor is the married woman the only one upon whom this burden falls. The grown daughter living at home is frequently expected to help with the housework, the sewing, and other duties. Even the girl who is living by herself usually finds it necessary to do her own washing and sewing in order to make an inadequate wage go as far as possible. Accordingly, because the present organization of society necessitates that women in industry do a large share of housework, it is obvious that the shorter working day is of even greater im. portance to them than to the men.
Not only home activities or possible self-improvement lay claim to the working woman's time outside store or factory hours. There must be adequate time left for recreation and for the rest which will fit her for the next day's work. Miss Goldmark fittingly sums up her plea for the shorter day in the following words:
The limitation of working hours, therefore, which assures leisure, is not a merely negative program. It limits work, indeed, to make good the daily deficits, and to send back the worker physiologically prepared for another day. It frees the worker from toil before exhaustion deprives leisure of its potentialities. It thus fulfills a reasoned purpose. As the physiological function of rest is to repair fatigue, so the function of the shorter day is to afford to working people physiological rest-with all that is implied further by way of leisure. ${ }^{18}$
${ }^{18}$ Goldmark, Josephine. Fatigue and efficiency. New York, 1917. p. 287.

## PART II.

## STANDARDS FOR THE LENGTH OF THE WORKING DAY IN THE UNITED STATES

The general standard of hours of employment for a locality or an industry may be shown in one of three methods: Legislation setting a definite limit on the length of employment, trade-union agreements which specify that a certain hour standard shall be recognized by both sides as constituting a day's work, and the hours of work most commonly found in actual practice in that community or industry.

## STATE HOUR LAWS

The legal method of securing workers against unreasonably long hours has been applied in this country, for the most part, to those groups which were considered to be in a weaker position for bargaining and for whom the protection of a short day was most essentialwomen and children. In some instances restrictions have been placed upon the number of hours which a man may be required to labor, but in nearly all cases such laws have been in connection with industries which, in their very nature, involved definite danger either to the worker or to the public.
There are only four States in the United States-Alabama, Florida, Iowa, and West Virginia-that do not have some sort of law regulating the hours of work for women. Another State, Indiana, has only one limitation of hours, that prohibiting the employment of women at night in manufacturing. Other industries are not affected by this law.
The highest standard in hour regulation to be found up to the present time is the 8 -hour day which has been established by law for women workers in eight States-Arizona, California, Colorado, Montana, Nevada, New Mexico, Utah, and Washington, as well as in the District of Columbia. The scope of the law varies in the different States. In California, for example, it embraces practically all women workers except domestic servants. In some of the other States, however, the exceptions to the law include a considerable number of wage-earning women. In Kansas an award of the commission provides for an 8 -hour day in public housekeeping only. Two of these States with the 8 -hour day-California and Utah-and the District of Columbia place a weekly limitation of 48 hours for women work-$8397^{\circ}-25-2$ 11
ers, while Arizona, Colorado, Nevada, and Washington allow 56 hours a week. In Kansas, although the 8-hour day is not generally established by law, the commission has limited the week's work for women in some industries to $491 / 2$ hours.

An $81 / 2$-hour day is the standard in North Dakota and Wyoming. In the former State the law applies to women in manufacturing, office, laundry, and mercantile occupations, while in the latter State the law covers not only the women engaged in these types of work but also those employed in a number of other industries. North Dakota has a 48 -hour weekly limitation, but Wyoming allows a schedule of 56 hours a week.

In 16 States the working day of women employed in specified occupations is limited to 9 hours. In two of these-Massachusetts, and Oregon-this standard is combined with a weekly maximum of 48 hours. Only one of these 16 States permits a week as long as 63 hours. A $9^{1 / 2}$-hour day represents the legal maximum for women employed in Minnesota.

In 14 States a 10 -hour day for women is established by law, while three States set the limit between 10 and 11 hours. North Carolina permits its women to be employed as long as 11 hours, while, as has been pointed out before, 5 States do not limit either the daily or weekly hours. From the foregoing it is apparent that more States have adopted an 8 -hour day than a 48 -hour week, since 9 States and the District of Columbia have legalized such a day, whereas only 5 States-California, Utah, North Dakota, Oregon, and Massachusetts -and the District of Columbia have established so short a week by law as that of 48 hours.

## TRADE-UNION AGREEMENTS

Hour standards also may be established by trade-union agreement. Since 1907 the Bureau of Labor Statistics of the United States Department of Labor has been collecting material on union hours and wage scales from the larger unions in 66 cities. Represented in this material are employees in the various building trades, in printing and publishing, and in the stone and metal trades; chauffeurs, teamsters, freight handlers, and laundry workers. For the most part these are unions which have few or no women members. so that the standards obtained are those set for men in industry. The hours per week were given for 91 trades and occupations or subdivisions and groups of trades and occupations. Of that number 16 had a reduction, 21 had an increase, and 54 had no change in working hours between May 15, 1921, and May 15, 1922. ${ }^{19}$
de. S. Department of Labor, Bureau of Labor Statistics. Union scale of wages and hours of labor, May 15, 1922. Washington, D. Cw 1923. p. 2. (Its Bulletin no. 325.)

A study of the detailed tables for the various occupations by city indicates that the number of hours most commonly set as a regular week by these trade-union agreements was 44 , while the 48 -hour week came next in frequency. Approximately one-half of the agreements called for a 44 -hour week, while between one-fourth and one-third of them showed 48 hours as the established week. The shortest weekly schedule recorded was 36 hours in some of the printing trades. ${ }^{20}$
No figures are included in the Bureau of Labor Statistics report on the hours of any of the garment unions, which include a very considerable number of women members. The union workers on ladies' garments have won for themselves a 44 -hour week in general, while a number of locals in New York City work under an agreement which provides for a 40 -hour week.

The foregoing statements prove that the standards established by trade-union agreements for all classes of workers have gone ahead of those set by law for women workers. The greater proportion of union labor thinks in terms of an 8 -hour day, with a $51 / 2$ - or 6 -day week.
${ }^{20}$ Ibid., Table A, p. 64.

## PART III

## PREVAILING HOUR SCHEDULES OF WOMEN IN INDUSTRY IN 13 STATES AND 2 CITIES

In consideration of the overwhelming importance of the subject of hours of employment for women workers, the Women's Bureau decided that it would be worth while to present in a single bulletin for a uniform date the material relating to the scheduled hours of the women employed in the industries of those States where such hour investigations had already been conducted. Prior to the fall of 1922 the bureau had made state-wide studies of the scheduled hours of women workers in 11 States. During that fall two additional States were surveyed, in each case the information being obtained for a week in September, 1922. In the spring of 1923 questionnaires were sent to all the firms that had been visited in the other States, as well as to candy firms in Chicago, St. Louis, and Philadelphia for which information on scheduled hours had previously been obtained, asking for the number of employees and the scheduled hours of the firm as they had been on September 15 , 1922, or the pay-roll date nearest thereto. As was to be expected, some firms had gone out of business between the date of the original investigation and the sending out of the later questionnaire, but for the most part the response to the request was prompt and adequate. Reports were obtained from approximately 85 per cent of the firms to whom questionnaires had been sent. In all, information on scheduled hours was secured for 162,792 women employed in 1,709 plants in 13 different States and in two cities outside those States. The States included are Alabama, Arkansas, Georgia, Indiana, Iowa, Kentucky, Maryland, Missouri, New Jersey, Ohio, Rhode Island, South Carolina, and Virginia. Special studies had been made of the scheduled hours for women candy workers in Philadelphia in 1919 and in St. Louis and Chicago in 1920 and 1921. These records also were brought up to date. Although the original survey in St. Louis was made at a somewhat earlier date than was the state-wide study for Missouri, the returns from St. Louis were incorporated with the other Missouri figures.

| Industries | Number re- |  | Alabama |  | Arkansas |  | Georgia |  | Indiana |  | Iowa |  | Kentucky |  | Maryland |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Estabments ments | Women | Estabments | Women | Estab-lishments | Women | Estabments | Women | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women |
| All industrie | 1,709 | 162, 792 | 85 | 4, 220 | 79 | 1,773 | 75 | 7,433 | 79 | 8,785 | 150 | 7,878 | 107 | 8,399 | 118 | 11, 148 |
| Manufacturing: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bags (other than paper) Broom a and brushes... | $\begin{array}{r} 12 \\ 7 \\ 15 \\ 119 \\ 10 \\ 5 \end{array}$ | $\begin{array}{r} 1,967 \\ 147 \\ 860 \\ 7,959 \\ 751 \\ 93 \end{array}$ |  |  |  |  | 1 | 176 | 1 | 161 | 4 | 16 | 2 | 59 | ${ }_{1}^{1}$ | 260 16 |
| Buttons........... |  |  |  | 81 |  |  |  |  | 4 | 246 | 17 | 587 734 | 5 | 294 | 4 | 421 |
| Canvas products. |  |  |  |  | , | 39 | 1 | 10 | 4 |  | 3 | 38 |  |  |  |  |
| Chemical and drugs- |  |  | 2 | 18 |  |  |  |  | 2 | 48 |  |  | 1 | 27 |  |  |
| Drugs and medi¢ines Other | $\begin{array}{r}22 \\ 4 \\ \hline\end{array}$ | $\begin{aligned} & 3,128 \\ & 391 \end{aligned}$ |  |  | 3 | 10 |  |  | 1 | 451 | 5 | 235 | 1 | 8 | 1 | 375 30 |
| Clothing-s Men's shirts and overalls... | $\begin{aligned} & 72 \\ & 34 \\ & 19 \\ & 16 \\ & 11 \\ & 6 \end{aligned}$ | $\begin{array}{r} 7,650 \\ 3,760 \\ 1,533 \\ 1,305 \\ 890 \\ 359 \end{array}$ |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |
| Men's suits and coats., |  |  | ${ }^{6}$ | 319 | 2 | 356 | ${ }_{1}^{4}$ | $\begin{aligned} & 403 \\ & 131 \end{aligned}$ | ${ }_{1}^{2}$ | ${ }_{482}^{204}$ | 8 | 859 | ${ }_{8}^{3}$ | $\begin{array}{r} 322 \\ 1,017 \end{array}$ | 4 |  |
| Women's and children's dresses Suits, |  |  | --1.-- | 18 |  |  |  |  |  |  | 4 | $\begin{aligned} & -75 \\ & 020 \end{aligned}$ |  |  | 3 <br> 3 <br> 3 | 149 |
| Underwear-..--.-...-. |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 29 | ${ }_{2}^{3}$ | 149 177 |
| Eleetric products- | $\begin{aligned} & 14 \\ & 22 \\ & 73 \\ & 26 \\ & 22 \\ & 28 \end{aligned}$ | $\begin{aligned} & 2,460 \\ & 4,549 \\ & 5,649 \\ & 1,264 \\ & 2,027 \\ & 1,361 \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  |  |  | 112 |
| Lamps....- |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 67 |  | - |
| Food products |  |  | 6 | 43 | 2 |  | 1 | $41^{-1}$ | 5 | 1, 766 | $10^{-}$ | 614 | 4 | 301 |  |  |
| Gloves ard glass |  |  |  |  |  |  |  |  | ${ }_{6}$ | 1, 031 | 3 | 79 |  |  | 1 | 253 59 |
| Handkerchiefs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hats- ${ }_{\text {Felt. }}$ | 7 <br> 5 <br> 3 <br> 8 <br> 8 <br> 18 <br> 14 <br> 7 <br> 110 | 361647649199,4876749629,812 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Straw, |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 4 | 537 |
| Mans. |  |  |  |  |  |  | 1 | 160 |  |  | 1 | 17 |  |  |  |  |
| Jewelry (gold and silverware) ..... |  |  |  |  |  |  |  |  |  |  | ${ }_{2}$ | 190 | , | 156 |  |  |
| Leather and leather products |  |  |  | 6 | 1 |  | 2 | 6 |  |  | 2 |  |  | 36 |  |  |
|  |  |  |  |  | 5 | 44 | 1 | 61 | 29 | 1,582 | 8 | 57 | 3 | 87 | 9 | 1.307 |




Table 1.-Number of women and of establishments in the States and industries included-Continued


When material was classified for all the States together it was divided according to 52 industry groups, including 6 branches of the clothing industry and 10 divisions under textiles. Information was obtained for a large group of women $(15,497)$ employed in the manufacture of clothing, some workers in this industry being found in every State except Rhode Island, although the industry was but scantily represented in some of the States. Information was available for more of these workers in Ohio than in any other State. The manufacture of men's shirts and overalls, including over 7,600 women, constituted the largest single clothing group.

Almost 34,000 women employed in the textile industry were included in the reports which were made on scheduled hours. Also 11 of the 13 States are represented in this hour material on textiles. This group embraces all the leading branches of the industry-that is, the manufacture of cotton, silk, and woolen yard goods; yarns and cordage; and hosiery and knit goods. Reports were obtained for over 14,000 women employed in the manufacture of cotton yard goods alone, this being the largest of the textile subdivisions.

In the study are found also several other industries characterized by large numbers of women. Schedules were available for over 16,000 tobacco workers. For all but two of the States included there were reports on hours of general mercantile establishments, 17,865 women being employed in the firms for which information was given. Although only 5,737 laundry workers were covered by the records, these were scattered throughout all the States but one-Virginia.

Thus it is possible to furnish information on scheduled hours for firms employing a considerable number of women who were working in many and varied industries. At the same time in some of the leading women-employing industries sufficiently adequate reports were obtained to give a representative picture of that industry in the States included.

Information on daily, weekly, and Saturday hours, as well as the length of lunch periods, is presented in such form that the hour schedules of any particular industry, as well as those of each State as a whole, may be studied. In addition to such data, records on daily and weekly hours have been grouped so as to reveal the actual scheduled hours in relation to the legal limit or lack of such limit in the State.

## SCHEDULED DAILY HOURS

Of the 162,662 women workers for whom records were obtained the largest group, or 34.2 per cent of the total, were found to have a scheduled day of 9 hours for Monday to Friday, inclusive. (Appendix, Table I.) Saturday hours will be treated in a later section. Practically one-fifth of the women were scheduled for 8 hours of


Scheduled daily Hours in the Manufacture of Clothing and Textiles and in General Mercantile Establishments
work or less in a day. In contrast to these were the one-fourth (23.2 per cent) who were expected to work regularly more than 9 hours a day.

## State standards.

Even though the records for all of the States were taken for one period, there is considerable difference in the actual hour standards which were being practiced by the industries in the various States. It is difficult, however, to rate the States in relation to each other according to the scheduled hours reported for the women in each. Two States may show the same proportion of workers on a 9 -hour schedule, but still vary greatly in the most usual hour standards, beeause of dissimilar distribution of the other workers. It is true that the State with the smallest number of women working on a short schedule was very often the State which also had the largest number working excessively long hours, but these two conditions did not necessarily go together.
Turning now to the matter of the long industrial day we find in the following list compiled from Table I in the appendix the six geographic groups which had the largest proportion of women on a $10-$ hour day.


While South Carolina, the first in the list of these States, reported no women on a schedule of more than 10 hours, it had such an overwhelmingly large proportion employed at 10 hours and so few with the 8 -hour day that it stands well toward the bottom of the list when the more progressive hour standard is considered. Neither do the Virginia returns show any women regularly employed longer than 10 hours in a day, although almost one-half of them had a 10 -hour day. Alabama shows, in addition to a considerable proportion of women with such a day, a record of almost one-tenth with a day longer than 10 hours, while it stands low in the list when the States are rated according to the proportion who worked 8 hours or less. Georgia's record in respect to hours is poor in spite of the fact that but little over a third of the women were scheduled for a 10-hour day, since practically 30 per cent of the women workers
for whom information was given had a working day longer than 10 hours.

Below are listed the six groups which had the largest proportion of women scheduled to work 8 hours or less.

| Locality |  |
| :---: | :---: |
| Iowa | 36.8 |
| Maryland | 33. 5 |
| Missouri- | 27.2 |
| Chicago- | 25. 4 |
| New Jersey | 19.1 |

These same localities show up rather well also when their record of unduly long hours is considered. In none were any women reported as having a scheduled day longer than 10 hours, while in three instances-Ohio, Missouri, and Chicago-no women were recorded with a day as long as 10 hours. In the other three less than 10 per cent of the women were employed for such a day.

When all the States are rated in regard to daily hour standards with these various bases of comparison considered, it is difficult to say which of the six localities showing the largest proportions of women on a basis of 8 hours or less really heads the list, but probably South Carolina and Georgia may safely be said to stand close to the bottom.

Part of the differences in standards is due to variations in the maximum working hours which the laws of the respective States set for their women workers, but the effect of legal regulation on the standard will be taken up in more detail at a later point.

It is often true that within the State the prevalence of a working day of a certain length is due to the fact that one important industry having the same policy as to hours for practically all the workers employed therein may dominate the situation. The Alabama figures represent such a condition more conspicuously than do those of any other State. The great majority of the women in the Alabania survey were on a 10 -hour day, working for the most part in cotton mills, nearly all of which operated on such a schedule. The majority of the garment workers surveyed in the State had an 8 -hour day, while the store employees formed a considerable part of the over-8-and-less-than-9-hour groups. In Georgia and South Carolina also the textile industry had an overbalancing effect on the hours of women workers. In some States the presence of a large group of mercantile workers has heavily weighted one of the shorter hour groups.

## Standards of the various industries.

This seeming tendency for the hours most common in a State to be determined by the industry group of greatest importance in the State and by the extent of its preponderance suggests the desirability of grouping the information available, by industry as well as by locality. (Appendix, Table II.)

In 24 out of the 52 industries the scheduled day found to be more usual than any other was one of 9 hours, but there was a very large difference in these industries as to the proportion of workers on a 9 -hour day. In some cases only a third of the women, while in the manufacture of gloves as high as 91.9 per cent of the workers included were on a 9 -hour day.
The following industries were the only ones in which there were any establishments with a scheduled day of less than 8 hours:


In six of the industrial groups surveyed the 8 -hour day was the regular schedule of the largest number of workers. Below are listed those industries together with the percentage of women employed in them who had an 8-hour day.

| Felt hats_ | 69.3 |
| :---: | :---: |
| Women's suits and coats | 57.7 |
| General mercantile | 54.2 |
| Men's suits and coats | 51, 7 |
| Millinery | 36.1 |

Of these six the two branches of the clothing industry and the general mercantile are the only ones in which figures are available for a large group of women.

A considerable number of textile workers had a regular 10 -hour day, but except for some of the branches of that industry there were only three other groups for which the 10 -hour day was characteristic. None of the three, however, were particularly large and important groups.

Of all the industries included, three stand out as the largest employers of women. When all of the clothing workers are considered together they form a group of 15,497 .women. The women in the various branches of the textile industry sum up to 33,984 in the survey, while as many as 17,865 general mercantile workers were included in the reports. These three principal industries had quite different hour standards. A comparison, therefore, of the distribution of the workers in these industries among the various hour divisions is of particular interest.


The largest number of clothing workers in any one group is that with a schedule of more than 8 and less than 9 hours, and the overwhelming majority of the women in the clothing trades had an $\delta$-hour or 9 -hour day. Not far from one-half of all the textile workers, on the other hand, were scheduled to work 10 hours a day. Among the mercantile employees, over one-half had an 8 -hour day, while as many as 29.7 per cent were scheduled to work less than 8 hours a day.

Although the hours of the textile groups as a whole were longer than those of most of the industries included in the survey, some of the branches of that industry were characterized by a shorter working day than was the general custom. In the silk mills, for example, only 6.2 per cent of the women for whom returns were made had a day of more than 9 hours, while 32.9 per cent of these workers were on an 8 -hour schedule. Although the hosiery and knit goods mills employed their women for a longer day than did the silk mills, they also were considerably in advance of the cotton mills. Of the women in hosiery and knit goods manufacturing, 45.7 per cent had a 9 -hour day. Moreover, over one-half of the workers in the manufacture of woolen and worsted grods were also on a 9 -hour day.

In a study of the hours of an industry it is perhaps interesting to note whether the prevalence of a day of particular length is due to the fact that it is commonly found in all of the States included or whether it is determined rather by an averaging up of the situation in the various States. Although the printed tables are not so closely divided as to make such an analysis possible, the figures were so compiled that such information on the scheduled hours is available for each industry by State. In some instances these figures revealed considerable uniformity within the industry throughout the States, while in other cases, there were very radical differences between the various localities.
The daily hours in the general mercantile establishments were consistently shorter than the average schedule in all the other industries throughout the States. Information was a vailable for mercantile workers in 11 States. In 6 of these 11 the most usual length of the working day was 8 hours, in 2 it was less than 8 , while in 3 it was over 8 but less than 9 . Of the Iowa workers employed in stores, as high as 85.4 per cent were on an 8 -hour schedule, while practically four-fifths of the general mercantile workers in Kentucky, Missouri, and Ohio were scheduled for such a day. In Maryland 95 per cent and in New Jersey 89 per cent of the women in general mercantile establishments had a day of less than 8 hours. Longer daily hours for mercantile workers prevailed in Alabama, Arkansas, and South Carolina than in any of the other States surveyed. In all three of these practically two-thirds of the women were expected to work between 8 and 9 hours daily while the remaining one-third were on a 9 -hour basis.
In the manufacture of shoes there was a nearer approach to uniformity in hours than in any other industry. In five of the six States surveyed, where the manufacture of shoes was an important industrial feature, the largest proportion of the workers had a 9 -hour schedule. All of the workers in the remaining States were expected to put in between 8 and 9 hours daily.

For the laundry workers also there was comparatively little difference in the length of the day in the different States. In seven of the States the 9 -hour day was found most often, while in four the largest proportion of the women worked over 9 but less than 10 hours daily.
For the cigarmakers the distribution among the several hour groups varied considerably in the different States. The majority of the workers in the manufacture of other tobacco products, however, were on a 9 -hour day in three out of the four States in which the industry was represented. In the fourth a schedule of 10 hours was most common, although 40 per cent of the employees were found in the 9 -hour group.

Practically 90 per cent of New Jersey's candy workers had a schedule of between 8 and 9 hours, but in the majority of the States very few of the women employed in candy factories worked less than 9 hours a day. A 9 -hour schedule was the most common one for 7 of the 12 localities furnishing information in this industry. In Indiana and Kentucky a 10 -hour day was most frequently found, although in each of these places a very considerable group also worked only 9 hours.
In metal products a day of 9 or between 8 and 9 hours was found to be most common in all except one of the 10 States where records were obtained in this industry.
The manufacture of rubber goods showed a most clear-cut difference in the length of the daily working schedule prevailing in the various localities. In four States the 10 -hour day was overwhelmingly preponderant, but in those States in which there were really large numbers of women employed in the industry the largest proportion had a working day of between 8 and 9 hours.
In the various branches of the textile industry rather long hours were found to be the common practice in the majority of the States. New Jersey stands out in marked distinction to the rest, with an 8 or 9 -hour day characteristic of those branches of the industry which were surveyed within that State.

## SCHEDULED WEEKLY HOURS

The length of the working day does not tell the whole story about the hour standards in evidence for any group of workers. Such information needs to be considered in connection with the total number of hours for which a worker is employed during the week. Even though the working day is too long to admit of sufficient rest to renew entirely the worker's energy and to prevent the fatigue effects of the previous day from being carried over into the next, the situation, while leaving much to be desired, is still possible when the break at the end of the week is long enough to enable the worker to start out on Monday morning thoroughly refreshed. If, on the other hand, the week end does not afford sufficient time for complete recuperation, the cumulative fatigue results in a permanent drain on the worker's strength. The desirability of this double check on the length of the working week has been recognized in the hour laws for women found in some of the States.
Information on the subject of scheduled weekly hours is now available from the Women's Bureau study for 162,648 women employed in 1,707 establishments in 13 States and 2 cities outside those States. (Appendix, Table III.) Of these women, the largest $8397^{\circ}-25-3$
number in any one hour group were those with a 50 -hour week, Only 34,919 women, or something over one-fifth of the total number reported, however, were found in this classification. This slight piling up at the 50 -hour point does not in any way indicate that this was the weekly schedule most commonly found in the various States. In fact, the figures were greatly influenced by the large proportion of workers with a schedule of 50 hours a week in one of the industrially prominent States. For six of the locality groups the working week most commonly found was shorter than 50 hours, while in five others longer hours were customary. Practically one-fifth of all the workers reported were scheduled to work less than 48 hours a week.

SCHEDULED WEEKLY HOURS


State standards.
In regard to a weekly schedule of less than 48 hours the five localities having the largest proportions of women employed are listed as follows:

| Locality |  | Percentage of <br> women with <br> shedeled <br> of less whan <br> wours |
| :--- | :--- | :--- |
| hour |  |  |

This information alone would not be sufficient to indicate that the bour standard in these localities was higher than in the other States, but, as a matter of fact, the distribution of the other workers among the weekly hour groupings also supports that conclusion. Of the Chicago candy workers the largest percentage was found on a 50 hour schedule and none of those reported were expected to work for a greater number of hours than that. In Maryland the largest number of workers fell in the 4448 -hour group. Nor did any of the employees included in these localities work the excessively long weeks that were found in some States.

At the other end of the scale stand the following States which showed the largest proportion of women working over 54 hours a week:

| State | $\begin{gathered} \text { Percentage of } \\ \text { women with } \\ \text { scheduled weekly } \\ \text { hours of more } \\ \text { than } 54 \end{gathered}$ |
| :---: | :---: |
| South Carolina----- |  |
| Georgia-------- | 68. 4 |
|  | 63. |
| Kentucky. | 41. 5 |

In the first two of these States there were no women with a scheduled week so short as 44 hours, while in all but Kentucky the length of week most usual for the women workers was 55 hours.
An analysis of material, more detailed than that appearing in this report, which shows the length of the scheduled week for the various industries in each State, indicates that the rank of the States
in this instance, as in the matter of daily hours, was frequently affected by the preponderance of one industrial group.

In Maryland the characteristic week seemed to fall between 44 and 48 hours, but nearly two-thirds in that hour group were general mercantile workers, almost 95 per cent of whom had a week of more than 44 but less than 48 hours. When these women employed in stores are omitted, the largest proportion of the workers appear to have been employed on a 50 -hour weekly schedule. New Jersey, on the other hand, had a more consistently short week. In only 18 of the thirty-odd industries surveyed were any firms reported as employing their women workers regularly longer than 50 hours.
As has already been indicated the textile industry constituted a considerable factor in all of the States where a long working day was common. In some of these, as in Alabama and South Carolina, the long week was very nearly limited to that industry, and in other industries there was considerable variation in the number of hours worked in a week. In Alabama, in which the overwhelming proportion of the women were on a 55 -hour basis, over 70 per cent of the garment workers in the State had a 44 -hour week. In Georgia, on the other hand, the long week was common throughout the State, only 110 women of the 7,433 reported having a week as short as 48 hours, while no firm reported a schedule shorter than that.

## Standards of the various industries.

When the women in all industries are considered as a whole, a 50 hour week represents the mode-that is, the classification in which falls the largest group. (Appendix, Table IV.) An analysis of the various industry groups, however, reveals that in only 13 of the 52 industries might a week of 50 hours be considered as characteristic. For 26 industries the mode was less than 50 hours, while in 13 it was higher.
The following industries are those which had the largest proportion of workers employed on the basis of a week of 44 hours or less:

| Industry | Percentage of women whose weekly hours were 44 or less were 43 or less |
| :---: | :---: |
| Felt hats |  |
| Men's suits and coats | 68.5 |
| Women's suits, coats, etc. | 56. 2 |
| Silker textiles. | 35. 1 |
| Leather and leather products. | 27. 2 |

In the first four of these industries the 44 -hour schedule covered a larger proportion of the workers than did any other one hour classification. None of the firms engaged in the manufacture of felt hats and none in the three branches of the clothing industry showed a schedule so long as 54 hours.

The industries in which there were found the largest proportions of women working more than 54 hours a week are listed below:

| Industry | Percentage of omen whos weekly hour were over 54 |
| :---: | :---: |
| Yarn (not specified) | 100.0 |
| Cotton goods. | 90. |
| Wooden boxes | 56.5 |
| Cordage and carpet warps- | 50.2 |
| Tobacco (other than cigars) |  |

In only two of these industries, the manufacture of wooden boxes and of tobacco, were there any firms reporting a schedule of less than 48 hours, the former showing 15.1 per cent of its women and the latter less than 1 per cent with such a weekly schedule.

The three outstanding industrial groups-clothing, textiles, and mercantile workers-show interesting contrasts in regard to the length of the scheduled week.

| Industry | $\left.\begin{gathered} \text { Num- } \\ \text { Nor } \\ \text { of We. } \\ \text { ofen } \\ \text { fer } \\ \text { ported } \end{gathered} \right\rvert\,$ | Percentage of women whose scheduled weekly hours wero- |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | ${ }_{44}^{\text {Under }}$ | 44 | $\left\|\begin{array}{c} \mathrm{O}_{\mathrm{ver}}^{44} \\ \text { and } \\ \text { ander } \\ 48 \end{array}\right\|$ | 48 | $\left\lvert\, \begin{gathered} \text { over } \\ \text { 48 } \\ \text { and } \\ \text { ander } \\ 50 \end{gathered}\right.$ | 50 |  | $\left.\left\lvert\, \begin{array}{c} \text { over } \\ \text { Snd } \\ \text { and } \\ \text { ander } \\ \text { fit } \end{array}\right.\right)$ | 55 | $\begin{array}{\|c} \begin{array}{c} \text { over } \\ 55 \\ \text { and } \\ \text { ander } \\ \text { bid } \end{array} \end{array}$ | 58 | $\begin{gathered} \left.\begin{array}{c} \mathrm{over}^{58} \\ \text { and } \\ \text { ander } \\ \text { 60 } \end{array} \right\rvert\, \end{gathered}$ |  | $\underbrace{}_{\substack{\text { and } \\ \text { aver } \\ \text { over }}}$ |
| Clothing | - ${ }^{15,498}$ |  | 231.1 |  |  |  |  |  |  |  |  |  |  |  | $\overline{6}$ |
| (enter |  |  |  |  |  |  | 4.3 |  |  |  |  |  |  |  | ${ }^{6.6}$ |
|  | 17,865. |  |  |  |  | 37.4 | 4.3 | 5.90.6 |  |  |  | -- | 0.1 |  |  |

Almost a third of the clothing workers had a 44 -hour week, while practically one-fourth of them had a week of between 48 and 50 hours. When the various textile groups are taken as a unit, it appears that about 40 per cent of the women were expected to work 55 hours a week. The general mercantile workers occupy a middle ground between these two so far as the length of the working week
is concerned. While these women ordinarily had the advantage of a short working day, they were expected to work the same number of hours on Saturday as on other days, or, in many cases, were scheduled for even longer hours than on the other five days. In some localities mercantile workers were granted a shorter working week during the warm months. For 1,758 women in Maryland stores, for example, there was some change of schedule during this season. The stores employing these women were not open at all on Saturdays during part of the summer-the period of the summer schedule varying from one to four months. For 467 women in the same State the daily hours in the hot season were reduced by thirty minutes. At least one instance of a change in hours during the summer for mercantile workers was found in each of the following States: Alabama, Arkansas, Georgia, Rhode Island, and South Carolina. Maryland, however, was the only State in which a large proportion of the mercantile employees had the advantage of a shorter summer schedule.

## SATURDAY HOURS

Just as with the data on daily and weekly hours, so the figures on Saturday hours also have been arranged both by State and by industry. (Tables V and VI in the appendix.) Both of these tables demionstrate most clearly how widespread has become the custom of the half day on Saturday. If the figures for the various States are examined to determine the number of hours most common on Saturday for the women workers, a schedule of 5 hours or less will be found to be the most usual in every case but one, that of Arkansas, where 48.3 per cent of the women for whom reports were obtained had a 9 -hour Saturday. This situation, however, is due not so much to any great difference in the industrial practices in Arkansas as to the fact that nercantile workers formed a larger proportion of all the women surveyed in that State than in any of the other States included.

In order to judge more accurately the extent to which a shorter or longer day was customary on Saturday in the various States information on the length of the Saturday's work was correlated with the daily hour reports, all manufacturing being treated as a unit and stores and laundries tabulated separately. This material presented in detail in Appendix Table $\mathbf{X}$ is summarized in the following table:

Table 4.-Relation of Saturday hours to daily hours

| Industry | $\begin{array}{\|} \text { Number } \\ \text { of women } \\ \text { reported } \end{array}$ | Number of women whose Saturday stood in following relation to regular daily hours- |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Shorter | Same | Longer |  |
| Manufacturing | $\begin{array}{r} 1 \\ 136,064 \\ 20,870 \\ 5,681 \end{array}$ | 130, 457 | $\begin{aligned} & 3,288 \\ & 8,752 \\ & 893 \end{aligned}$ | 4012, 118 | 2, 265 |
| Laundries |  | 4, 548 |  |  | 240 |

The summary table brings out most clearly the extent to which the custom of the shorter Saturday has established itself in general in the manufacturing industries. Of the 136,064 women employed in such industries for whom information is available, 97.5 per cent either worked for a smaller number of hours on Saturday than during the rest of the week or were working on a 5-day week schedule with Saturday free. There seems to be no definite relation between the extent to which the shorter Saturday is found and the length of the regular working day. The following summary table compiled from Table X in the appendix gives the proportion of the women having either a short day or no Saturday work according to the regular scheduled daily hours:

| Scheduled daily hours | Proportion of women in manufacturing estab- lishments with short Saturday or no Saturday work |
| :---: | :---: |
| Under 8 hours |  |
| 8 hours------------- | 93.7 |
| Over 8 and under 9 hours | 99.7 |
| Over 9 and under 10 hours | 96. 8 |
| 10 hours------------ | 100. 0 |
| Over 10 and under 11 hours | 97. 8 |
| 11 hours and over.------- |  |

In the stores, however, the situation is very different. The question here is whether the worker is able to stop work on Saturday at the same time as on the other days of the week or whether she must stay on through the evening to satisfy the demands of the people who have formed the Saturday evening shopping habit. Almost three-fifths of the women reported by mercantile establishments had to work longer on Saturdays than on the other days of the week. Much the smallest proportion of women with a long Saturday was found in the group whose regular scheduled hours
were less than eight a day, less than one-fifth of these women with such a daily régime having a Saturday schedule longer than that on the other days of the week. The long. Saturday was most often found in the smaller stores. The following summary indicates the average number of women in each firm employed under the two different hour policies:

| Scheduled daily hours of mercantile establishments | Average number of women in each firm with- |  |
| :---: | :---: | :---: |
|  | Saturday of normal length | $\begin{aligned} & \text { Long Satur- } \\ & \text { day } \end{aligned}$ |
| Under 8 | 500 | 63 |
| 8-------------- | 235 | 100 |
|  | 81 29 | 35 19 |
| Over 9 |  | 16 |
| All mercantile establishments | 135 | 62 |

This difference in the length of the Saturday schedule shows up not only in the total where comparison is made irrespective of the length of the regular day but within each daily hour group as well.

## LUNCH PERIODS

When reports are being used from all types of working communities, it is difficult to say whether the length of the lunch period in force in each case is satisfactory to the worker. Much depends upon the location of the plant and the habit of the workers. The figures, however, do seem to indicate the prevalence of a reasonable period of rest in the middle of the day. (Tables VII and VIII in the appendix.) Only 1 per cent of the workers had a lunch period of less than 30 minutes or no definite time scheduled for lunch. An hour was more commonly allowed for lunch than was any other one period. Of the 162,512 women for whom report was made concerning lunch periods, 46.8 per cent had an hour, while 35.8 per cent had 30 minutes off.

## NIGHT WORKERS

Of the 1,707 firms that returned reports on scheduled hours, only 51 firms located in 10 States employed any women on night work. (Appendix, Table IX.) Less than 2,000 night workers were included in all. The majority of these were employed in South Carolina, and the next largest number in Georgia. In these two States also the length of the night shift was the longest found in any of the States. All of the night workers reported in Georgia had to be at their jobs more than 11 hours a night. The largest proportion of the South Carolina women who worked at night were on an 11-hour shift.

That over four-fifths of the night workers recorded were employed in the manufacture of textiles is revealed by the following table:

Table 5.-Scheduled hours of night workers, by industry

. 1
An 11-hour shift was by far the most common for the night workers in the textile mills, while in the other industries 55.9 per cent of the women worked on an 8 -hour schedule.
The majority of the women employed at night were expected to work only five nights a week, although practically one-eighth of those reported worked six nights.

## PART IV

PROGRESS IN HOUR STANDARDS IN STATES SURVEYED

## CHANGES IN SCHEDULED HOURS

A comparison of the returns of the hour questionnaires of the Women's Bureau with the material obtained at the time of the original State surveys is not an altogether satisfactory means of indicating the trend in hour standards. In the first place the original State studies were made at different times, and consequently the changes in hours are for an interval of different length in each State. In several cases the time between the two dates was less than a year, and very little change was to be expected in so short a space.

The changes in hours as shown by the bureau investigations are given in Table XI in the appendix. Between the earlier and later date there was very little change in the scheduled hours of the women surveyed. Of all those for whom this information was available for two different dates, only one-fifth showed any variation in their weekly hours. For less than two-thirds of these had the working week been shortened, while for over a third of them the number of hours per week had actually been increased.

Of those women whose weekly hours had been shortened, almost one-fourth had received a reduction of 2 but less than 3 hours. Onefifth had had their week shortened by 5 hours but under 6. Only 6.8 per cent of those whose schedule had been decreased had had a change of as much as 8 hours in the working week.

Of the 7,390 women whose weekly hours of work had been lengthened between the dates of the two schedules, 18.9 per cent had had their week increased by less than 1 hour, while for 17.6 per cent the change was 1 hour but less than 2. For only 1.5 per cent had the increase in weekly hours been as nuuch as 8 .

While the number of women for whom hours were decreased exceeds the number for whom an increase in the scheduled week was put into effect, the total number for whom there was any change formed only a minority of the whole group for whom reports were returned. Accordingly, the Women's Bureau study shows no great change in hour standards in force in industrial establishments for the last four or five years.
The United States census of manufactures has compiled figures on scheduled hours of the workers in manufacturing industries for the
various States and for the country as a whole for the three years1909, 1914, and 1919. The data prove that during this 10 -year period there was a very marked reduction in the length of the working week for those employed in manufacturing. The average number of wage earners employed in manufacturing on a schedule of 48 hours or less in 1919 formed almost one-half of the total number in those industries, while in 1914 only 11.9 per cent and in 1909 but 7.9 per cent had had a scheduled week as short as that. These figures represent an increase of over 300 per cent for 1919 over 1914 in the number of workers in factories who had a working week of 48 hours or less. The changes at the other end of the scale were very considerable, although less marked than the variations in the numbers working 48 hours or less. While 69.4 per cent of those employed in manufacturing industries in 1909 had a scheduled week longer than 54 hours, in 1919 only 25.8 worked under such a schedule. ${ }^{21}$
According to the tables of the census of manufactures, of the States which the Women's Bureau survey covers, Rhode Island, New Jersey, and Virginia show the greatest increase in the proportion of factory workers employed for a week of 48 hours or less. In Rhode Island the group had risen in the decade from 5.2 per cent to 45.9 per cent of the total, an increase of almost eightfold, while in New Jersey and Virginia the percentages of increase were approximately 600 per cent and 400 per cent, respectively.
Census material does not furnish a basis for any comparison in hours prior to 1909. But the figures for these three dates furnish an illustration of the progressive changes in the length of the working week. How much further this reduction in the working week may go as our industrial life continues to develop can not be said. Lord Leverhulme, of England, himself an employer of labor, has gone so far as to advocate a 6 -hour day combined with a multiple shift system. ${ }^{22}$ As yet, however, there have been but few instances in industry of a day less than 8 hours. It may be said that the standard for women workers in industrial establishments, advocated most generally by authorities on the subject, sets as a goal, for the present, the 8 -hour day, one day of rest in seven, a Saturday half holiday, and no night work.

## Legal limitations and the relation between scheduled AND LEGAL HOURS

It has already been pointed out that some attempt has been made to shorten the working day by means of laws designating the maximum length of the working day or week. The limits thus established

[^4]vary in the States included in this survey, while even within some of these States different limits are fixed for the different industries.

Of the States surveyed, the shortest daily limitation is found in Missouri and Ohio, each of which has a comprehensive 9 -hour law applying to the majority of women working outside the home. Also a 9-hour law in Arkansas applies to most industries in the State except the cotton mills and the handling of fruit and farm products, for which there are no restrictions placed on the length of the working day or week of this State.

A 10 -hour law covers the women for whom hour information was obtained in Maryland, New Jersey, Rhode Island, Virginia, Chicago, and Philadelphia. In South Carolina the 10 -hour rule applies only to the cotton mills. In Georgia, although the terms of the law aim to establish a 10 -hour standard in textile mills, the provision that permits an employer to run his plant more than 10 hours a day so long as his total number of hours for the week does not exceed 60 might readily destroy the effect of the daily limitation.
The only women in this study to whom a 12 -hour limit applies are those in mercantile establishments in South Carolina. In Alabama, Indiana, and Iowa there is no restriction of the length of the working day, while in the cotton mills of Arkansas and in all industries except cotton manufacturing and stores in South Carolina an employer may require women workers to put in as long a day as he desires.

Table 6.-Legal hours and scheduled hours for women workers-Daily

| Legal hours | $\begin{gathered} \text { Num- } \\ \text { ber of } \\ \text { women } \\ \text { reported } \end{gathered}$ | Number of women whose scheduled daily hours were- |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{aligned} & \text { Under } \\ & 8 \end{aligned}$ | 8 | $\begin{array}{\|c} \hline \text { Over } 8 \\ \text { and } \\ \text { under } \\ 9 \end{array}$ | 9 | $\begin{aligned} & \text { Over } 9 \\ & \text { and } \\ & \text { under } \\ & 10 \end{aligned}$ | 10 | $\begin{array}{\|c} \hline . \begin{array}{c} \text { Over } \\ \text { 10 and } \\ \text { under } \\ \text { 11 } \end{array} \\ \hline \end{array}$ | 11 | $\mathrm{O}_{11}^{\mathrm{Over}}$ |
| Total | 162, 662 | 6, 270 | 26, 068 | 36, 990 | 55, 571 | 12,062 | 22,906 | 907 | 1,779 | 109 |
| 9 hours. 10 hours | 51, ${ }_{86} 8.4$ | $\begin{aligned} & 1,258 \\ & 4,895 \end{aligned}$ | $\begin{array}{r} 13,056 \\ 8,663 \end{array}$ | $\begin{gathered} 9,470 \\ 23,884 \end{gathered}$ | $\begin{aligned} & 26,870 \\ & 19,408 \end{aligned}$ | $\begin{array}{r} 337 \\ 8,350 \end{array}$ | 19,15 | 765 | 1,305 | 68 |
| $\begin{aligned} & 12 \text { nours-------- } \\ & \text { No limitation of daily } \\ & \text { hours_----- } \end{aligned}$ | 24,755 | 117 | 4,349 | 3,381 | 9,099 | 3,375 | 3,777 | 142 | 474 | 41 |

The comparison of the legal hours and the daily hours actually found in industry from the data compiled by the Women's Bureau for September, 1922, shows that employers in general have gone on considerably in advance of the standards set by law. Almost onehalf, or 46.6 per cent, of the women working under the protection of a 9 -hour law had an actual scheduled day shorter than 9 hours. Of those who were working in States with a 10-hour law, more than three-fourths were actually employed in plants where the regular $8397^{\circ}-25-4$
working day was less than 10 hours. The only women to whom a 12 -hour law applied were the mercantile workers in South Carolina and none of those reported in the State had a daily schedule longer than 9 hours, although the Saturday schedule was in some instances as long as 12 hours. In this State it is possible that the existence of a 10 -hour law applying to the leading industry of the State has had an effect upon standards throughout the other industries.
A little over 15 per cent of the women for whom reports were returned had no protection against the employer who might think it to his advantage to run his plant a long day. It is true that a very large proportion of the employers did not take advantage of the situation. Of the women for whom there was no legal protection, 18.0 per cent had a scheduled day of 8 hours or less, while 68.5 per cent worked regularly 9 hours or less in a day. Although the considerable proportion of women who enjoy a comparatively short working day is encouraging to all interested in the welfare of wageearning women, the fact must not be overlooked that where no legal limitation exists there are always some plants that are run excessively long hours. Of the women in this group with no legal protection, 15.3 per cent had a 10 -hour day and 2.7 per cent were expected to remain on the job longer than 10 hours a day.

Table 7.-Legal hours and scheduled hours for women workers-Weelily

|  |  | Number of women whose scheduled weekly hours were- |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Legal hours | $\begin{aligned} & \text { ber of } \\ & \text { wonen } \\ & \text { ree } \\ & \text { ported } \end{aligned}$ | ${ }_{44}^{\text {Under }}$ | 44 |  | 48 | $\left\|\begin{array}{c} 0 \mathrm{ver} \\ 48 \\ \text { and } \\ \text { under } \\ 50 \end{array}\right\|$ | 50 | $\left\|\begin{array}{c} 0 \mathrm{ver} \\ 50 \\ \text { and } \\ \text { under } \\ 54 \end{array}\right\|$ | 54 | Over 54 and under 55 | 55 | Over 55 and under 60 | $\left\lvert\, \begin{gathered} 60 \\ \text { and } \\ \text { and } \\ \text { over } \end{gathered}\right.$ |
| To | 162, 648 | 1,078 | 10, 739 | 19,926 | 23, 350 | 25, 544 | 4,919 | 14,761 | 6,110 | 330 | 18,572 | 4,374 | 2,945 |
| 50 hours $\qquad$ <br> 54 hours <br> 55 hour $\qquad$ | $\begin{aligned} & 30,464 \\ & 62,37 \\ & 6,37 \end{aligned}$ | $\begin{aligned} & 580 \\ & 189 \end{aligned}$ | $\begin{array}{\|l\|} \hline 2,616 \\ 5,091 \\ \hline \end{array}$ | $\begin{aligned} & 3,752 \\ & 9,103 \end{aligned}$ | $\begin{array}{\|l} 3,624 \\ 15,111 \end{array}$ | $\begin{gathered} 6,751 \\ 10,900 \\ 31 \end{gathered}$ | $\begin{array}{r} 12,997 \\ 8,951 \end{array}$ | $\begin{array}{r} 144 \\ 7,564 \\ 14 \end{array}$ | 4,672 | 93 | 7,076 | 137 | 244 |
| ${ }^{6} 6$ hours-- | 24,505 | 124 |  | 4,090 | 2,060 | 2, 251 | 4,922 | 1,978 | 329 | 38 | 4, 237 | 1, 624 | -934 |
| weekly hours...... | 38, 187 | 185 | 2,114 | 2,981 | 2,555 | 5,621 | 8,049 | 5,063 | 1,109 | 199 | 6,931 | 2,613 | 7 |

Most of the States surveyed which have a legal limit to the working day also place a restriction upon the number of hours for which women can be employed during the week. Ohio places this limit at 50 hours while Missouri, New Jersey, Rhode Island, and Pennsylvania have a weekly limitation of 54 hours. Also Arkansas has such a limitation for all industries except cotton mills. The weekly maximum for South Carolina cotton mills is 55 hours. Kentucky, Maryland, Georgia textile mills, and South Carolina mercantile es-
tablishments are covered by a 60 -hour law. In the other States sur-reyed-Alabama, Illinois, Indiana, Iowa, and Virginia-there is no limit established by law.
In regard to weekly hours also it was found that many of the women workers were employed under a schedule shorter than that demanded by law. Over one-half of those who worked under the protection of a 50 -hour law actually had a scheduled week of less than 50 hours. A little over 7 per cent of the women to whom a 54 -hour legal limit applied were actually working a week as long as that.

The only women covered by a 55 -hour law were the workers in South Carolina cotton mills and practically all of these were employed up to the full limit of the law. Such a situation may be taken as an indication that, were it not for the existance of the law, some workers would regularly have been working a longer week. In those industries restricted by a State law to a 60 -hour week only 7.9 per cent of the women actually had a scheduled week as long as 60 hours.

Of the women who were covered by no legislation limiting weekly hours, 20.5 per cent had a weekly schedule of 48 hours or less and practically one-fifth of them had a 50 -hour week. Approximately one-fourth had a week longer than 54 hours. The 10,510 women, however, who had to work more than 54 hours a week would find very little personal comfort in the knowledge of the considerable proportion who were fortunate enough to be employed under conditions allowing time for something besides industrial work.

The revelation that many employers have hour policies in advance of those set by law does not indicate that there is no need for hour limitation by means of legislation. The fact that they can and do run their plants on a shorter hour schedule is rather to be taken as an assurance that such a policy need not be ruinous to business and is, therefore, a reasonable thing to require by law.

## PART' V

## SUMMARY

The long working day that was characteristic of the industrial system in the period following the transfer of industries from the home to the factory has in recent years become recognized by for-ward-looking forces in the country as a menace to individual and national welfare. Accordingly, progress has gradually been made in reducing the hours of work. Even within so short a period as 10 years there has been a marked change in the customary length of the working week. While the figures of the United States census of manufactures show that less than one-tenth of the workers in factories had a week of 48 hours or less in 1909, almost one-half of the employees in manufacturing in 1919 worked according to such a schedule. In the instances of a shortened working week when comparable records have been kept of the output of the plant, before and after the change, it has been shown that ordinarily the business was able to stand the reduction in hours. In certain types of industries where the attention of the worker is of greatest importance reductions of one or more hours a day have not decreased the output.
Some recognition of the desirability of the shorter working day for women in industry is found in this country in State laws establishing for these workers maximum hours of labor. There is no uniformity in these laws, daily hour regulations varying from 8 to 12 hours, but the existence of such laws indicates a belief in the wisdom of placing some check upon the length of time which women workers may be employed. Of the 15 States concerned in this study, 2 stand out as more progressive than the rest with a law limiting the day's work in most industries to 9 hours, while the 3 placing no limitation upon the hours of work in any industries trail the list in the matter of satisfactory legal standards for women's working hours.
The records on scheduled hours obtained by the Women's Bureau in 13 States and 2 cities cover altogether 162,792 women employed in 1,709 plants. Over one-third of those for whom scheduled daily hours were reported had a 9 -hour day and close to one-fifth were on a schedule of 8 hours or less. These figures should not be taken to indicate anything like uniformity throughout the States included, the standards of some States being widely different from those of others. At one end of the line stands South Carolina with over four-fifths
( 84.3 per cent) of the women employees reported as working regularly 10 hours a day and Georgia with almost 30 per cent regularly employed for more than 10 hours, while over a third had a 10 -hour schedule. As representative of a higher standard, we find Iowa with 36.8 per cent of the women reported working on a schedule of 8 hours or less and Maryland with practically one-third of the women employed for a day of 8 hours or less. In Ohio and Missouri, although the short day was not so common as in Iowa and Maryland, it was more frequently practiced than in any of the remaining States surveyed.

A 50 -hour week was the standard for the largest group of women when the workers of all the States surveyed were considered together. In this respect one-third of all women had a scheduled week of 48 hours or less; Rhode Island, New Jersey, and Maryland took the lead with approximately 68 per cent, 55 per cent, and 52 per cent of the women reported in each, respectively, showing such a schedule. An overwhelming majority of the South Carolina workers, on the other hand, regularly put in more than 54 hours a week while in both Georgia and Alabama practically two-thirds of the women reported had a scheduled week of more than 54 hours.
Striking differences are shown in the hour policies of two industries employing large numbers of women workers-the manufacture of textiles and clothing. While a day of between 8 and 9 hours was most common in the clothing industry, a 10 -hour day was customary for the largest group of textile workers. Only 6 per cent of the textile workers had a week of 44 hours or less, in contrast with 32.4 per cent of the clothing workers. Again, practically one-half of the women in the various textile industries had a week of 55 hours or more while less than 3 per cent of the clothing workers had a week of that length.
The figures obtained in the States included indicate clearly the prevalence of a Saturday afternoon holiday in the factories. Over 95 per cent of the women reported in the manufacturing industries surveyed had a shorter day on Saturday than they did the rest of the week. Only about four-fifths of the laundry workers had a short Saturday. While the habit of keeping stores open for Saturday evening shopping has at least practically disappeared in the cities, it still remains in smaller places, and practically three-fifths of the women employed in the general mercantile and 5 -and- 10 cent stores had longer hours on Saturday than they had during the rest of the week.
In general, satisfactory allowance was made for the lunch period. Only 1 per cent of the women surveyed had no regular lunch time or had a period of less than 30 minutes.

Very few night workers were employ 1 in the plants reporting, in fact less than 2,000 women distributed in 51 different plants. The largest proportion of the night workers were employed in the textile industries, and the most common schedule of work was 11 hours.
Although in each State included there were progressive employers who stood out for the maintenance in their plants of hour schedules in advance of the legal standards, nevertheless there were in the various States a considerable number of employers who adhered in their hour schedules for women to the daily and weekly maximum permitted by law. It is evident, therefore, that more progressive legal standards would be necessary in the great majority of the States surveyed to insure all women in industry against an overlong working day.


## APPENDIX

Table I.-Scheduled daily hours, by locality

| Locality | Number reported |  | Number of establishments and 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 |  |
|  | $\begin{gathered} \text { Estab- } \\ \text { lish- } \\ \text { ments } \end{gathered}$ | Women | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women | Estab-lishments | $\begin{gathered} \text { Wom- } \\ \text { en } \end{gathered}$ | Estab lishments | $\begin{aligned} & \text { Wom- } \\ & \text { en } \end{aligned}$ | Estab lishments | Women | $\left\|\begin{array}{c} \text { Estab- } \\ \text { lish- } \\ \text { ments } \end{array}\right\|$ | Wom- <br> en | Estab-lishments | $\begin{gathered} \text { Wom- } \\ \text { en } \end{gathered}$ | Estab lishments | Wom- en | Estab-lishments | $\begin{aligned} & \text { Wom } \\ & \text { en } \end{aligned}$ | Estab lishments | Women |
| All localities | ${ }^{11,707}$ | 162,662 | 44 | 6,270 | 316 | 26,068 | 363 | 36,990 | 634 | 55, 571 | 145 | 12,062 | 222 | 22,906 | 9 | 907 | 17 | 1,779 | 3 | 109 |
| A labama | 85 | 4,220 | 2 | 31 | 10 | 296 | 18 | 771 | 22 | 477 | 5 | 531 | 21. | 1,705 |  |  | 7 | 409 |  |  |
| Arkansas | 79 75 | 1,773 | 1 | 22 | 10 3 | 222 | 14 | 776 | 13 | 838 | 14 | 1,334 | 13 | 2,535 | 7 | 785 | 9 | 1,320 | 3 | 109 |
| Indiana | 79 | 8,785 | 1 | 64 | 7 | 492 | 5 | 833 | 36 | 5,327 | 12 | 721 | 17 | 1,238 | 1 |  |  |  |  |  |
| Iowa.. | 150 | 7, 878 |  |  | 36 | 2,903 | 26 17 | 949 908 | 65 32 | 2,889 2,590 | 12 | 1, 600 | 11 | 2,510 |  |  |  |  |  |  |
| Kentucky | 107 | 8, 399 |  |  | 17 | 1,324 | 176 | 2, 292 | 40 | 4,002 | 12 | 1,731 | 7 | 2, 385 |  |  |  |  |  |  |
| Maryland | 118 | 11, 148 | 10 1 | 2, 620 | 20 | 1, 115 | 26 | 2,292 | 79 | $\stackrel{4}{4,450}$ | 2 | 86 |  |  |  |  |  |  |  |  |
| New Jersey | 1300 | 184,629 | 12 | 1,995 | 73 | 4,598 | 105 | 14, 257 | 69 | 7,487 | 38 | 4,438 | 19 | 1,854 |  |  |  |  |  |  |
| Ohio | 1300 | 30, 464 | 10 | 888 | 94 | 8,233 | 47 | 4, 520 | 174 | 16, 582 | 6 | 241 |  |  |  |  |  |  |  |  |
| Rhode Island | 52 | 6,537 <br> 8,453 | 6 | 239 | 7 | 676 | 15 | 3, 672 | 16 | 1,297 | 8 | ${ }_{2} 638$ | 63 | 7,125 |  |  |  |  |  |  |
| Vouth Carolin | 98 | 8,453 | 1 | 41 | 2 | 228 | 14 | 2,026 | 17 | 2,650 | 14 | 1,065 | 36 | 4,991 |  |  |  |  |  |  |
| Chicago | 23 | 2,431 |  |  | 7 | 617 | 8 | 479 | 8 | 1,335 |  |  |  |  |  |  |  |  |  |  |
| Philadelphia | 16 | 677 |  |  | 2 | 102 | 6 | 250 | 1 | 16 | 7 | 309 |  |  |  |  |  |  |  |  |

1 Details aggregate more than total because some establishments appear in more than one group.

Table II.-Scheduled daily hours, by industry



[^5]Table III.-Scheduled weekly hours, by locality

| Locality | $\underset{\text { ported }}{\text { Number re- }}$ |  | Number of establishments and number of women w weekly hours were- |  |  |  |  |  |  |  | ase scheduled |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Under 44 |  | 44 |  | Over 44 and under 48 |  | 48 |  | Over 48 and under 50 |  |
|  | $\left\|\begin{array}{l} \text { Estab- } \\ \text { lish- } \\ \text { ments } \end{array}\right\|$ | $\begin{aligned} & \text { Wo- } \\ & \text { men } \end{aligned}$ | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ment } \end{aligned}$ | $\begin{aligned} & \text { Wo- } \\ & \text { men } \end{aligned}$ | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ment } \end{aligned}$ | $\begin{aligned} & \text { Wo- } \\ & \text { mon } \end{aligned}$ | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { lishts } \end{aligned}$ | $\begin{aligned} & \text { wo- } \\ & \text { m } \end{aligned}$ | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | $\begin{aligned} & \text { Wo- } \\ & \text { men } \end{aligned}$ | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | $\underbrace{\text { Wo- }}_{\text {Wo- }}$ |
| All localities. | ${ }^{1} 1,707$ | 162, 648 | 35 | 1,078 | 133 | 10,739 | 203 | 19,926 | 179 | 23, 350 | 242 | 25,5 |
| Alabama | $\begin{array}{r} \hline 85 \\ 79 \\ 75 \\ 79 \\ 150 \\ 107 \\ 118 \\ 138 \\ 1300 \\ 1300 \\ 52 \\ 98 \\ 87 \\ 23 \\ 16 \end{array}$ |  | 4 | 52 | 5 | 251 |  |  | 4 | 83 |  |  |
| Arkansas |  |  |  |  | 3 | 17 |  |  | 8 | 354 | ${ }_{7}$ | 116 578 |
| Indiana. |  |  | $-\cdots$$-\quad-\quad$334 | $\begin{array}{r} 83 \\ 9 \\ 33 \\ 91 \end{array}$ | 2 | 511 | 5 | 444 | 1 | 130 | 12 | 1,844 |
| Iowa---- |  |  |  |  | 11 | 635 429 | ${ }_{4}^{15}$ | $\begin{array}{r}551 \\ 100 \\ \hline\end{array}$ | 11 | 982 834 | 25 | 2, 292 |
| Maryland |  |  |  |  | - 9 | 489 | 26 | 3,990 | 13 | 1,2808,181821 | 13 | 1,46 |
| Missouri |  |  |  |  | $\begin{array}{r} 88 \\ 24 \\ 38 \end{array}$ | $\begin{array}{\|c} 8,98 \\ 3,968 \\ 2,616 \\ 144 \end{array}$ | 48 | 2, 229 | 151560 |  | 1843 | 4, 8475,1666,751 |
| New Jersey |  |  | 4 <br> 12 <br> $-\quad 7$ <br> 12 | 189580 |  |  |  |  |  |  |  |  |
| Rhode Island. |  |  |  |  |  |  | $\stackrel{9}{3}$ |  | 12 | $\begin{array}{r} 4,038 \\ 33 \\ 950 \end{array}$ | $\begin{array}{r} 13 \\ 2 \\ 5 \end{array}$ | (e) $\begin{aligned} & 540 \\ & 31 \\ & 560\end{aligned}$ |
| South Carolina-- |  |  | -----1 | 41 | 1 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Philadelphia -- |  | 2,677 |  |  | ${ }_{1}$ | 514 81 | 4 | 148 4.5 | ${ }_{1}^{6}$ | 374 21 | ${ }_{3}$ | ${ }_{221}^{338}$ |

Number of establishments and number of women whose scheduled weekly hours
were

${ }^{1}$ Details aggregate more than total because some establishments appear in more than one group.

Table III.-Scheduled weekly hours, by locality-Continued


${ }^{8}$ Details aggregate more than total because some establishments appear in more than one group.


Table V.-Scheduled Saturday hours, by locality


Table V.-Scheduled Saturday hours, by loeality-Continued


Table VI.-Scheduled Saturday hours, by industry


Table VI.-Scheduled Saturday hours, by industry-Continued



Table VII.-Length of lunch period, by locality

| Locality | Number reported |  | Number of establishments and number of women whose scheduled lunch period was- |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Under 30 minutes |  | 30 minutes |  | Over 30 and under 45 minutes |  | 45 minutes |  | Over 45 minutes and under 1 hour |  | 1 hour |  | Over 1 hour |  | No definite lunch period allowed ${ }^{1}$ |  |
|  | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women | $\begin{aligned} & \text { Estab- } \\ & \text { Lish- } \\ & \text { ments } \end{aligned}$ | Women | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women | Estab ments | Women | $\begin{aligned} & \text { Estab- } \\ & \text { lish- } \\ & \text { ments } \end{aligned}$ | Women | Estab-lishments | Women | Estab- lish- ments | Women | Estab-lishments | Women | $\underset{\substack{\text { Estab- } \\ \text { lish- }}}{ }$ ments | Women |
| All localities | 11,706 | 162, 512 | 9 | 1,302 | 572 | 58,242 | 28 | 3,573 | 182 | 21, 178 | 12 | 737 | 881 | 76,106 | 31 | 1,011 | 3 | 363 |
| Alabama. | 85 79 | 4, 220 |  |  | 31 | 1,012 | 3 | 307 | 8 |  | 1 | 127 |  | 2,245 |  |  |  |  |
| Georgia | 75 | 7, 433 <br> 8,785 |  |  | 28 | 2,085 | 4 | 1,190 | 15 |  | 1 | 10 | 25 | 2, 367 | $\stackrel{1}{2}$ | ${ }_{53}^{14}$ |  | ---- |
| Kowa Kentucky | 150 | 7,878 | 1 | 11 | 50 | 1,962 | 1 | 187 | 11 | 1, 721 | $\frac{1}{3}$ | 119 | 80 | 5,151 4,758 | $\frac{1}{4}$ | 64 120 |  |  |
| Maryland | 118 | 11, 148 | 1 | 130 | 45 | ¢, ${ }_{6}^{4,192}$ | 2 | 61 | ${ }_{3}^{13}$ | 1, 218 |  |  | 49 58 | 2, ${ }_{\text {, } 209}$ | 1 | 6 |  |  |
| New Jersey- | 2300 | 34, 508 |  |  | 77 | 11,901 | 3 | 733 | 13 | 1,685 |  |  | 52 | 4,515 |  |  |  |  |
| Ohio Rhode Island | ${ }^{2} 299$ | 30, 435 | 6 | 368 | 88 | 9, 835 | 6 | 593 | 26 | 3,985 | 4 | $\begin{gathered} 11 \\ 285 \end{gathered}$ | 172 | 19,021 |  |  | 3 | 363 |
| South Carolina | 98 98 87 | 8, 8 833 |  |  | 11 | 349 489 8 | 3 | 247 | ${ }_{8}^{2}$ | ${ }^{141} 8$ |  |  | 35 74 | 5,657 6,821 |  | 390 65 |  |  |
| Chicago-Philadelp | 2316 |  |  |  | 61 | 8,606 |  |  | 5 | 1,280 | 1 | 55 | 19 | 1,052 |  |  |  |  |
|  |  | 2, 4371 |  |  | 23 | 2, 431 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 13 | 561 |  |  | 3 | 116 |  |  |  |  |
| ${ }^{1}$ Includes two <br> on <br> ${ }^{3}$ Details aggre <br> Detains aggreg | ablishm than to | ents em heir place tal becau | soying |  |  |  | of anot | er estab |  | with n | regular |  | for lun | ch, the w | omen be | ing exp | ed | $t$ while |

Table VIII.-Length of lunch period, by industry


Table VIII.-Length of lunch period, by industry-Continued

${ }^{1}$ Includes two entire establishments employing 304 women and 59 women of another establishment with no regular interval for lunch, the women being expected to eat while on duty or while substitutes took their places.

Table IX.-Scheduled hours for night workers

| State | Number reported |  | Number of establishments and nurnber of women whose scheduled hours were- |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Under 8 |  | 8 |  | Over 8 and under 11 |  | 11 |  | Over 11 and under 12 |  | 12 and over |  |
|  | Es-tab-lishments | Women | $\left\lvert\, \begin{gathered} \text { Es- } \\ \text { tab- } \\ \text { lish- } \\ \text { ments } \end{gathered}\right.$ | Women | Es-tab-lishments | Women | $\left\|\begin{array}{c} \text { Es- } \\ \text { tab- } \\ \text { lish- } \\ \text { ments } \end{array}\right\|$ | Women | Es-tab-lishments | Women | Es-tab-lishments | $\begin{aligned} & \text { Wo- } \end{aligned}$ | Es-tab-lishments | Women |
| All States | 149 | 1,968 | 6 | 82 | 7 | 252 | 16 | 394 | 16 | 832 | 2 | 72 | 2 | 336 |
| Alabama | 7 | 164 | 1 | 2 | -- |  | 1 | 5 | 5 | 157 | 2 | 72 | 2 | 336 |
| Indiana. | 1 | 4 | 1 | 4 |  |  |  |  |  |  |  |  |  |  |
| Iowa.- | 3 | 33 |  |  |  |  | 3 | 33 |  |  |  |  |  |  |
| Kentucky--.-- | 2 | 58 |  |  |  |  | 2 | 58 |  |  |  |  |  |  |
| Maryland...-- | 1 | 58 |  |  |  | 58 |  |  |  |  |  |  |  |  |
| New Jersey..- | 6 | 239 | 2 | 20 | 2 | 31 |  |  | ------ | ----- |  |  |  |  |
| Ohio--1-.-- | 7 | 214 3 | 1 | 38 | 4 | 163 | 1 | 13 |  |  |  |  |  |  |
| South Carolina | 17 | 787 | 1 | 18 |  |  | ${ }_{5}$ | 94 | 11 | 675 |  |  |  |  |

1 Excludes 2 establishments employing 29 women for whom length of night shifts was not given.

Table X．－Scheduled

| Industry | Daily hours | $\begin{aligned} & \text { Number re- } \\ & \text { ported } \end{aligned}$ |  | Number of establishments and number of |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | None |  | Under 5 |  | 5 |  | Over 5 and un－ der 6 |  | 6 |  |
|  |  |  | 免 |  | $\begin{aligned} & \text { g } \\ & \vdots \\ & 0 \\ & 0 \end{aligned}$ |  | $\begin{aligned} & \text { gid } \\ & \text { B } \end{aligned}$ |  | 麇 |  | $\begin{aligned} & \text { E. } \\ & \text { a } \\ & \text { B } \end{aligned}$ |  | 免 |
| $\begin{gathered} \text { Manufac } \\ \text { turing. } \end{gathered}$ | ota | ${ }^{11,310}$ | 136， 064 | 138 | 2， 265 | 1556 | 55，533 | 1528 61，023 |  | 638， 199 |  | 242，491 |  |
|  | Under 8 | $\begin{array}{r} 17 \\ 1212 \\ 1282 \\ 1282 \\ 1487 \\ 123 \\ 207 \\ 9 \\ 17 \\ 17 \end{array}$ | $\begin{array}{r} { }^{2} 680 \\ 14,938 \\ 33,673 \\ 50,672 \\ 10,6724 \\ 10,7242 \\ 982 \\ 1,779 \\ 199 \end{array}$ | $\begin{array}{r} 3 \\ 4 \\ 6 \\ 13 \\ 13 \\ 4 \\ \hdashline 1 \end{array}$ | $\begin{gathered} 82 \\ 133 \\ 799 \\ 457 \\ 451 \\ 561 \\ 75 \\ \hline 158 \end{gathered}$ | $\left\{\begin{array}{c} 14 \\ 142 \\ 217 \\ 148 \\ 146 \\ 36 \\ 10 \\ 10 \\ \hdashline \cdots \\ \hdashline 2 \end{array}\right.$ | 168 |  | 258 |  |  |  |  |
|  | 0 ver 8 and under 9 |  |  |  |  |  |  |  |  |  | 1，625 |  | ${ }^{47}$ |
|  | Over 9 and under 10 |  |  |  |  |  | 14,263 253 1 | ${ }_{41}^{270}$ | ${ }^{31,773}$ | 114 <br> 24 | 1，${ }^{\text {a }}$ ， 857 |  | ${ }_{123}^{143}$ |
|  | ${ }_{0}^{10}$ ver 10 and under 11 |  |  |  |  |  | 1，078 | 152 | 17， 566 |  | 1， 211 |  | 1,266 |
|  | 11－．．．．．．．．．．．．．．． |  |  |  |  |  |  | 14 | 1，424 |  | 197 |  | 12 |
| Stores－．－－－－ |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Under 8. 8． Over 8 and under 9 Over 9 and under 10 | 260 <br> 26 <br> 94 <br> 96 <br> 73 <br> 7 <br> 1 | 20，870 |  |  |  |  |  |  |  |  |  |  |
|  |  |  | $\begin{array}{r} 5,570 \\ 10,788 \\ 2,818 \\ 1,7788 \\ 1, \\ 16 \end{array}$ |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | － |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Laundries．－ | otal | $\begin{array}{r} 1355 \\ \left.\begin{array}{r} 1 \\ 10 \\ 14 \\ 174 \\ 741 \\ 21 \\ 1 \end{array} \right\rvert\, \end{array}$ | 5，681 | 14 | 240 | 26 | 876 | 33 | 1，757 |  | 334 | 10 | 601 |
|  | Under 8．．．． |  |  | $\begin{array}{ll} 2 & 52 \\ 2 & 21 \\ 5 & 28 \\ 2 & 94 \\ 3 & 44 \\ 3 & 31 \end{array}$ |  | 1 20 <br> 3 78 <br> 6 162 <br> 9 295 <br> 5 287 <br> $\mathbf{2}$ 34 |  | $\begin{array}{r} 2 \\ 1 \\ 25 \\ 1 \\ 1 \\ 4 \end{array}$ | $\begin{array}{r} 76 \\ 51 \\ 1,428 \\ 135 \\ 67 \\ 67 \end{array}$ |  |  |  |  |
|  | Over 8 and under 9 |  |  |  |  |  |  |  |  |  |  |
|  | Over 9 and under 10 |  |  |  |  | ${ }_{113}^{207}$ |  |  |  |  | ${ }^{40} 872$ |
|  |  |  |  |  |  | 14 | ， |  |  |  | 113 |
| 1 Details aggregate more than totals because some establishments appear in more than one group． <br> ${ }^{2}$ Includes 14 women for whom information was given on daily hours only． <br> ：The Saturday and daily schedules are the same for this group． |  |  |  |  |  |  |  |  |  |  |  |  |  |

daily and Saturday hours


Table XI.-Changes in scheduled weekly hours between date of original study and September, 1922

| Chango | ${ }^{\text {Loantity }}$ | ( |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | $\mathrm{T}_{\substack{\text { Thater } \\ \text { nour }}}$ | ${ }^{1} 1$ |  | dumar |  | midusier |  | Sand ander |  | mate |  | under |  | Shars |
|  |  | Date |  |  |  |  | $\underbrace{\substack{\text { Ratab } \\ \text { menis }}}_{\text {Rex }}$ |  |  | mat wos |  |  |  | med |  | men |  | ab. |
| Deareses. | All |  | $\sqrt{158}$ |  | ${ }^{14}$ | ${ }_{22} 2,57$ |  | ${ }^{32} 2.888$ |  |  | ${ }_{16}^{16,218}$ | $22,2,50$ |  | 1,408 |  | ${ }^{24}$ |  | 20 |
|  |  |  |  |  | $\begin{gathered} 1 \\ \hline \end{gathered}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | $\stackrel{1}{1}$ | \%66 |  |  | ${ }_{\sim}^{0}$ | 2 |  |  | ${ }_{1}$ |
|  |  |  |  |  | $\begin{aligned} & 18 \\ & \hline \end{aligned}$ |  |  |  |  | i $\quad 0$ |  |  |  |  |  |  |  |  |
|  |  |  |  |  | H14 | ${ }^{-1}$ |  |  |  | $\bigcirc$ |  | ${ }_{6}^{6} 1.1 .120$ |  | ${ }^{20}$ |  |  |  |  |
|  |  |  |  |  |  | $1{ }^{111}$ |  |  |  |  | 1.120 |  |  |  |  |  |  |  |
|  | Al leailices. | $\xrightarrow{\substack { 1920 \\ \begin{subarray}{c}{190{ 1 9 2 0 \\ \begin{subarray} { c } { 1 9 0 } }\end{subarray}}$ | ${ }_{111}^{11730}$ |  | ${ }_{17}^{17,1.30}$ | ${ }^{24} 1,1,3 m^{12}$ |  | \% $0^{1,100}$ |  |  | 10. | 1014.14 |  | 580 |  | ${ }^{18}$ |  |  |
| Incrase. | $\begin{aligned} & \text { Alabama } \\ & \text { Arkansas } \\ & \text { Georgia } \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  |  | i2 |  | ${ }^{16}$ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ${ }_{10}^{16}$ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | coil |  |  |  |  |  |  |  |  |  |  |  |  | ${ }^{483}$ |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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Second Annual Report of the Director. 1920
Third Annual Report of the Director. 19
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    ${ }^{17}$ Vernon, H. m. Industrial fatigue and efficiency. London, 1921. p. 33.

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