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PROHIBITION OF NIGHT
WORK OF YOUNG PERSONS



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BULLETIN OF THE U. S. BUREAU OF LABOR STATISTICS.

WHOLE NO. 117.

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THE PROHIBITION OF THE NIGHT WORK OF YOUNG PERSONS.¹

INTRODUCTION.

The question of the prohibition of the night work of young persons was raised in 1902 and was placed on the agenda of the Third Delegates Meeting of the International Association for Labor Legislation (Basle 26th September, 1904). The following resolutions were passed:

Whereas the interdiction of the night work of young persons is an urgent necessity, the association without prejudice to the work of the international conference, asks the bureau to submit this question for study to the national sections and to put it upon the agenda of the next delegates' meeting of the association. The bureau is also authorized to delegate this examination to a commission and to invite the sections to appoint their representatives for this commission.

An investigation concerning the extent of the night work of young persons in every country was immediately inaugurated by the bureau. Based on the result of this investigation the following resolutions were adopted by the Fourth Delegates' Meeting in Geneva of 1906:

V.—NIGHT WORK OF YOUNG PERSONS.

1. Night work shall be in general forbidden for young people under 18 years of age.
2. This prohibition is absolute for young persons under 14 years of age.
3. For young persons aged 14 years of age and upwards exceptions are allowed—
 - (a) In cases of "force majeure," or exceptional circumstances.
 - (b) In industries the materials of which are of a highly perishable nature, in order to prevent serious damage.
4. Night work is absolutely forbidden in all places where goods are exposed for sale, hotels and public houses, as well as in the counting houses attached to commercial and industrial establishments where night work is forbidden.
5. The night's rest shall last at least 11 hours, and shall in all cases include the period from 10 p. m. to 5 a. m.
6. Provision may be made for periods of transition.
7. The International Association expresses its hope that inspection will be efficiently carried out.

¹ This memorandum was prepared by the International Labor Office for the information of an International Conference called to meet in Berne in September, 1913, to consider the question of an international treaty providing for the prohibition of night work of young persons. This English translation, presented here by the courtesy of the International Labor Office, follows closely, except for a few unimportant corrections, the text of the German original.

8. The meeting instructs a commission to ascertain by what methods practical effect can be given to the above resolutions. This commission shall present a report within two years. Each section has the right to nominate two delegates to this commission and to name experts from amongst employers and workmen to assist at the deliberations of the commission.

The Governments will have timely notice of all impending sittings of the commission in order that they may be able to send representatives.

In pursuance of these resolutions a special commission, on which 13 States and 11 sections were represented, was appointed to study the question of the night work of young persons. This commission met at Basle on the 25th of September, 1908, under the presidency of Prof. Victor Brants.

Seven sections had published their reports on this question and the International Labor Office prepared a comparative report based on these reports. The special commission resolved to ask the association to issue, jointly with a subcommittee to be elected from among the members of the special commission, a publication setting forth the actual conditions under which the night work of young persons is carried on in the various countries and the possibility of doing away with such night work, as had been done as regards the prohibition of the night work of women.

As a consequence the following resolutions were passed by the Fifth (Lucerne) Delegates Meeting on 29th September, 1908:

1. The night work of young persons to be, in general, prohibited in industrial occupations until the conclusion of the 18th year of their age.

2. The prohibition to be absolute until the conclusion of the 14th year of their age, and until they are exempt from school attendance.

3. Night work may be permitted for young persons over 14—

(a) In cases of "force majeure," when the manufacturing process is subjected to an interruption impossible to foresee, and not of a periodical character;

(b) In industries where the materials used, whether as raw materials or in any manufacturing process, are of a highly perishable nature, where necessary in order to prevent damage to the materials in question;

(c) In the glass industry, in the case of young persons employed in "gathering" the liquid glass from the furnaces, provided that—

(A) The period of their employment at night shall be limited by law, and—

(B) The number of young persons so employed is limited to that required for the purpose of training the necessary number of skilled workmen.

This exception to be allowed only as a temporary measure—

(d) In ironworks, for young persons employed in rolling mills and forge works, provided that they are over 16 years of age.

4. The delegates' meeting expresses no opinion on the resolution adopted at Geneva, in 1906, recommending that night work should be absolutely forbidden "in all places where goods are exposed for sale, hotels and public houses, as well as in counting houses, etc.," and refers the same back to the special commission for consideration.

5. The night's rest shall last at least 11 hours, and shall, in all cases, include the period from 10 p. m. to 5 a. m.

6. Provision may be made for periods of transition.

7. The delegates' meeting expresses the hope that inspection will be efficiently carried out.

8. The delegates' meeting maintains that the regular night work of young persons is always to be regarded as an abuse, which in principle, should not be tolerated in any circumstances. Until it is possible to abolish such night work entirely by means of an international agreement, the meeting invites all the national sections to work actively to secure the removal or diminution of this abuse.

This memorandum has been prepared by the International Labor Office in pursuance of an order of the association. It has been submitted to a subcommission of the special permanent commission composed of Baron Dr. von Berlepsch, minister of state of Prussia, Prof. V. Brants (Belgium), Mr. F. Fagnot (France), Mrs. H. J. Tennant (Great Britain), and Mr. van Thienen, chief inspector of labor (Netherlands).

The Sixth Delegates' Meeting, at Lugano, passed the following resolutions based on the Lucerne resolutions and upon the deliberations of the special commission appointed by the meeting:

Being convinced that the Lucerne resolutions form an adequate basis for the international regulation of the night work of young persons, the delegates' meeting instructs the bureau to request the Swiss Federal Council to invite the Governments to an international conference on the subject.

The meeting instructs the subcommission to continue its work in pursuance of the Lucerne resolutions, and to inquire whether the exceptions to the prohibition of the night work of young persons declared by the Lucerne resolutions to be permissible could not be further limited in the case of young persons employed in glass works and rolling mills. These investigations shall be continued until such time as the request for the international regulation of the question shall be presented to the Swiss Federal Council.

Being convinced that it is reasonable to determine a definite period for the application of transitory provisions, the delegates' meeting resolves that Resolution V, 6, of the Lucerne resolutions shall read as follows:

"Any transitory provisions applicable to rolling mills and glass works, contained in an international convention for the regulation of the night work of young persons, should apply only for a definite period, which it is suggested should be fixed at five years."

The object of this memorandum may in a few words be said to be to show the grounds on which the association decided to promote—

1. The extension of the prohibition of night work to young persons between 16 and 18 years of age;
2. A minimum legal night's rest of 11 hours;
3. The abolition of all exceptions, excepting those sanctioned by the international convention of September 26, 1906, respecting the prohibition of the night work of women in industrial employment and certain transitional measures which are temporarily necessary in certain industries on account of the technical difficulties of the manufacturing processes.

Before answering these questions it is necessary to recapitulate the motives which induced the international association to make the protection of young persons an object of its especial care.

The protection of women is chiefly based on the necessity of safeguarding the health of mothers and children and of preserving family life. The main object of the protection of male juvenile workers is to secure the health and technical efficiency of the coming generation of workingmen and its intellectual and moral education.

The law of different countries aims at attaining these objects by very different means and to a varying extent. On the one hand the requirements of the law differ both as regards the exclusion of young persons from dangerous occupations and as regards the working-day and the legal minimum night's rest. On the other hand the value of the protection given is diminished by the authorization of exceptions of various kinds and by the fixing of the maximum age at which the prohibition of night work or the regulation of day work applies at 18, 17, 16, or even at 15 years.

In certain branches of large-scale industries the regulation of the working-day of young persons affects in some cases the working-day of the women who work with them and in others that of the adult men whom the young persons assist and under whose supervision they work. This is notably the case in the iron and steel and glass industries, and in particular with regard to operations with continuous fire, in which the prohibition of the night work of young persons can not be carried into effect unless they can be replaced—

(a) By unskilled men, or—

(b) By mechanical processes.

If this substitution is practicable in any industrial establishment, then we have a proof that the prohibition of the night work of young persons is in harmony with the economic development of the industrial establishments, because the industrial interests demand the avoidance of waste of juvenile labor in order to create a greater supply of skilled labor. It is an incontestable fact that the labor legislation of advanced countries has tended to promote the substitution of machinery and unskilled adult labor for the work of young persons. In England, for example, the number of young persons between 13 and 18 years of age employed in the textile industries fell from 13 to 8 per cent between 1835 and 1890, while the percentage of male and female adults increased.¹ It is clear that in this instance the protection of young persons has stimulated the rise in improved methods of production, and has therefore contributed to the intensification of adult labor due to these improved methods.

Primarily, the object of this memorandum is to show that the prohibition of the night work of young persons up to the age of 18 will afford them more efficacious protection than is given them by the law as at present in force in many countries.

¹ G. H. Wood in "Die gewerbliche Nachtarbeit der Frauen." Herausgegeben von der Internationalen Vereinigung für gesetzlichen Arbeiterschutz. p. 246. Jena, 1903.

This will be done in the first chapter, in which a résumé of the evidence of these States which have prohibited the night work of young persons under 18 will be given.

In the second chapter the importance of this measure in the interests of the physical, moral, and mental education of the working classes will be demonstrated.

The third chapter will contain an account of the extent to which the night work of young persons is prohibited in different States under the existing law.

The fourth chapter deals with the exceptions which are considered to be necessary by the States which have introduced the principle of the prohibition of the night work of young persons. Some of these exceptions are the same as those which under the Berne Convention of 1906 are allowed in the case of the night work of women, i. e., cases of force majeure and to preserve from loss raw materials which are subject to rapid deterioration.

The question of the prohibition of the night work of young persons differs, however, fundamentally from the question with regard to women, because the employment of a considerable number of young persons in heavy industries, and especially in large-scale establishments of the iron and steel and glass industries, in which no women or very few women are employed in the actual manufacturing process, has led to exceptions being allowed for those industries. A thorough investigation of these exceptions will occupy the most important part of this memorandum. It will be necessary to distinguish between exceptions which are obsolete, in view of the technical development of the industry and which are therefore harmful even from the point of view of the industry, and those which, subject to certain conditions, are at present indispensable unless some alternative arrangement is found to be practicable.

We shall then proceed to inquire what period of transition is required for the abolition of the most important exceptions, and the last chapter will be devoted to explaining the advantages which may be expected to result from well considered international action.

CHAPTER I.

CRITICAL ACCOUNT OF THE LEGISLATION RESPECTING THE PROHIBITION OF THE NIGHT WORK OF YOUNG PERSONS IN FORCE IN VARIOUS COUNTRIES.

States may be divided into the following groups, according to their attitude on the question of the prohibition of the night work of young persons:

1. States which do not prohibit the night work of young persons at all;
2. States which prohibit the night work of young persons up to the age of 15 or 16 only;
3. States which have prohibited the night work of young persons in certain industries only;
4. States which apart from certain exceptions have on principle prohibited the night work of young persons under 18 in all establishments or at least in those where more than 10 persons are employed.

1.—STATES WHICH DO NOT PROHIBIT THE NIGHT WORK OF YOUNG PERSONS.

In this class belong in Europe:

(a) States which have no laws for the protection of workers—**Greece,¹ Monaco, Montenegro, and Turkey.**

(b) **Spain and Portugal** also belong to this group to a certain extent. In Spain article 4 of the act of March 13, 1900, prohibits only the night work of young persons under 14 years of age and limits the night shifts of persons under 16 years of age to 48 hours per week. Portugal only prohibits the night work of persons between the ages of 10 and 12.

The **non-European** States belonging to this group are: (a) Countries which have no laws for the protection of workers—**Asia**, with the exception of **Japan and India**, and the States of **South Africa, Central and South America**, excepting **Argentina**; (b) countries in which only one age of admission is established by law, but where night work is not regulated—**Tasmania, Western Australia, Manitoba, British Columbia, Quebec** (nontextile factories), **Nova Scotia, New Brunswick, South Dakota**; (c) States where the age of admission is less than 14 years. Thus the prohibition of night work does not apply to persons over 14 in **India**, nor to **Egypt** (ginning factories) after 13 years; in the United States

¹The act of Jan. 24–Feb. 6, 1912, concerning the employment of women and children takes Greece out of this class and puts it among those countries which prohibit employment of young persons at night up to age 18 and require an 11-hour night's rest.

in **Arkansas, Colorado, Georgia, North Carolina, and Virginia** over 14 years, and in **Florida** over 12 years.

Owing to the lack of statistics of industrial occupations in most of these States it is impossible to estimate the number of young persons affected. With the exception of Japan, Spain, and India, the States in this group are agrarian in character and their industrial development is in its infancy.

II.—STATES WHICH PROHIBIT THE NIGHT WORK OF YOUNG PERSONS ONLY UP TO THE AGE OF 15 OR 16.

In Europe.—In **Italy, Bulgaria, Roumania, and Russia** the night work of young persons is prohibited only between the ages of 12 and 15, and in **Russia** the prohibition applies only to textile factories.

The night work of young persons under 16 is prohibited—

In Europe.—In **Germany, Austria, Hungary, Bosnia, Belgium, Luxemburg, and the Netherlands.**

Outside Europe.—In **Africa, in Tunis; in Asia, Japan; in Australia, Victoria, New South Wales, Southern Australia, Queensland, and New Zealand; in America, Argentina (Buenos Aires); in Canada, Ontario and Saskatchewan; in the United States, Arizona, Alabama, Connecticut (after 10 p. m.), Wisconsin, Delaware, Indiana, Kansas, Oklahoma, Maryland, Missouri, Minnesota, Michigan, New Hampshire, New Jersey, Illinois, North Dakota, District of Columbia, Ohio, Oregon, Kentucky, Mississippi, Rhode Island, Nebraska, New York, Pennsylvania, South Carolina, Iowa, Vermont, and Idaho.**

III.—STATES WHICH PROHIBIT THE NIGHT WORK OF YOUNG PERSONS IN CERTAIN INDUSTRIES, OR IN ESTABLISHMENTS OF A CERTAIN SIZE ONLY.

In some of the above-mentioned States the prohibition of night work of young persons does not apply to small establishments. For the purpose of this memorandum, however, those States which signed the Berne Convention prohibiting the night work of women which applies to all establishments employing at least 10 persons, may be considered to protect all establishments.¹

¹ These States are Switzerland, Germany, Austria, Hungary, Belgium, Denmark, Spain, France, Great Britain, Italy, Luxemburg, the Netherlands, Portugal, Sweden; Algeria, Tunis; New Zealand, Ceylon, Fiji, Gibraltar, Gold Coast, Leeward Islands, Northern Nigeria, Trinidad, and Uganda; also Liechtenstein, Norway, Finland, Bulgaria, Roumania, and Servia in Europe; all the Australian Colonies; Ontario, Quebec, Manitoba, New Brunswick, British Columbia, Saskatchewan; in the United States, New York, Pennsylvania, Massachusetts, Illinois, Ohio, New Jersey, Michigan, Indiana, Wisconsin, California, Minnesota, Virginia, Kentucky, New Hampshire, Iowa, Arkansas, Colorado, Nebraska, Oregon, Oklahoma, North Dakota, Maryland, Delaware, District of Columbia, Kansas, Mississippi, South Carolina, Missouri, Connecticut, Georgia, North Carolina, Alabama, Idaho, Louisiana, Rhode Island, Arizona, Florida, Vermont, Washington; also Argentina.

The States which have not yet introduced this protection into workshops and factories with more than 10 employed persons are—

In Europe.—**Russia**, which prohibits night work of young persons only in textile factories;

Non-European States.—**India**, which protects only workers in factories employing more than 49 persons (a number which local governments may reduce to 20); **Japan**, where the law protects only workers in factories employing more than 15 persons or in dangerous or unhealthy industries; and **Egypt**, where the prohibition applies to cotton ginning factories only.

IV.—STATES WHERE THE PRINCIPLE OF THE PROHIBITION OF NIGHT WORK OF YOUNG PERSONS UP TO THE AGE OF 18 IS, WITH CERTAIN EXCEPTIONS, IN FORCE IN ALL INDUSTRIES.

In the following States the prohibition applies up to the age of 18:

In Europe.—**Denmark, Finland, France, Great Britain, Norway, Servia, Sweden, and Switzerland.**¹

In **Spain**, paragraph 2 of article 4, of the law of March 13, 1900, leaves to self-governing boards (*Juntas de Reformas sociales*) the power to subject particular industries to a prohibition of night work of young persons up to 18 years of age.

In America.—The Province of **Quebec** (cotton and woolen mills) and the States of **California** and **Massachusetts** (21 years).

The 17th year of age is the limit of this prohibition in the Principality of **Liechtenstein**, where the 15th year is the legal age of admission to work. Since January 1, 1912, the same limit, i. e., 17 years, has been fixed for the prohibition in the **Netherlands**.

In order to be able to estimate to some extent the importance of these differences, it is necessary to indicate the number of persons of all ages and both sexes in industrial employment in the different groups of States, because very few States give statistics of the percentage of young persons in industrial employment. The States are grouped according as they prohibit the night work of young persons (1) under 17 or 18 years of age, (2) under 16 years of age, (3) under 15, 14, 13, or 12 years of age.

The number of persons in industrial employment in States of the group prohibiting employment under 17 or 18 years of age is:

In Europe.....	18,703,183
In America.....	597,317
Total.....	19,300,500

¹ By the act of Jan. 24–Feb. 6, 1912, concerning the employment of women and children, Greece is added to this list.

The number of persons in industrial employment in the States of the group prohibiting employment under 16 years of age is:

In Europe.....	18,000,639
In Australia.....	438,774
In America.....	4,531,645
Total.....	22,971,058

The number of persons in industrial employment in the States of the group prohibiting employment under 15, 14, 13, or 12 years of age is:

In Europe.....	9,508,168
In Asia.....	649,676
In America.....	536,944
Total (without India).....	10,694,788

For the majority of European countries the number of persons in industrial employment is approximately 50 per cent of persons in all employments. The number of young persons in industrial employment is 7 per cent of all persons in industrial employment in Germany and the Netherlands, 6 per cent in Austria, and 5 per cent in Belgium. The percentage is higher in countries where young persons are protected up to the age of 18, and is 7 per cent in Switzerland, and 9 per cent in Denmark, France, and in Great Britain. It will not then be very wide of the mark if we estimate the number of persons between 16 and 18 years of age in industrial employment at 2 to 3 per cent of the total number of persons in industrial employment.

It is at any rate certain that the raising of the age limit of persons protected against night work from 16 to 18 years would cause a far smaller disorganization of industrial life than was caused by the abolition of the night work of women in countries where women had not hitherto been protected.

CHAPTER II.

JUSTIFICATION OF THE PRINCIPLE OF THE PROHIBITION OF NIGHT WORK AND THE REDUCTION OF THE DAILY HOURS OF LABOR OF YOUNG PERSONS UNDER 18.

The consequences of the most extensive limitation of the work of young persons may be described as follows:

1. The number of male young persons employed has diminished in consequence of the labor laws and of compulsory education in these countries, which were the first to enact such legislation. In England, for example, between 1851 and 1901 the proportion of all male juvenile workers from 10 to 15 years of age fell from 37 per cent to 22 per cent. The proportion of male juvenile workers between 13 and 18 years employed in the English textile industry fell from 16 per cent to 11 per cent between 1839 and 1850, and from 11 per cent to 7.5 per cent between 1851 and 1907. The number of young persons employed in the textile industry of Saxony fell from 3.3 per cent to 3 per cent between 1891 and 1905.

2. As we have already shown in the memorandum on the prohibition of the night work of women, the diminution in the proportion of young persons employed has been accompanied by an increase in the employment of women and men. In the industries in which considerable technical progress has been made, a number of monotonous operations which were formerly performed by children and young persons are now done by machinery.

3. The increased introduction of mechanical processes was bound to lead to the exclusion of young persons from dangerous work. This exclusion was all the more necessary in view of the fact that the number of industrial accidents is proportionately greater in the case of young persons employed in factories than of any other age class of male workers. (In England, for example, according to the report of the factory inspectors of 1908, the number of accidents which occurred to young persons was 19.1 per cent of the accidents affecting male workers of all ages coming under the factory acts, while the number of young persons was only 14.1 per cent of the total number of male workers.)¹ Similarly the German workingmen's insurance statistics show that the great local sick funds (e. g., that of Leipzig) pay benefits in cases of sickness due to accident to 14.3 per cent of the workers under 15, 11.5 per cent of the workers between 16 and 19, and 8.7 per cent of the workers between 20 and 24 years of age.² Young

¹ Thirteenth Abstract of Labour Statistics of the United Kingdom, 1910, pp. 142, 246.

² Krankheits- und Sterblichkeitsstatistik der Ortskrankenkasse für Leipzig und Umgegend. Berlin, 1910.

persons are exposed to danger to an alarming extent in certain branches of the iron and steel and glass industries, and in many cases these are precisely the industries in which the first consideration is given to the interests of the work, and hygienic requirements go to the wall. We will return to this point in Chapter IV.

4. It can be shown that the protection of young persons up to the age of 18 years has caused an improvement in the physical and intellectual efficiency of adult workers. This statement is primarily based on anthropometric measurements which show that physical growth continues unretarded until the 19th year. Between the ages of 16 and 18 weight and lung capacity increase with the greatest rapidity and puberty occurs. This development is checked if young persons are allowed to perform industrial work at too early an age and if they are employed for the full working-day.

5. The inclination to work and the mental and moral development of the young worker are more seriously affected, however, by an 11-hour workday, and even more by night work for a period of 12 hours. The earlier a young person starts performing the full work of a man the more the susceptibility of his mind suffers and the more strongly do his sensual and material appetites develop. A physician (Prof. Loriga), dealing in an official publication with a country where children of 15 are allowed to perform night work and whose hours of daywork are subject to no restriction, says:

In Italy thousands of boys between the ages of 12 and 15 are employed in factories according to the seasons, from 6 or 7 a. m. to 7 or 8 p. m., including rest periods. If we add the time required to go to and from work, for meals and for washing, how is it possible for these children to find time to improve their minds, to refresh themselves by playing with their friends and to have the 10 hours' sleep which is necessary at that age? Is it to be wondered that they develop into prematurely aged and ignorant men?¹

Although the object of this memorandum is to show the necessity for the prohibition of the night work of young persons, it will not be out of place here to make a few observations on the hygienic consequences of night work in general.

Whether night work is quantitatively and qualitatively superior or inferior to daywork is a very controversial question, the answer to which varies from industry to industry and from establishment to establishment.

The opinion of an author favorable to employers and who believes that he has ascertained by measurements that night work is quanti-

¹ Prof. Giovanni Loriga, *Lavoro dei Fanciulli e Crescenza del Corpo*. Ufficio del Lavoro, Serie B. N. 26, Roma, p. 69, 1910; Kaup, *Die jugendlichen Arbeiter in Deutschland III* (Schriften der Gesellschaft für soziale Reform, Heft 36), p. 6. Jena, 1911.

tatively superior and qualitatively equal to daywork will therefore be of value. He says:

In spite of this opinion, the glass workers whom I have interrogated on this subject are unanimous and decided in their opposition to night work, and give the following reasons for their point of view:

Sleep during the day is not as recuperative as sleep during the night, especially in summer on account of the heat. We are consequently less fresh and less ready for work when we begin work and we are more tired and exhausted in the morning than after daywork.

The evils are very seriously felt. One man even said, "The night shift will shorten my life 10 years."

To my question as to whether the extra work performed at night did not mean a welcome increase of wages, they replied that that increase was absorbed in paying for the extra meal which is required during the night.

They also maintain that it can not be said in favor of night work that in the summer it is more agreeable than daywork on account of the heat, because on the one hand the fall in temperature is not felt till dawn when the workmen are already tired, while on the other hand the temperature during the first and longest part of the night shift is not appreciably lower than the temperature during the day. This is also proved by the temperature charts.¹

What has been said here with regard to adults applies with still greater force to young persons. Thus in Sweden 51 physicians, intrusted by law with the supervision of young persons, declared in a royal commission established to revise the existing labor legislation as follows:²

Night work, which is fatiguing even to adult workers, must be pernicious for health and physical development of young persons; it is a crime against hygiene and a dissipation of social capital to allow night work. The actual law is too generous in granting night work of young persons as compared with its other prescriptions; sleep and rest are too irregular and insufficient after night work; the result of the conditions of life of young persons employed during the night is the impossibility of sleep during the day; health and appetite are thus injured and in a great measure the amount of the blood corpuscles is impaired.

The effects of allowing children to perform a full day's work at an unduly early age will be discussed more in detail in the chapter dealing with exceptions. It may, however, be observed here that quite apart from the opposition of the employers the efforts which have been made especially in Germany, Austria, Denmark, Norway, and the majority of Swiss Cantons, to establish compulsory continuation school instruction will, owing to the excessive strain imposed on the pupils, be abortive unless time for technical training is taken during work hours.

6. The lack of opportunity for instruction in the case of young persons working long hours, and still more the exhaustion of body and mind after night work and the excesses of all kinds committed by

¹ W. Schmitz, *Regelung der Arbeitszeit und Intensität der Arbeit*. Jena, 1910.

² Yrkesfarekommittin, 1909. *Betänkande*, II, p. 199.

youths under the influence of older fellow workers has the most injurious effects both on them and on society.

If a young person is employed at this night work only as a helper, he is liable to be dismissed whenever work is slack in the factory, and goes to swell the ranks of the unemployed and often of the unemployable. The Minority Report of the British Royal Commission on the Poor Laws says:

We regard this perpetual recruitment of the unemployable by tens of thousands of boys who, through neglect to provide them with suitable industrial training, may almost be said to graduate into unemployment as a matter of course, as perhaps the gravest of all the grave facts which this commission has laid bare.¹

It is from among this cheap labor, these unskilled youths, that the youthful offenders who are increasing in numbers in every country are drawn. The fact that the largest proportion of these youthful offenders are orphans and illegitimate children, leads us to the conclusion that the absence of maternal influence and of domestic discipline are the principal causes of this phenomenon. But the young persons who work at night with strange workmen, and who use their parents' dwellings only for the purpose of obtaining a troubled sleep, and who as soon as possible devote the greater part of their earnings to their own pleasures, are exposed to the influence of the same conditions. These serious consequences would be avoided if the regulation of the work of women and young persons proposed by the International Association were to be uniformly adopted.

¹ Report of the Royal Commission on the Poor Laws and Relief of Distress (Cd., 4499), p. 1167. 1909.

CHAPTER III.

CRITICAL ACCOUNT OF THE LAW IN FORCE IN DIFFERENT COUNTRIES WITH RESPECT TO THE UNINTERRUPTED NIGHT'S REST.

It was shown in the memorandum on the prohibition of the night work of women that the uninterrupted night's rest is too short, even in those countries which have adopted by law the principle of the prohibition of the night work of women. Stress was in particular laid upon the fact that a legal minimum night's rest of 8, 9, or even 10 hours is not sufficient to make it possible for working women to fulfill their domestic duties.

The States which signed the Berne Convention of September 26, 1906, agreed to a minimum rest of 11 hours, and the International Association passed resolutions in favor of a similar minimum for young persons. The association was not actuated solely by technical considerations, but adopted this attitude for the following reasons: In order to produce the largest possible supply of skilled workmen, the greatest importance must be attached to continuation schools; since industrial life is liable to great vicissitudes, everything should be done not only to give practical teaching (drawing, etc.), but still more to promote theoretical industrial training. Is it possible for young persons to profit by such instruction while the present law as to their hours of work remains in force?

Young persons living a quarter of an hour or half an hour from the factory must get up at 6 a. m. in order to dress and to arrive at the factory at 7 o'clock. As a rule they are allowed a rest period of a quarter of an hour round about 9 o'clock, which just gives them time to have some food. The noon rest commences at noon and terminates in most countries at 1 or 1.30 o'clock. In the case of young persons living at some distance from the factory, their dinner has to be brought in by women or children. Work recommences at 1 or 1.30 o'clock and continues with a rest period of a quarter of an hour to half an hour until supper time at 6 p. m., or even till 7 p. m. in countries where an 11-hour day is the rule. The young persons have to hurry to get to the school where the courses begin at 8 or 8.30 o'clock and last for from 1 to 2 hours. Under the most favorable circumstances a young worker returns home at about 9.30, has a quick supper, and gets to bed at 10 o'clock at the earliest. His

night's rest can not then be more than 7 to 8 hours, although expert physiologists agree that during adolescence at least 9 hours' sleep is necessary.

Thus Prof. Dr. E. Claparède, author of the "Psychologie de l'enfant" (second edition, Geneva, 1911) declares:

The length of sleep should be 11 to 12 hours for children of 5 to 8 years of age; 9 to 10 hours for children of 11 to 13 years, and 9 hours for children of 14 to 15 years; after this age the normal length of sleep should be adapted to the intensity of the phenomena of puberty. In my opinion, at least 9 hours of sleep should be at the disposition of young persons up to 18 years of age. There are very great individual differences concerning the need of sleep which have not yet been sufficiently investigated, but their existence is perfectly confirmed by experience. Thus the need of sleep is greater in the winter than in summer.

A young worker is then employed for 16 or 17 hours, of which 10 to 11 hours are at the workshop in work which is often monotonous, amid the noise of machinery, and is often exposed to dust and dangerous vapors. If he is intelligent, he endeavors to continue his training even late at night in spite of physical and mental exhaustion. Far-sighted employers allow their young workmen to leave the factory after 8 hours' work on condition that they attend continuation schools. Modern apprenticeship laws provide, for very good reasons, that the compulsory instruction shall be given during the daytime, but they touch only a very small proportion of the young persons employed in factories. The result of the lack of open-air recreation, and of any education of other than an industrial character, and the strain caused by the intensity of the work, are great fatigue and an absence of all joy of life, which are entirely unnatural conditions for young persons.

This state of affairs was appreciated in **Germany**, and accordingly an act was passed prescribing an 11-hour night's rest for young persons under 16 as well as for women (art. 136 of the act of December 28, 1908). The same condition was introduced for both categories (for young persons up to 17 years of age) in the **Netherlands** January 1, 1912.

It will be seen from the above account that the fundamental conditions for continuation education and the care of young persons can be secured if the age limit of protected persons is raised to 18. The table showing the age below which night work is prohibited and the night's rest of young persons, given below, proves that our wishes are not Utopian:

(a) Let us first consider the States which have already prohibited the night work of young persons under 18.

EUROPEAN STATES.

States.	Legal minimum night's rest.	Maximum working day.
	Hours.	Hours.
Denmark.....	10	10
Norway.....	10	10
Sweden.....	11	10
Greece ²	11	10
Servia.....	10	10
Switzerland.....	10	11
Great Britain.....	12	10½
France.....	8	10
Finland.....	8	12

NONEUROPEAN STATES.

Massachusetts (textile factories) ⁴	12	10
Quebec (cotton and woolen factories).....	12	10
Massachusetts (nontextile industries) ⁴	8	10
California.....	7	9

¹ Until 13 years, 6 hours.² By act of Jan. 24-Feb. 6, 1912; see p. 10.³ Textile factories, 10 hours.⁴ Age limit in Massachusetts is 21 years.⁵ 54 hours per week.

(b) States which have prohibited the night work of young persons under 16 (the Netherlands and Liechtenstein under 17):

EUROPEAN STATES.

States.	Legal minimum night's rest.	Maximum working day.
	Hours.	Hours.
Germany.....	11	10
Netherlands.....	11	10
Austria (factory trades).....	9	11
Bosnia and Herzegovina (factory trades).....	9	11
Liechtenstein.....	9	11
Luxemburg.....	8	10
Belgium.....	8	12
Hungary.....	7	10

NONEUROPEAN STATES.

New York.....	15	8
New Zealand.....	13½	8½
Indiana, Kansas, Ohio, Oklahoma, Wisconsin.....	13	8
Delaware.....	13	9
Oregon.....	13	10
Illinois, Minnesota, Missouri, North Dakota.....	12	8

NONEUROPEAN STATES—Concluded.

States.	Legal minimum night's rest.	Maximum working day.
	<i>Hours.</i>	<i>Hours.</i>
New South Wales.....	12	(¹)
Queensland, Victoria.....	12	¹ 10
Michigan.....	12	² 10
Kentucky, Maryland.....	12	10
New Jersey.....	12	³ 10
New Hampshire.....	11½	⁴ 11
Saskatchewan.....	11½	8
Colorado, Mississippi, District of Columbia.....	11	8
Alabama.....	11	(⁵)
Nebraska.....	10	8
Rhode Island.....	10	10
South Carolina.....	10	10
Argentina.....	9	8
Idaho.....	9	9
Iowa, Pennsylvania.....	9	10
Ontario.....	9	10
Tunis.....	8	10

¹ 48 hours per week.

² 55 hours per week.

³ 60 hours per week.

⁴ 54 hours per week.

⁵ 58 hours per week.

(c) The prohibition of the night work of young persons under 15 only survives in a few European States, where the night's rest and hours of work are also variously regulated.

States.	Legal minimum night's rest.	Maximum working day.
	<i>Hours.</i>	<i>Hours.</i>
Bulgaria.....	12	8
Roumania.....	10	8
Italy.....	¹ 10	11
Russia.....	8	9

¹ 8 in summer.

(d) The prohibition of night work applies only up to the age of 14 in **Spain** (without the industries being determined by the juntas) and

(e) 12 in **Portugal**; the minimum night's rest in both countries is 10 hours. Young persons of this class must not be employed for more than 6 hours in Spain nor for more than 10 hours in Portugal.

Finally, 5 non-European States where the protection ceases at 14, 1 State where it ceases at 13, 1 State where it ceases at 12, and 1 State where it ceases at 15 years of age must be mentioned. These are—

States.	Legal minimum night's rest.	Maximum working day.
(f) UP TO 15 YEARS OF AGE.	Hours.	Hours.
Japan.....	6	12
(g) UP TO 14 YEARS OF AGE.		
Virginia.....	13	10
Arkansas, Georgia (textile factories).....	11	10
India.....	10½	7
North Carolina.....	9	(1)
(h) UP TO 13 YEARS.		
Egypt (cotton ginning mills).....	10	8
(i) UP TO 12 YEARS.		
Florida.....	9	9

¹ 60 hours per week.

When we compare the legislation at present in force with the demands made by the International Association, we find that in order to satisfy the modest demands of health and education it will be necessary in Europe to lengthen the night's rest by 1 hour in eight countries, by 2 hours in three countries, by 3 hours in five countries, and by 4 hours in one country. In eight countries, of which two (Germany and the Netherlands) have already adopted the 11-hour night's rest, what is required is that the protected age shall be raised about two years. Belgium, Italy, Spain, and Portugal would have to make the greatest change. Young persons employed in factories for 14 hours (including rest periods) and for 15 hours if they work overtime, have only 1 hour for meals and for coming to and from work, but have not left a minute for their education. This is the position of young persons of 17 years of age in Belgium, and of 16 years of age in Italy. Laws passed to satisfy the momentary requirements of industry and the material interests of poor parents threaten to destroy the productivity and civilization of these countries, unless a night's rest of 11 hours for persons under 18 is established at once or in stages.

CHAPTER IV.

CRITICAL ACCOUNT OF THE EXCEPTIONS TO THE PROHIBITION OF THE NIGHT WORK OF YOUNG PERSONS.

In most European countries the majority of juvenile workers are employed in the metal industries and in stone and earth industries, not including the building trades. It is therefore obvious that exceptions allowed for the industries employing the largest number of young persons would greatly diminish the value of the protection afforded by the prohibition of the night work of young persons.

It is, however, precisely these industries which have been able to obtain a privileged position, and this not invariably for technical reasons. It is, therefore, necessary to consider in what manner it may be possible to abolish these exceptions which are characteristic for the working conditions of young persons. In addition to these exceptions, applying to special industries, there are certain general exceptions which are unavoidable. These were specified in the Berne Convention of September 26, 1906, prohibiting the night work of women in industrial employment:

1. In cases of "force majeure" when in any undertaking there occurs an interruption of work which it was impossible to foresee and which is not of a periodic character, or

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

The night's rest may be reduced from 11 to 10 hours—

1. In seasonal industries;

2. In the case of unexpected temporary and pressing demands of production;

3. In non-European States when the climate or the conditions of the native population require it, provided that compensatory rests are accorded during the day for the shortened night rests.

Since the necessity for exceptions, both for women and young persons, even after the coming into operation of the Berne Convention is recognized, it is necessary from a legal point of view to distinguish between—

- (a) Exceptions allowed for both sexes in order to insure the continuity of the operations, and

- (b) Special exceptions for young persons.

The exceptions contemplated in 1 and 2 fall under the first head, while the others fall under the second head.

I.—EXCEPTIONS ON ACCOUNT OF FORCE MAJEURE.

In the case of fire or unforeseen lack of water, of epidemics which for a time wholly or partially paralyze the work of the establishment, and of other occurrences which must be considered to be cases of force majeure and which give rise to unemployment and loss of earnings, it may be desirable that night work or at least overtime work be performed for one or more weeks in order to repair the damage and make up for the loss of wages as quickly as possible.

We have already had occasion in the memorandum on the prohibition of the night work of women to discuss the nature of these exceptions. These cases, from their very nature, are bound to be of rare occurrence. In order that abuses may be prevented by national legislation, it is sufficient if the law provides that sanction for night or overtime work for more than one week may be granted only by the higher administrative authority on the advice of the industrial inspectors. The law in force in this regard in the different States is as follows:

In **Germany** (art. 139 of the Industrial Code) exceptions to the prohibition of night work and to the regulation of day work (art. 135, pars. 2 and 3, art. 136) may be allowed for a period of four weeks by the higher administrative authorities (*Regierungspräsident*), or by the Imperial Chancellor for a longer period "if the regular work of the establishment has been interrupted by natural occurrences or accidents." The lower administrative authority may allow exceptions for not more than 14 days in urgent cases of this kind and in order to prevent accidents.

In **Austria** (art. 96a of the Industrial Code) the industrial authority of first instance may sanction overtime work for a period of three weeks in these cases, and sanction for any longer period (not more than 12 weeks in the year) must be given by the provincial authorities. In such cases the 11-hour working-day is replaced by a maximum working-day of 13 hours. Overtime may also be worked after mere notification of the industrial authorities. In such cases 14 hours may be worked on three days in one month (decree of the minister of commerce of 27th May, 1885). Austria, then, allows overtime but not night work in these cases.

Belgium (act of Dec. 13, 1889, art. 6) allows "complete night work in case of cessation of work due to force majeure or in exceptional circumstances" and—

France (act of Nov. 2, 1892, art. 4) "in case of cessation of work due to an accidental interruption or to force majeure."

Great Britain (Factory and Workshop Act, 1901, sec. 52, and order of Dec. 22, 1882).—The secretary of state has by order under this section allowed an extended period of employment from 6 a. m. to 7 p. m. on the first five full working-days of the week, in factories

driven by water power alone which are liable to be stopped by drought or flood, on not more than 96 days in a year in the case of stoppage by drought, or 48 days in a year in the case of stoppage by floods. The extension is granted subject to certain conditions. According to section 53, where there is danger of damage from spontaneous combustion in Turkey-red dyeing or from any extraordinary atmospheric influence in open-air bleaching, overtime may be worked on any day other than the weekly short day, so far as is necessary for the purpose only of preventing such damage.

In the **Netherlands** (according to Royal Decree of July 12, 1909) work could be continued until 10 p. m. (instead of 7 p. m.) in factories worked by wind or water, if, owing to a lack of power, it has been impossible to work for 11 hours during the 24 hours preceding 7 p. m. The number of hours worked must not, however, exceed 11. This exception is repealed since January 1, 1912, the labor law of 1911, article 6, sub. 14, prescribing a minimum night rest of 11 hours, which can not be reduced in any case.

In **Russia** (act of Feb. 24, 1890, art. 5) no limitation is placed on night work in such cases. The shift following the night shift must, however, not commence before noon.

In the case of accidental interruptions, therefore, the law contains provisions establishing limitations which vary from State to State.

II.—EXCEPTIONS JUSTIFIED BY THE NATURE OF THE MATERIALS TO BE TREATED.

The industries which in most countries require the night work of young persons, in view of the nature of the processes, are, above all, the fish, fruit, and vegetable preserving industries. Permanent exceptions are not, however, considered necessary. Since some branches of these industries are obliged to work at night more frequently than others, it would be fairer to prohibit the night work of young persons altogether or at least to reduce it to a minimum.

The law in the most advanced countries allows overtime and prohibits night work only in these cases.

In **Germany** article 139a, No. 5, of the Industrial Code, provides that the night's rest of adult women (art. 137, pars. 1 to 4) and not that of young persons, may be reduced to 8½ hours on not more than 60 days in the year in industries in which night work appears to be necessary, in order to prevent damage to raw materials or to materials in course of treatment.

Switzerland also allows no exception for young persons.

In the **Netherlands**, since January 1, 1912, only adult women, but not young persons under 17 years of age, are allowed to perform work at the spitting of herrings, from October 1 to March 15, up to midnight; from March 15 until June 1, up to 2 o'clock in the morning.

In this case, however, the number of hours during which a woman is daily employed shall not exceed 8 hours; the hours of work between midnight and 2 o'clock in the morning shall be reckoned as having been performed on the preceding day. The exception applies only to some communes which are indicated by royal decree and other conditions have also to be fulfilled.

Night rest could formerly be reduced in several manufactures in such a manner that by way of a change in the beginning and the end of the daily hours of work it was also allowed to work until 10 o'clock in the evening. Although such a substitution is still allowed to different enterprises after January 1, 1912, a night rest of 11 hours (in which the period from 10 p. m. to 5 a. m. is included) is without exception granted to women and young persons. The only exception for women is that of herring spitting.

In **Great Britain** article 41 of the Factory Act provides that the provisions of the act as to hours of labor, rest periods for meals, and holidays shall not apply to young persons and women engaged in processes in the preserving and curing of fish, which must be carried out immediately on the arrival of the fishing boats in order to prevent the fish from being destroyed or spoiled. There is no limitation to the hours of work—

where an employer avails himself of this exception; the notice required to be served and posted in such instance need not specify the hours for the beginning and termination of the hours of labor or the rest periods to be allowed for meals.

A similar exception is allowed in the cases of young persons and women engaged in the process of cleaning and preserving fruit, so far as is necessary to prevent the spoiling of the fruit immediately on its arrival at a factory or workshop during the months of June, July, August, and September, subject to such conditions as the secretary of state may by special order prescribe (art. 41 of the Factory Act, 1901).

Under the order of September 11, 1907 (Fruit Preserving Order), which is similar to that in force in the Netherlands, the period of employment must fall between 6 a. m. and 10 p. m. In the case of young persons, a period of not less than 10 hours must elapse between the termination of work on one day and the commencement of work on the following day. The employer has to keep and produce to the inspector on demand a register showing the hour at which the fruit arrived at the factory or workshop, the processes in which women or young persons were employed, the period of employment of such women and young persons, and the intervals allowed them for meals. Other conditions are also imposed. The two foregoing exceptions are, however, used only to a very limited extent, so far as male young persons are concerned.

Belgium and France are the only States which allow real night work in these industries. The degree, however, differs. In **Belgium** (Decree of Dec. 13, 1889, art. 6, and Royal decree of Nov. 3, 1898, art. 5) work may be performed in fish-preserving factories by male young persons between 14 and 16 years of age and by female young persons between 16 and 21 years of age between 9 and 12 p. m. on 30 days in the year. The total period of employment must not, however, exceed 12 hours and must be interrupted by three rest periods of altogether $1\frac{1}{2}$ hours.

In **France** (Decree of July 15, 1893) young persons from 13 years of age upward, employed in fish, fruit, and vegetable preserving factories, may work at night for not more than 10 hours in the 24 on not more than 90 days in the year. Night work may be authorized temporarily in the case of factories where fish barrels are made (90 days), butter factories, cheese factories, glue and gelatin factories (60 days), and pastry factories where fresh butter is used (30 days).

III.—EXCEPTIONS SANCTIONED FOR MALE YOUNG PERSONS IN CERTAIN INDUSTRIES.

A factory may work continuously, for technical reasons on account of the nature of the smelting or extractive processes, or in order to satisfy the demand (either permanent or temporary) more promptly, or in order that profits on the capital may be obtained as quickly as possible.

In the first case day and night work is general in the principal departments of the factories. In the second and third cases only a small number of workers or those employed in a single department may be required to work at night. We will call the first class of establishment where for technical reasons the work must be uninterrupted "establishments with continuous fire" and the other classes "establishments with (wholly or partially) continuous operation."

In the latter, human labor may be suspended at any moment, i. e., for the weekly rest, which is not the case or only to a limited extent the case in "establishments with continuous fire." In the latter case it becomes easier for the smelting process to be left to its own devices for some time in proportion as the technical appliances have been perfected. The larger the establishment the smaller is the relative number of persons working day and night. It is, however, not possible to draw in any other respect a strict distinction between establishments with continuous fire and establishments with wholly or partly continuous operation.

In his report on establishments with continuous operations the Dutch director general of labor shows the following variations in the method of operation of glass works:

In three factories glass blowing was carried on entirely by day and not at all by night. This was the case not only in a small factory in Amsterdam, but also in the

two large factories in Maastricht, where night work is prohibited. This total abolition of night work is due to the energy and initiative of Dr. (of Law) L. H. W. Regout, formerly chemical factory director and now minister of public works. This shows conclusively that continuous work is not technically necessary in glass-blowing work as it is for stoking furnaces, but that it is carried on for motives of economy. Our chief competitors are Germany and France.¹

At present these conditions are found in only a small number of factories, and we therefore find that the law sanctions the night work of young persons without discriminating between establishments with continuous fire and establishments with continuous operation. In this connection the argument is always brought forward that the adult workman employed at night requires young apprentices to assist him.

We give below the exceptions in force with regard to these establishments.

1. NIGHT WORK OF YOUNG PERSONS IN THE GLASS INDUSTRY.

The branches of the glass industry are the manufacture of hollow (bottle) glass, window (sheet) glass, crystal glass, and plate glass. The glass industry has for 10 years been undergoing a technical revolution, which is differently developed in the different branches. The principal motives for the introduction of machinery were, in the United States, the high wages of skilled workmen; in Europe, the difficulties of recruiting young workers. The complete automatization of the manufacture of hollow and sheet glass is only a question of time. Plate glass for mirrors is produced in a perfectly automatic way (e. g., at Jeumont). In a great part of the manufacture of bottle glass the work of young persons is beginning to be abolished by the introduction of mechanical appliances, as well in the process of blowing as in that of placing the bottles in the cooling furnaces. The skilled blower and gatherer have been replaced on the latest type of machine by a machine boy. On account of the necessity of concentrated attention on the part of this machine boy, a higher age is required than was necessary on the earlier types of machines. In the United States the investigation of the Commissioner of Labor showed that 30.6 per cent of the machine boys on the earlier types of machines were less than 16 years of age, while on the most recent machines only 18.4 per cent are under that age.² The most recent automatic machine of this kind, which has been used only for fruit jars, has entirely eliminated child labor under 16 years. The

¹ Die kontinuierliche Arbeit in der niederländischen Industrie. Jahresbericht des Generaldirektor H. A. van Ysselsteyn, 1909, S. 16.

² Report on Condition of Woman and Child Wage-Earners in the United States, Vol. III, Glass Industry, pp. 190-198. (Sen. Doc. No. 645, 61st Cong., 2d Sess.) Washington, 1911.

same observation applies to cases in which the removal of the blown bottles to the cooling furnace has been replaced by peanut roasters or mechanical conveyors, which by an overhead track eliminate about three-fourths of the carrying boys. Hitherto only certain homogeneous staple articles (like beer bottles, mineral water bottles, and milk bottles and fruit jars) have been produced by the new machines. In window-glass manufacture the technical revolution is only in view. In the crystal-glass industry so few children are employed that the prohibition of night work would offer no difficulty.

At the present time the law of most States allows exceptions which correspond to the requirements of a far less advanced stage of the glass industry than we have described.

The law of the various States is as follows:

In **Germany** the work of young persons in the glass industry is regulated by the provisions of the decree of the Federal Council of March 5, 1902, and by those of the decree of May 23, 1906, which deals with Sunday rest. The following are the provisions applying to the night work of young persons employed at melting furnaces, cooling furnaces, annealing ovens, and at flattening ovens.

I. Glass works (sheet and hollow glass) where smelting and transforming processes are carried on during the same shifts (plate-glass factories where rolled plate glass is manufactured are not included).

A. DAY WORK.—Young persons must not be employed for more than 12 hours, or 10 hours not including rest periods, nor for more than 60 hours per week. They must be allowed one rest period of at least one hour and short rest periods are not counted excepting (subject to the special sanction of the authorities) in the case of 8-hour shifts and of an uninterrupted rest between shifts of 24 hours in the sheet-glass industry and of 16 hours in the hollow-glass industry.

B. DAY AND NIGHT WORK.—Night shifts must not exceed 12 hours (or 10 hours exclusive of rest periods). An uninterrupted rest of 12 hours must be allowed between two shifts, and the shifts must be alternated every week unless a rest of 24 hours is allowed between two shifts.

C. SUNDAY REST.—A weekly rest must be granted every Sunday from 6 a. m. until 6 p. m.

II. Glass works with alternating shifts for melting and transforming.

A. DAY WORK.—Young persons must not be employed for more than 60 hours per week; rest periods of one hour or of 1½ hours in the case of 10 hour shifts must be allowed. If a shift is longer than 10 hours one rest period of at least one-half hour must be allowed. Rest periods of less than one-fourth hour are not to be included.

B. DAY AND NIGHT WORK.—Night shifts must not exceed 12 hours (or 10 exclusive of rest periods); the period of rest between two shifts must be at least as long as the shift immediately preceding the rest. The performance of auxiliary labor during rest periods is permissible, such work, however, must be reckoned in computing the total hours of labor. Not more than half the number of hours worked during a fortnight may be worked in night shifts.

C. SUNDAY REST.—Sunday rest must be granted on alternate Sundays from 6 a. m. until 6 p. m.

Austria.—Under the Industrial Code (art. 96b, as also the order of May 27, 1885, and the ministerial decree of Apr. 24, 1895, art. 2, p. 9) the following exceptions are allowed in the glass industry "for the purpose of opening and closing the molds in which the glass is blown, of transporting the blown articles to the annealing furnaces, and of similar light manual operations":

1. Unlimited night work for persons between 14 and 16 years of age.

2. **SUNDAY REST.**—Twenty-four hours on alternate Sundays, or a substitute rest by interruptions in the work.

In **Belgium** the exceptions are regulated in detail by the royal decrees of December 26, 1892, and of July 28, 1906.

I. THE MANUFACTURE OF CRYSTAL GLASS.

1. The daily period of employment of young persons under 16 years of age is 10 hours and 20 minutes instead of the ordinary legal maximum of 12 hours. Two rest periods, each of 20 minutes, and a midday rest of 30 minutes must be allowed (i. e., 1 hour and 10 minutes instead of the ordinary legal maximum of 1½ hours).

2. Night shifts are authorized for persons of all ages. The daily hours of labor, for day shifts and night shifts taken together, may not exceed 10 hours and 20 minutes.

3. A full day of rest must be allowed on alternate weeks. In every subsequent week the maximum hours of labor on Sunday in the manufacture of glass tubes and other similar articles for which cooled glass is used may not exceed 6 hours (including a rest period of 30 minutes).

II. THE MANUFACTURE OF WINDOW GLASS (ALL KINDS OF FURNACES).

1. The daily period of employment of young persons under 16 must not exceed 10½ hours. Rest periods of a total duration of 1½ hours must be allowed, and may be reduced proportionately to any reduction in the hours of labor.

2. Night shifts not exceeding 10½ hours are authorized for workers of all ages, and the rest periods altogether amount to 1½ hours.

3. A weekly rest is to be allowed after 13 of 14 shifts, or after 6½ of 7 days. The period of employment on rest days must not exceed 5 hours (including a rest period of 15 minutes) and must terminate before 1 o'clock.

III. THE MANUFACTURE OF PLATE GLASS.

1. The daily period of employment of young persons under 16 must not exceed 10 hours. Rest periods of a total duration of $1\frac{1}{2}$ hours, including a midday rest of 1 hour, must be allowed.

2. Night work is not allowed except in the smelting processes.

3. No person may be employed for more than 10 hours in 24 (rest periods of $1\frac{1}{2}$ hours).

4. A full day of rest must be allowed on alternate weeks; every subsequent week work may be performed on Sunday for 6 hours (30 minutes rest period). The worker has the option of renouncing the full day's rest and of working for four hours before or after 1 p. m. instead on one day every week.

In **France** the exceptions applying to the glass industry are regulated by articles 6, 12, and 13 of the act of November 2, 1892, and by the decrees of May 13, 1893, June 21, 1897, April 20, 1899, May 3, 1900, November 22, 1905, March 7, September 10, December 15, 1908, and March 7, 1910. A decree of October 8, 1911, modifies entirely these provisions.

1. The gathering of glass is prohibited to young persons of less than 15 years of age in bottle and window glass factories, and to those under 14 years of age in all other branches of the glass industry; to blow the glass in bottle-glass factories and window-glass factories is prohibited before the age of 16, and before the age of 14 in all other glass factories. The weight of glass which has to be handled by workmen between 14 to 16 years of age is not allowed to exceed 1,000 grams (2.2 pounds). In bottle-glass factories with automatic machinery the operation of gathering required for the service of machines can be performed only by persons over 16 years of age. The drawing of glass into tubes or strips is allowed only to persons over 15 years of age. Still, with the exception of venetian pearl factories, children may be employed after the 14th year of age if the weight which has to be carried by the child does not exceed 5 kilograms (11 pounds) including the pipe.

2. Young persons between 12 and 18 years of age may be employed at night in handling tools, in the preliminary gathering, in assisting in the blowing and casting operations, in transporting the articles to and in removing them from the annealing furnaces.

3. Night shifts must not exceed 10 hours.

4. Rest periods of a total duration of 2 hours must be allowed.

5. A full day's rest must be allowed every Sunday.

In **Great Britain** the Factory and Workshop Act of 1901 (sec. 55) prescribes as follows:

1. Male young persons between 14 and 18 years of age may be employed in night work.

2. Their total hours of labor in a week must not exceed 60 hours. The periods of employment during a week may be—

- 4 shifts of 14 hours each, or
- 5 shifts of 12 hours each, or
- 6 shifts of 10 hours each, or
- 9 shifts of shorter duration.

3. After each shift a period of rest of the same length as the preceding shift must be allowed.

4. A rest period of one-half hour must be allowed after every 5 hours' work.

5. A full day of rest must be allowed on Sunday.

Most advanced are the prescriptions in Norway and in the Netherlands.

Netherlands (Royal decree of July 12, 1909, as amended by Royal decree of July 27, 1910)—

1. Night shifts may be worked on alternate weeks by young persons between the ages of 14 and 16 years until January 1, 1912.

2. Night shifts must not exceed 11 hours.

3. A rest period of one-half hour must be allowed after every 5 hours' work.

4. A full day of rest must be allowed every Sunday.

From January 1, 1912, night work of young persons under 17 years of age, between 10 p. m. and 5 a. m., is prohibited; further, an uninterrupted rest of 11 hours must be granted between two alternate shifts.

In **Norway** articles 26 and 27 of the Factory Act of September 10, 1909, prescribe as follows:

1. The night work of young persons below 16 years of age is altogether prohibited.

2. The inspector may sanction the night work of young persons between 16 and 18 years for not more than 8 hours.

3. A day of rest must be allowed every week from 6 p. m. on Saturday to 10 p. m. on Sunday.

Spain.—The Royal decree of January 25, 1908, prohibits any employment in the glass and crystal industry to female minors and to boys below 16 years.

Italy.—The law of July 7, 1907, and the Royal decree of November 10, 1907, articles 5 and 7, prescribe as follows:

1. Night work is prohibited below the age of 15 years. The definition of night work is the employment from 8 p. m. to 6 a. m., from October 1 to March 31; from 9 p. m. to 5 a. m. from April 1 to September 30.

2. A weekly rest of 24 hours, if possible on Sunday, is prescribed. Exceptions concerning prohibition of Sunday work are in force only for the employees of the iron industry and for firemen in gas works.

In the latter case their shifts on Sunday are of a maximum duration of 8 hours, their times of rest 36 hours every two weeks.

In **Russia** article 110 (subsecs. 3 and 5) of the Industrial Code allows the following exceptions:

1. Night shifts may be worked by young persons between 12 and 15 years of age.
2. Night shifts must not exceed 10 hours in any period of 24 hours.
3. A period of rest of 12 hours must be allowed after every shift.
4. Sunday work in company with adults is allowed.

Sweden (art. 8 of the act of Oct. 17, 1900)¹ allows—

1. The night work of young male persons between 14 and 18 years in all establishments with continuous operation and in sawmills.
2. The maximum duration of night work is 12 hours, but only in establishments which have arranged the change of shifts in such a manner that the same group of workers is not employed on two successive nights in the midnight shift. In establishments in which 8-hour shifts have been introduced young persons may be employed at night during every third week.
3. A period of rest of at least 8 hours must be allowed after every shift.

In **Switzerland**, under the Factory Act (art. 16), the Federal Council may in exceptional cases authorize—

1. The night work of young persons between 14 and 18 years in establishments with continuous operation, if the work of young persons is considered to be indispensable, and in particular when it appears to be necessary in order to give them a thorough training.
2. Night shifts must not exceed 11 hours, and a system of alternate shifts must be introduced.

United States of America.—The State of **New Jersey** (Stats. 1895, p. 2350, secs. 66, 67) allowed an exception to the prohibition of the night work of young persons under 18 years of age in the case of glassworks, where they may be employed from 6 p. m. to 7 a. m. This exception has been repealed by the law of 1904, section 64, and that of 1910, chapter 277.

It appears from the above account of the exceptions in force in the glass industry that such exceptions are particularly numerous in the exporting countries such as Germany, Great Britain, France, Austria, and Belgium, but that the extent to which night work is allowed varies considerably. Thus the minimum age at which night work may be performed is 17 in the Netherlands; 16 in Norway and

¹ After this memorandum was prepared this act was repealed by the law of June 29, 1912 (Lag om arbetarskydd), which prohibits night work up to 18 years, but allows exceptions after age 16. The night shift must not exceed 8 hours.

Spain; 15 in Italy; 14 in Germany, Austria, Belgium, Great Britain, Sweden,¹ and Switzerland; 13 in France; and 12 in Portugal and Russia. The duration of the night shifts varies from 14 hours (Great Britain), 12 hours (Germany, Austria, Sweden¹), below 11 hours (Switzerland), 10½ hours (Belgium), 10 hours (Russia), to 8 hours (Norway). The period of rest following the shift is the same length as the preceding employed shift in England, and is 12 hours in Germany and Russia, 11 hours in the Netherlands, 8 in Sweden,¹ and 6 in Hungary. A regular Sunday rest is prescribed for young persons employed in night shifts in France, England, and Holland, while in all other countries it is allowed only on alternate weeks and then only for half the day.

Several questions must be considered in this connection, namely:

1. Under what hygienic conditions is the night work of young persons performed?

2. Is the work at which they are employed necessary to their industrial training? Is it necessary to employ them at night, both in order that they may be able to have a choice of occupation and that skilled workmen may be available for the industry?

3. What has been the effect of this work on the moral, economic, and mental welfare of the young persons?

1. In answer to the first question we here reproduce the report of an industrial inspector on hygienic conditions in glass factories in Upper Franconia:

The hygienic conditions may on the whole be said to be less favorable in glass works than in many other industries. Quite apart from the nature of the work, the health of the workers must inevitably be affected by the excessive number of hours spent by them in overheated workrooms where they are exposed to drafts and almost always to smoke and dust. The danger is accentuated by the fact that because the mucous membranes are excessively irritated the workmen are tempted to unreasonable behavior, to excessive drinking of cold water, and especially of alcoholic beverages, and to expose themselves to the open air when they are bathed in perspiration. Owing to this imprudent behavior, and in particular to their excessive drinking, the workmen require and can digest less solid food, although, owing to their high wages, the food of the glassworkers is in itself good.

In effect, the hygienic conditions under which glassworkers are employed appear to be much less favorable than those of many other classes of workers. Heart and kidney complaints, catarrh of the stomach and the intestines and rheumatism are very frequently found, in particular in the plate-glass industry; cases of tuberculosis and diseases of the respiratory organs are also very general.

Each factory must, however, be judged on its own merits, according to its nature and operating conditions. The effect of the unhygienic conditions found in many glass factories is naturally accentuated by the strain of the work, by the hours of labor which are still too long in many cases, and by the irregularity of the night's rest * * *.

Catarrh of the stomach and the intestines are among the most frequent diseases. They are no doubt caused by the drinking of cold beverages, which is often excessive

¹ See footnote to p. 33.

and which the workmen consider to be absolutely necessary. Alcohol in the form of beer and spirits is also taken to an excessive extent in many factories, and leads to heart and kidney complaints and other diseases. The excessive drinking of spirits is particularly to be deplored in the artificial-pearl factories in the Fichtel Mountains, in one of which several cases of delirium tremens were recorded last year.¹

In what does the night work of young persons consist?

Three classes of workers are generally employed in bottle-glass factories, namely: Glass blowers who blow the glass in the molds, gatherers, and carriers. While the glass blowers are always adults, some of the gatherers and most of the carriers are young persons. The chief duty of the carrier consists in lifting with the aid of a proper tool the completed bottle while it is still hot and in carrying it to the annealing oven, where it may slowly cool, because glass that has been cooled too quickly is exceedingly brittle and often cracks without any perceptible cause.

After the boy has worked as a carrier for from one to three years, he becomes a gatherer. This work is to gather up at the end of the blowpipe sufficient liquid glass to make a bottle, and to blow it into a ball, which he passes to the blower who finishes the blowing. Usually he must also assist in forming the neck of the bottle and the lip at the top of it.

The number of young persons employed in bottle-glass factories is generally from 15 to 20 per cent of the total number of workmen employed.

The number of young persons employed in sheet-glass factories is considerably smaller than that employed in bottle-glass factories, because muscular strength rather than agility is required of the gatherers and carriers.

In the process of blowing sheet glass the young person (gatherer) takes up from the tank a gathering of liquid glass on the pipe, and blows it up to a certain measure; in doing this he reheats the mass of glass from time to time, and several other gatherings of liquid glass are taken up on top of the first gathering. To give to the gathering a specified, suitable form it is turned in a wet wooden trough called a marver. The blower then, without using any molds, forms the metal into a cylindrical mass simply by his manual dexterity, by swinging and rotating the pipe. This cylinder is now closed at the top (at which it is held fast to the pipe) and at the end by a rounded dome; the rounded end is later opened.

When large glass cylinders are to be made, a second helper, called the snapper (always over 16 years old), is placed between the gatherer and the blower to continue the work of the former.

¹ Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden, 1906, Band II, Abteilung 2, p. 468-470. Berlin, 1907.

As a great expenditure of physical energy is required of the kiln man employed at the annealing oven, an 8-hour shift has been established almost everywhere, and in one Austrian glass factory a period of 24 hours rest is allowed after each shift.

The number of young persons employed in sheet-glass factories is generally from 6 to 7 per cent of the total number of workmen employed. The work of young persons at the flattening ovens is not absolutely necessary, because any unskilled workman can learn the work without any difficulty and because the fires can be let out at night if there is a sufficient number of them.

In the case of tank furnaces an 8-hour shift is especially desirable, because the excessively long shifts of 18 hours on alternate Sundays could be replaced by shifts of 12 hours.¹

2. The reports of inquiries undertaken by the German inspectors throw considerable light on the second question, i. e., as to whether night work is necessary in order that the young persons may have a proper training. These reports are particularly valuable because the inquiries were undertaken by inspectors coming from different States and the subject was approached from an entirely unprejudiced standpoint. The following is the account given by the inspector of Württemberg:

There is no actual system of apprenticeship for a fixed term in the glass industry. Intelligent gatherers who show that they have special ability for blowing may become snapping-up boys after 2 years, while others are not promoted for 5 or 6 years and sometimes never. The case of the snapping-up boys is similar, for they, according to their ability, become foremen glass blowers in from 3 to 7 years.²

The inspector of Hildesheim gives the following report:

In one glass factory, employing 35 young persons, they are employed in transporting the white and green hollowware to the annealing ovens and are thus only engaged in mechanical work. They generally leave after two or three years, as soon as they are able to find a better-paid job. The management of the factory does not undertake to train such young persons, and vacancies are filled by glass workers coming from other districts. The night work of the young persons has in this instance nothing to do with their training, but they are so employed in order that the blown bottles may be transported by cheap labor. In the other factory, employing 108 persons, the 6 young persons employed in day and night shifts go through a systematic four-year training as glass blowers. In the first year they learn simple operations by assisting in their work the glass blowers who have already finished or very nearly finished their training. The extent to which they are employed in more difficult operations in the second year depends on their industry and skill and upon the inclination and views of the foreman glass blower, and they gradually become conversant with the whole art of glass blowing. It is considered that a skillful workman may be able to become a glass blower after three years' work at the furnace.

¹ K. Hauck, *Die Nachtarbeit der Jugendlichen in der österreichischen Industrie*, pp. 37-48. Wien, 1907.

² *Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden, 1909, Band IV*, p. 35. Berlin, 1910.

Approximately one-half of the 641 workmen employed in the district have learned glass blowing in this manner. Although it appears to be desirable for young persons to commence work at the furnaces as soon as possible and although, as a rule, it is not often possible to employ them in other work and only in day shifts, e. g., in cutting and packing, the conditions in this district do not make the night work of young persons indispensable in order to train a sufficient supply of glass blowers. For apart from the factories where work at the furnaces is only done during the day and melting is done at night, and where it is therefore unnecessary for the young persons to work at night in order to learn their trade, those employed at tank furnaces in one sheet-glass factory, where the work is done in four shifts, do not commence their training at the furnaces as glass blowers until they are over 16. These factories have not had any difficulty in getting skilled workmen. I consider it to be very doubtful whether the increased cost of production which may be caused by the abolition of night work in a few factories can be weighed against the injurious effect of the night work on the young workers.

The overstrain to which young persons working in 12-hour shifts may be exposed can be prevented by reducing the shifts to 8 hours, i. e., by introducing a three-shift system. There would be no technical objection to the introduction of the three-shift system in one of the factories in this district which still employs young persons in regular day and night shifts. There is, however, no doubt that in case 8-hour shifts should be adopted the young persons employed would leave the work on account of the resulting reduction in wages. In another factory it is impossible to introduce the three-shift system because the tank is not large enough to furnish sufficient liquid glass and the annealing ovens can only hold the present lower output of glass.¹

The inspector of Cologne, who doubts the possibility of prohibiting night work, writes as follows:

There is no system of apprenticeship, properly so-called, in the glass industry, and it has therefore been impossible to find a glass worker who was apprenticed under contract. The home circumstances of young persons employed in glass works make it generally necessary that they should earn the largest possible amount as soon as they begin work. For the same reason the majority of them leave the work as soon as they find better-paid employment elsewhere. In hollow-glass factories where goods of a high quality are made, young persons are at first employed in simple unskilled work. Those of them who remain after three or four years are employed according to their ability in work of a more or less skilled nature (gathering and first blowing and pressing), and they are not considered to be skilled glass blowers until they have been so employed for seven or eight years.

In hollow-glass factories where only common goods are made, a young workman is considered to be fully trained after three or four years. About 60 per cent of the young persons work either as assistants or as trained glass blowers, and may therefore be considered to be skilled workmen.²

The above reports show that it is impossible to speak of an apprenticeship system, except in the case of a very small proportion of the young persons. The inspector of Düsseldorf observes that the demand for skilled glass blowers in the bottle-glass industry will continue to diminish with the general introduction of blowing machines. He thinks, however, that the present conditions will, to a certain extent, be maintained in the bottle-glass industry for the

¹Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden, 1909, Band I, p. 253-255. Berlin, 1910.

²Idem, p. 448.

manufacture of special shapes of which a large number is not required. But so long as glass workers require training the prohibition of night work would lead to such radical alterations, in view of the large number of young persons employed and the economic difficulties under which the glass industry labors in this district, that it is possible that the factories affected would have to be closed down.¹

The following are the conclusions which may be drawn from the information at our disposal. The glass industry is on the verge of a technical revolution, of which the result will be that highly trained workmen will no longer be required. The prohibition of the night work of young persons will make it possible for the workmen to adapt themselves to the new conditions, after a suitable period of transition, and will stimulate technical improvements in the glass industry.

3. A third question arises, namely, as to whether, in view of the hygienic conditions in glass factories, the night work of young persons is especially undesirable, and in particular whether the morality of the young persons is injuriously affected by the night work.

The following report of an industrial inspector shows that night work may cause serious physical and moral defects:

The local school inspector of a locality where the glass industry is carried on reports that the young persons employed in glass factories drink spirits to an alarming extent. He has noticed that young persons employed on night shifts on Saturday not infrequently arrive at a continuation school, which commences at 7 a. m., in a state of intoxication. The proper district court has taken up the question from the point of view of enforcing the rules for the prevention of accidents of the Glass Workers Trade Association which prohibits the taking of spirits into the work places.²

The most detailed investigation of the relation between night work and juvenile delinquency has been published by the Bureau of Labor of the United States. Among 3,464 young delinquents 18 per cent (629) only had been employed during the night; but this ratio is increased to 30.3 per cent in the glass industry, to 26 per cent in bakeries, and to 22.5 per cent in the metal trades.³ Apart from amusement resorts, hotel work, and street trades these are the highest figures. From particular inquiry it results that of 83 boy delinquents two boys of 13 to 14 years of age, employed in glass factories, were working 11 hours during the night and five boys between 14 and 15 years of age, employed in steel works, had been working 12 hours during the night. "On the whole, this subject of long hours gives rather depressing results. It is evident that where the laws are not

¹ Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden, 1909, Band I, p. 415. Berlin, 1910.

² Idem, 1908, Band II, sec. 2, p. 113. Berlin, 1909.

³ Report on Condition of Woman and Child Wage-Earners in the United States, Vol. VIII, Juvenile Delinquency and its Relation to Employment, p. 115, S. Doc. No. 645, 61st Cong., 2d sess. Washington, 1911.

directly violated they are evaded to an unfortunate extent. The employer practically nullifies the laws which conflict with his own interest; is it surprising that the child he employs attempts a cruder and less indirect form of lawlessness?"¹ The principal offenses of young glass workers are larceny and malicious mischief. "The night shift of workers in a glass factory customarily finish their labors at about 3 in the morning. If the boys working on this shift live near at hand, they go home; but if, as is often the case, their homes are a long walk away, they sometimes hang about the neighborhood of the factory until daylight. This means several hours of more than dubious companionship at a time when ordinary restraints are removed, and what is worst in human nature is apt to come to the surface."²

The gravity of this situation is accentuated by the fact that in some States even the exceptions authorized for the glass industry are contravened and children are unlawfully employed. The privileges accorded to this industry have only led to an increasing number of violations of law.

With regard to Belgium, the industrial inspector of the district of Houdeng-Goegnies, in his report for 1907 (p. 290), writes as follows:

It is only in one industry, the glass industry, that children under the legal age are employed. The condition of affairs, particularly in the window-glass industry, and even in the crystal glass industry, to which we have called attention every year, remains unchanged and as deplorable as ever.

The same inspector, writing in 1908, says:

It becomes monotonous to repeat in each report the remarks made by us on this serious question, for which no solution has been found (p. 329).

The inspector of the district of Liege declared, in 1907 (p. 354), that—

The provisions of the regulations are observed in all establishments in respect of which exceptions have been allowed, except with regard to night work and to the age at which young persons may be employed in the crystal-glass industry. The situation does not improve on account of the increasing difficulty of getting young workers.

The inspector again calls attention to this situation in 1908 (p. 398), 1910 (p. 348), and in the report for the district of Charleroi in 1910 (p. 283). On the other hand, in the district of Namur, in the plate-glass factory of Jambes (p. 338)—

night work has been abolished (in 1907) mainly in order to make it easier to get young workers. It was thought that the employer would be able to employ children from 12 years of age and that the parents would not be less willing to send their children into the glass industry than to any other industry where work is only done by day.

¹ Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden, p. 123.

² Report on Condition of Woman and Child Wage-Earners in the United States, Vol. VIII, Juvenile Delinquency and its Relation to Employment, p. 72, S. Doc. No. 645, 61st Cong., 2d sess. Washington, 1911.

The children have lodgings, heat, light, and food, and receive medical treatment. They receive 10 francs (\$1.93) per month and a weekly bonus of 2 francs (39 cents). The work of children between 12 and 15 years of age consists in passing tools, putting the glasses in the annealing ovens, stoking, etc.¹ A glass manufacturer in Mons considers that less and worse work is done at night than during the day and intends to abolish night work altogether.²

This experiment resulted, in 1909, in the following conclusions:

It is evident that the abolition of night work presupposes in the first place that one condition should be fulfilled, namely, that sufficient room can be disposed of in the furnace department to allow a simultaneous working of two shifts. It is also necessary to increase the number of tools which these shifts are to handle (pipes, molds, benches, etc.) and to double the annealing ovens. The fire has also to be maintained during the night in the annealing ovens and fresh heating to be provided. To maintain also the same production of every furnace the number of pots for smelting the glass must be increased; the same quantity of molten and flint glass having to be taken from them during 12 hours instead of 24 hours. In consequence the expenses for fuel are larger. All these circumstances lead to an increase of cost price. Still the exclusive work during the day affords a series of advantages. The supervisory staff and the cost of light may be reduced, the production is conducted in a more careful fashion, and less losses sustained from breakages.

Still other advantages result from the abolition of night work.

The production per worker is greater and the earnings are increased, being piece-work; disputes concerning spoiled work or concerning the amount of production are less frequent because on one and the same day the production counted in the furnaces can be controlled in the cooling room. Accidents seem to be less numerous. It is easier to recruit young workers, from two motives: Parents are more willing to send children into an occupation in which they are not bound to work at night. During the day children may also be employed at 12 years of age instead of 14 years, as is required by law for night work. The adult worker is more satisfied and declares that his cost of living is diminished if he is only working during the day, being not obliged to take a meal during the night; furthermore, he is bound to give less time to sleep if he must sleep during the day. These are the results of a six months' experiment. This period is not yet very extensive, but the manufacturers interested have told us that it seemed to be sufficient to confirm that they do not wish to return to the old manner of organization.³

The report of 1910 states that after a further experimental period of one year the manufacturers have declared that they were satisfied with the abolition of night work, and that henceforward they would prefer the operation exclusively during the day.⁴

The tendency of manufacturers to employ boys who receive no training, and are turned off later on, has resulted in a scarcity of boys willing to enter this unremunerative industry.

¹ Belgium Office du Travail, Rapports Annuels de l'Inspection du Travail, 1908, p. 371. Brussels, 1909.

² *Idem*, p. 349.

³ *Idem*, 1909, pp. 318, 319. Brussels, 1910.

⁴ *Idem*, pp. 302, 303. 1910.

As early as 1893 a witness before the British Royal Commission on Labor declared that "many workmen would prefer to bring their children up to any trade rather than that of a glass worker."¹

The same phenomenon is to be observed in France and Germany. Mr. Fagnot declared before the Special Commission of the International Association at Basel in 1908, that the glassworkers themselves objected to their children entering the glass industry. The French section believed that the prohibition of the night work of children would be rendered possible—

(a) By substituting machinery for child labor;

(b) By substituting the labor of older persons for that of children.

But the section thought that for the moment exception should be allowed in favor of the gatherers, and that sufficiently long periods of transition should be allowed, subject to the condition that the number of gatherers should be reduced to the minimum number required for training and that a three-shift system should be adopted.

The German delegate, Dr. Pieper, declared that—

in Germany there is a strong feeling against night work, even in the case of adult workmen. The only difficulties are in the bottle and sheet glass industries because one-fourth of the workers are young persons. The German section demands that where night work is performed at the furnaces (by gatherers) young persons must be over 16 years of age; that they shall only be employed for six night shifts every third week, or on every fourth night, and only to the extent required to train sufficient workers to satisfy the needs of the industry.

Mr. Fagnot, in his "Report on the Night Work of Children in Factories with Continuous Fires" (1908), gave interesting details respecting the recent attempts that have been made in the French glass industry to suppress the night work of children. The means adopted were as follows:

(a) An interruption of work for 8 hours out of the 24, as is already done for 16 hours on Sunday in the glass factories of the Rhone and Loire districts;

(b) The use of mechanical carriers (Chappuy and Wagret systems, etc.), which make 35 out of every 50 carriers unnecessary;

(c) The introduction of the automatic bottle machine (Owen's patents).

In the plate-glass industry the problem appears to have been solved, thanks to mechanical inventions (Fourcault and Gobbes machines). The only difficulty, which is still felt as well in the bottle as in the window glass industry, is with regard to the gatherers who take up the liquid glass from the furnaces. Until there is further technical progress it seems necessary that young persons should temporarily be allowed to work at night as gatherers, not beginning, however, with the legal age of admission, but with the 16th year.²

¹ Royal Commission on Labor, Minutes of Evidence, Vol. III. (C 6894, IX.), 1893, p. 381, q. 30,020.

² F. Fagnot, Rapport sur le travail de nuit des enfants dans les usines à feu continu, Paris, 1908.

2. NIGHT WORK OF YOUNG PERSONS IN LARGE-SCALE IRON AND STEEL WORKS.

Certain stages in the smelting, casting, rolling, and other working-up processes of iron require operation during day and night. These are the following establishments: Blast-furnace works, blast-furnace foundries, steel works, puddling (for the manufacture of wrought iron and steel), hammer, and forging works, scythe factories, and rolling mills. We must, however, differentiate between these establishments, both with regard to the importance of the work and the number of young persons employed.

Of establishments in the same branch of the iron and steel industry, those with the most up-to-date technical improvements are able to avoid employing young persons far more easily than are less advanced establishments.

1. Particularly minute inquiries respecting the nature of the work of young persons employed at blast furnaces have been made in Austria. These inquiries showed that approximately 5 young persons are employed at each blast furnace (especially in the manufacture of pig iron), and that where coke ovens are attached to the blast furnace double that number are employed (as door greasers, coal washers, truck wheelers, etc.), half of whom alternate in shifts of 12 hours.

It would be rash to attempt to prove that these young persons should be considered to be apprentices, and that if older workers were to be employed in work of this kind the number of apprentices to other branches of the industry would diminish. On the other hand the agility and dexterity which is peculiar to young people only plays a very minor part in these operations, and particularly robust youths are required. We need not look farther than to the difference in the salaries of adults and young persons for the cause of this state of affairs.¹

2. In steel works using the Bessemer and open hearth systems and in crucible steel works, the number of young persons actually employed is very small. In France several manufacturers, who have declared that they can not stop employing young persons in other departments, admit that it is quite possible to suppress the employment of young persons in operations of this kind.

The suppression of the employment of young persons in these operations is in the first place desirable for hygienic reasons. The following are the views of an expert:

Workmen employed in rolling mills, in the Bessemer process, and at puddling furnaces, Martin furnaces, gas producers, and blast furnaces are exposed to the direct action of heat. To work in a temperature of 40° C. [104° F.] is a martyrdom. Let us

¹K. Hauck, *op. cit.*, p. 33.

take as an example the work at a Siemens-Martin (open hearth) furnace. The charging is still performed almost entirely by the workmen, who open a door of the furnace and insert the charge. These workmen suffer terribly from the heat, which radiates from the opened door of the furnace, which latter is often heated above 1500° C. [2732° F.]. They are not able to stand this heat for many years and they choose another occupation if they do not die first. They are completely worn out after 10 years of the work. The enormous heat which radiates when the furnace is charged makes it absolutely necessary for the workmen to be only very lightly clad. A fireman may be identified by his blue flannel blouse; the perspiration, which runs like water down his body, often washes out the color in places. Streaks of perspiration appear on his clothing. Both the hair and skin of his face and arms are scorched. The introduction of the mechanical charging of furnaces is consequently an enormous step in advance, both from the technical and the social point of view. This change is of course advantageous to the production, because when a mechanical charging system is used the furnace and the processes carried on in the furnace do not suffer from currents of cold air which enter through the open door. At least two hours spent in charging are saved, a number of workmen can be dispensed with, and the charge is also larger. Mechanical charging is generally performed by means of charging cranes operated by electricity.¹

Another expert says:

The chief sufferers, especially in summer, are the workmen employed at basic Bessemer furnaces, at the converters, ladles, molds, and casting pits, who are exposed to the excessive heat radiating from the ingots, ladles, and converters. They have also to do very exhausting work with heavy iron tools. Even the strongest people are not able to do work of this sort permanently. A workman who is capable of working for five consecutive days in summer must have a very unusually robust constitution. Workmen may be seen fainting from exhaustion almost every day during the summer. They are in addition exposed to the effects of poisonous gases, and of the fumes of phosphorus and sulphur, which escape from the converters during the refining of the charge.

No less exhausting is the work at the large rolling mills, where the temperature is equally excessive and the workmen are obliged to inhale dust mixed with oil vapors which arise from the greasing of the rolls in the heat.²

In the Rhenish Westphalian districts the number of accidents in establishments of this kind increased from 13.6 and 14.2 (1902-3) to 14.6 and 16 (1905-6) per thousand workmen, and the figures for hammer works and rolling mills are not much more satisfactory.

In these establishments also the employment of young persons at night is given up in proportion as technical improvements have been introduced. In the district of Arnsberg "the large mixed works gave up employing young persons at night a long time ago."³ Only 60.3 per cent of the works still employ young persons at night, and they are chiefly the small and medium sized works.

We must now consider whether the training of young persons would suffer seriously by the abolition of night work. The answers

¹ O. Stillich und H. Stuedel, Eisenhütte. Leipzig, 1907, p. 37-38.

² Franz Wieber: Der Arbeiterschutz in der gesundheitsschädlichen und schweren industrie. Duisburg, 1909, p. 35.

³ Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden, 1909, Band I, p. 332. Berlin, 1910.

to this question obtained as a result of inquiries made by the German industrial inspectors leave no room for doubt.

The inspector for the district of Düsseldorf says:

It is indisputable that all the operations in which young persons are still employed at night in rolling mills, properly so called, could be done either by adults or by machinery without any injury to the industry.¹

The inspector of the district of Cologne gives the following detailed description of the work done by young persons:

Young persons are employed in day and night shifts in forge works as hammer boys. They are sometimes also employed at the furnaces for heating small pieces of forged iron and in transporting them to the forge. Young persons are employed at night as hookers in finishing rolling mills. In such case they have to seize the rolled pieces by means of a fork (fork men) and to stretch them on the ground in such a way as to prevent them from curling up and thickening. For this work a considerable amount of agility is required, the extent of which depends on the speed at which the rolls work. For this reason manufacturers prefer to employ young persons instead of adults at this work. Young persons are not employed at all in roughing mills, because there is no work suitable to their physical powers. Even the operations which are relatively easy, such as working hydraulic hoisting machinery, requires an amount of care which can not be expected of young persons. Young persons are not employed in wire-rolling mills except in fixing the wire to the cylinders of the winches and in cutting the wire. Since the introduction of mechanical winches it has become unnecessary to employ young persons in wire-rolling mills.

Young persons employed in rolling mills and forge works are not as a rule required to go through an apprenticeship. It is only in the repairing and turning workshops attached to rolling mills that an apprenticeship of three to four years is required. Consequently hardly any rollers and forgemen have gone through an apprenticeship, though the contrary is the case with regard to approximately 80 per cent of the workmen employed in the repairing workshops. The introduction of a system of apprenticeship giving a definite training is not compatible with the conditions of work in rolling mills and forge works. The nature of the work in both kinds of establishments precludes young persons from doing the greater part of the work, and they are employed in certain kinds of operations only which can not be considered to constitute a thorough apprenticeship. In these establishments young persons are supposed to get their training by seeing how other operations are performed, i. e., to learn by observation. In forge works a young person sees how different kinds of iron and steel are affected by heating and forging, and in rolling mills he can watch the work of the manipulator, the rollers, and the rougher. He has the opportunity of perfecting his industrial training to a greater or lesser extent according as he has good physical and mental ability.

There can be no doubt that the regular night work of young persons in establishments with continuous fire is undesirable from the point of view of the protection of workers. It is therefore necessary to consider whether it is possible to abolish the night work of young persons without prejudicing the interests of the employers or the workmen to too great an extent.

The arguments brought by manufacturers against the total abolition of the night work of young persons are, firstly, the increased cost of production and, secondly, that the supply of trained workmen would decrease. In answer to the first argument we may quote the case of an establishment in this district where, under the mistaken impression that such employment is illegal, the employment of young persons was

¹ Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden, Band I, p. 413. Berlin, 1910.

discontinued and no appreciable loss was incurred. In order to get rid of the supervision previously exercised certain manufacturers in a district mainly occupied with the metal industry have given up employing young persons without taking into consideration that thereby a considerable number of young persons will have lost a means of livelihood. The result of the prohibition of night work would doubtless be that young persons would not be employed in the operations under consideration. The economic effect of this change would not be serious, because the young persons would be replaced by workmen who have not reached the age at which they could expect to be paid the wages of adult workmen. The objection that the result of the exclusion of young persons would be a scarcity of workmen is without foundation because the number employed is very small. It must, however, be taken into consideration in the interests of the young persons themselves, from whom all opportunity of being trained and commencing work as soon as they possess the necessary physical powers should not be taken. We, therefore, recommend that young persons should be allowed to work at night, subject to the condition that the shifts must not exceed 8 hours and must be followed by a period of rest of 16 hours. This regulation can be easily adopted without prejudicing the operation of the establishments.

It may be objected from the point of view of the employer that this regulation would look like a sort of official approval of the movement in favor of the introduction of 8-hour shifts for all workers employed in establishments with continuous fire. If this is a valid objection from the point of view of social politics, and the 8-hour shift for young persons is considered to be undesirable, there is no reason why manufacturers should not be authorized to employ the young persons for two additional hours in other work and in particular in work which would contribute towards their industrial training. There also arises the question of wages. If the iron industry, which is in such a flourishing condition, is really anxious to train efficient apprentices, it is in a position to bear also this additional charge in spite of the heavy charges imposed in the interests of social welfare.¹

For these reasons the abolition of the night work of young persons in rolling mills and forge works is to be recommended, even in the interests of the development of those establishments. The fact that in the iron and steel industry in the **United States** barely 2,000 young persons are employed as against a quarter of a million adults reinforces our argument in a most striking manner.

Further, it is only in certain medium-sized establishments with a traditional operating system that such importance is attached to the employment of young persons. The following report has been received regarding the employment of young persons in Austrian scythe-blade factories:

The number of boys under 16 employed in scythe-blade factories is 4 to 6 per cent of the total number of workmen; about two-thirds of this number are employed as polishers during the day only, so that out of every 100 workmen there are three or four boys who have temporarily to work for a part of the night. These boys either assist the forgemen who beat the scythes under the hammer or the workmen who have to forge the backs of the scythes. They have to heat the pieces of metal, hand them to the workmen, and do other accessory work. A few of these lads are employed at the small hammers in hammering out small irregularities in the cold scythes. This work is prohibited according to the literal meaning of the code. At the present time it seems hardly possible to affect the prohibition of the night work of children, because

¹ Jahresberichte der Gewerbeaufsichtsbeamten und Bergbehörden. Band I, pp. 445-447. Berlin, 1910.

the work of a heater is considered to be one of those preparatory operations which a young workman must learn and perform for a considerable time before he can become a forgeman. It might be suggested that the age at which boys may be employed as heaters who are obliged to work temporarily at night should be higher than 14. But the result of such a measure would be that it would soon be impossible to get any boys for this work. Where other industries besides the scythe industry are established, boys leaving school at 14 already prefer to enter those other more agreeable and more remunerative industries, so that even now the scythe factories in these localities complain of a scarcity of heaters. A young man who has once worked in a spinning or weaving mill, etc., will never be willing to enter a scythe factory, because the greater freedom, higher wages, the less exhaustive work, and the knowledge that he will be free every day at a certain hour, effectually keep him away from the scythe factories. It is, moreover, impossible to ask parents to let a boy remain at home with nothing to do till he is 15 or 16, because he will become idle and incapable of work and will become a burden to his parents which they will be unable and unwilling to bear.

Recently some old scythe works have been reorganized into modern factories, which work either by day only or with two regular shifts.¹

The exceptions in force with regard to night work differ very considerably. The most important States of the American Union prohibit night work; France and Belgium authorize 10 to 10½ hour shifts, and other States 12-hour night shifts. These variations are not due to technical considerations.

Germany.—The orders of May 27, 1902, July 6, 1906, and December 19, 1908, regulate the admission of workers to various industries, the hours of labor and rest periods, and the order of February 5, 1895, regulates the Sunday rest in metal smelters, iron and steel works, blast furnaces, puddling works, rolling mills, hammer works, and foundries. The following are the chief provisions:

1. The employment of children under 14 years of age is prohibited. Young persons employed in work immediately connected with the furnaces, and who are in possession of a certificate signed by an officially approved physician appointed for the purpose, may be employed all night.

2. The period of employment is 12 hours per day including rest periods, 10 hours not including rest periods, and 60 hours per week.

3. Duration of rest periods:

- (a) In the case of 8–12 hour shifts, 2 hours, of which 1 hour must be given at midday or midnight, between the end of the fifth and the commencement of the ninth hour.

- (b) In the case of 8-hour shifts, the principal rest period must be at least one-half hour.

4. The minimum uninterrupted period of rest is 12 hours (adults 8 hours);

¹ K. Hauck, *op. cit.*, p. 22–24.

5. The number of weekly shifts in establishments with a two-shift system is not more than 6 night shifts (from 8.30 p. m. to 5.30 a. m.);

6. **SUNDAY REST.**—Prohibition of work from 6 a. m. to 6 p. m. on Sunday. Work before and after this period is allowed only if a 24-hour rest before or after the shift is granted.

Of great value is the provision (order of Dec. 19, 1908, art. 2) requiring a register containing the names of the workmen who are employed for longer than the period of employment specified in the shop rules to be kept and sent in every month to the local police authority.

Austria.—Night work is regulated by the orders of the minister of commerce of May 27, 1885, R. G. Bl. No. 82, 84, and 86, and the order of the minister of public works of July 22, 1908, R. G. Bl. No. 180.

1. Night work is authorized in iron and steel works in the case of children between the ages of 14 and 16, employed under a regular system of alternate shifts (in establishments with blast furnaces and in coke ovens and in rolling mills), as molders of pig iron, oilers, bloom boys, helpers, etc.

2. Rest periods are to be granted during the interruptions of work caused by the nature of operation (their legal duration is not set forth as in the case of the other exceptions).

3. The employment of young persons under 18 years is prohibited in lead smelters in certain operations where there is danger of lead poisoning (the provision applies to day work also).

4. In scythe-blade factories young persons who assist workmen working at the fires may be employed at night, provided that there is a proper system of alternating shifts.

Belgium.—Night work is regulated by the Royal decrees of March 15, 1893, December 26, 1892, and April 15, 1907, and by the act of July 17, 1905.

A. Blast furnaces, iron, steel, and copper works, rolling mills, zinc and lead foundries, and other metal foundries, silver and lead roasting furnaces, and the auxiliary works attached to these establishments.

1. Night work (9 p. m. until 5 a. m.) authorized for children between 14 and 16, but not for auxiliary work;

2. Length of night shifts, 10½ hours;

3. Duration of rest periods, 1½ hours (regulated in the same way as for day work);

4. The day shift is 10½ hours; rest periods, 1½ hours, and the principal rest period at least one-half hour between 11 and 2 o'clock for furnace men, and of at least 1 hour (at about midday) for workmen employed in auxiliary work.

(If the shifts are shortened the rest periods are reduced proportionately.)

5. One shift of rest must be granted after every thirteenth shift of work, or after $6\frac{1}{2}$ days, within 7 days. The half day of rest must be given until 1 p. m. or has to begin after 1. p. m. The hours of labor on these days may not exceed 5 hours.

B. Zinc rolling mills.

1. Night work authorized for children between the ages of 14 and 16;
2. Length of night shift, 10 hours;
3. Rest periods of a total of $1\frac{1}{2}$ hours to include an uninterrupted rest of at least half an hour between 11 p. m. and 2 a. m.;
4. The day shift (or day shift and night shift together) is 10 hours for young persons (only 5 hours for children between 12 and 14, with one-half hour rest period);
5. Rest periods of $1\frac{1}{2}$ hours; principal rest period of 1 hour between 11 and 2 o'clock.

These provisions also apply to—

C. Tin and lead rolling mills.

SUNDAY REST.—In establishments with continuous operation the period of rest may commence at 6 a. m. on Sunday and terminate at the same hour on Monday.

France.—The provisions of the act of November 2, 1892, article 6, of the decree of July 13, 1893, and July 26, 1895, article 4 C, and of the act of July 15, 1906, article 3, are the following:

1. Night work authorized for young persons, between the ages of 13 and 18 years, employed in metallurgical works in the following operations: Assisting in the work of charging, in auxiliary refining, rolling, forging and wire-drawing work, the preparation of molds for casting objects, arranging the plates, sheets, pipes, and wires;
2. Night work, 10 hours;
3. Rest periods, 2 hours;
4. Day work, same shifts (10 hours);
5. Weekly rest, in rotation, every second week.

Great Britain.—Article 54 of the Factory and Workshop Act, 1901, for blast furnaces and rolling mills:

1. Night work is authorized for young persons between 14 and 18 years;
2. Night shifts, 12 or 8 hours;
3. Rest periods, $1\frac{1}{2}$ hours;
4. The period of employment must be preceded by a period of rest of 12 hours;
5. Number of night shifts, 7 in 2 weeks at blast furnaces and 6 shifts in other establishments, or 3 shifts of 8 hours each, with an interval of 16 hours after each shift;

6. Sunday rest is compulsory in the iron industries, in blast furnaces only on alternate Sundays.

Sweden.¹—For young persons employed at night in blast furnaces, iron and steel works, and rolling mills the above-mentioned provisions of October 17, 1900, are in force.

Portugal allows the most extensive exceptions. Articles 8 and 9 of the act of April 14, 1891, and the act of June 24, 1911.

1. The night work of children between 12 and 14 is authorized in establishments with continuous fire and foundries and is prohibited in mines;

2. Length of night shift, 10 hours;

3. Rest periods, 1 hour altogether;

4. In cases where the work partly falls during the day and partly during the night, the night work must not exceed 6 hours, with a rest period of 1 hour;

5. The 10-hour night shift may be worked on not more than 3 consecutive days, or it may be replaced by a permanent 8-hour night shift;

6. Maximum number of night shifts, 12 in 14 days by double shifts; on the day when the shifts are changed the night work must not be prolonged by more than 3 hours (3½ hours in the case of 8-hour shifts);

7. Sunday work is prohibited.

United States of America—Pennsylvania.—No young persons may be employed at night until they have completed their 18th year, at least, in certain specified dangerous operations (laws 1909, act No. 182).

The number of hours worked at night is limited: (a) To 8 hours for children from 16 to 18 years of age in **Alabama**; (b) to 9 hours for children from 14 to 16 years of age in certain continuous occupations in **Pennsylvania** (laws 1909, act No. 182); (c) to 10 hours, with double shifts (14 to 16 years), in **Connecticut**.

Eight-hour shifts in certain dangerous occupations, as mining, smelting and ore reduction works, are prescribed by law without distinction of age in—

Colorado (Acts 1911, ch. 149).

Idaho (Acts 1909, p. 4).

Montana (Acts 1907, ch. 108).

Missouri (Acts 1905, p. 236).

Nevada (Acts 1903, ch. 10).

Utah (Comp. Laws 1907, sec. 1337).

California (Acts 1909, ch. 181).

Wyoming (Acts 1909, ch. 17).

¹ See footnote to p. 33.

According to the United States census of occupations of 1900, 168,583 children under 16 were in industrial employment (3.2 per cent of the total number of persons in industrial employment).

In iron and steel works only 1,901 children (0.85 per cent) out of a total of 222,490 workers were employed. Of those 1,901 children 1,136 (60 per cent) were employed in Pennsylvania. The next greatest number was not found in the State which had the greatest output after Pennsylvania, namely Ohio (49 children), but in Illinois (193) where 8-hour shifts have been introduced by law.¹ These facts show that children under 16 years of age can not be employed for more than 9 hours at night in those States of the Union which produce iron and steel and that the employment of young persons is reduced to a minimum. Between 1880 and 1900 the number fell from 7,730 to 1,901, while the number of women rose from 45 to 1,071, and the number of men from 133,203 to 219,518. The number of firms fell from 1,005 to 668; the capital increased from 231 to 573 millions and the value of the output from 297 to 804 million dollars. The restriction of the work of young persons in the United States appears then to have accompanied technical and economic concentration. * * *

According to Mr. Fagnot's report it would not be easy to abolish night work of young persons in certain French rolling mills, e. g., rolling mills where water pipes and gas pipes are manufactured. Here also the chief objection is the difficulty of getting workmen. One of the most important establishments situated near the Belgian frontier employs 100 children. The manager of this establishment, however, considers the abolition of night work feasible.²

This would be a great step in advance. For, as Abbé Lemire pointed out in the Chamber of Deputies on January 12, 1910, the proportion of accidents in 1907 in the French metal industry was 298.5 per 1,000 adult workmen and 344 per 1,000 young persons under 18. The number of young persons employed in this industry was 4,968.

3. NIGHT WORK OF YOUNG PERSONS IN OTHER ESTABLISHMENTS WITH CONTINUOUS OPERATION.

We include under this head establishments which are carried on without interruption for other than purely technical reasons, and establishments where some of the operations must be carried on without interruptions for technical reasons, but which employ children as laborers only and not in order to teach them the trade. Children are, in fact, merely cheap laborers in the paper and sugar

¹ Twelfth Census of the United States, 1900, Vol. VII, Manufactures, Pt. I, pp. 9, 256.

² F. Fagnot, *op. cit.*, p. 30.

industries and in sawmills. In mines, enamel works, printing establishments, lace factories, and bakeries it is not necessary for them to work at night in order to learn their trade. About 14 per cent of the children employed in England and Germany in other than mining undertakings belong to these groups.

From information obtainable from Belgium, but from no other country, we may conclude that about one-tenth of these children, i. e., about 1.4 per cent of all children in industrial occupations, are employed regularly at night. The abolition of the exceptions allowed in favor of these industries would then occasion only a very slight inconvenience to the industries in question. These exceptions are often recognized to be unnecessary. For instance, in Germany the night work of children in sugar factories has been abolished, and the object of the bill of July 12, 1909, enacted in the Netherlands, was to abolish the exceptions in favor of engraving and newspaper printing establishments, brick works, silk netting factories, bakeries, and dairies. The labor law amendment act, which is in force since January 1, 1912, generally prescribes an 11-hours rest in perfect harmony with the resolutions of the International Association. Under these circumstances it will not be necessary to criticize these exceptions in detail, but it will be sufficient if we give the following general account of the work performed by young persons at night.

1. *Paper factories.*

Austria (Order of May 27, 1885).—No restriction on night work in continuous establishments, for the paper and pulp manufacture, for young persons of from 14 to 16 years.

Belgium (Decree of Dec. 26, 1892, as amended by the decree of March 31, 1903).—The employment of young persons (14 to 16 years) at night work (between 9 p. m. and 5 a. m.) is permitted, provided their total hours of labor during the day and night shift do not exceed 10 hours, and are interrupted by three rest periods of a total duration of 1½ hours.

France (Decree of July 26, 1895, cf. above).—Ten hour night shift with rest periods of 2 hours. Work authorized, assisting the adult workmen employed at machines, cutting, sorting, arranging, rolling, and finishing the paper. It will be seen that this is work that can be done entirely by untrained workers.

Great Britain (Cf. above).—As in the iron industry, 12-hour night shifts with rest periods of 1½ hours and followed by a period of 12 hours rest, or 8-hour night shifts with a half hour rest period, and followed by an uninterrupted rest of 16 hours.

In the **Netherlands** children are not allowed to be employed at night in the large paper factories. The same is the case in **Germany** and **Switzerland**.

2. Sugar and beet sugar factories.

Germany, which is the greatest sugar producer, has already abolished this exception.

Belgium (Decree of December 26, 1892, and ministerial decision of September 14, 1899, applying to brown-sugar factories).—Night work authorized for persons between the ages of 14 and 16; maximum number of hours worked during the day and night, 10½ hours, with rest periods amounting altogether to 1½ hours.

France (Cf. decree quoted above).—Persons between the ages of 13 and 18 may work at night in raw-sugar factories and refineries and in beet-sugar factories, the duration of period of employment, however, being limited to 10 hours in any period of 24 hours. In 1907 the number of young persons under 18 working in sugar factories was 271 out of a total of 3,009 persons employed, and the number of those working in beet-sugar factories was 54. Work which may be performed at night is washing, weighing, and sorting the beet roots, manipulating the sirup and water taps, assisting at the diffusing batteries and at the distilling apparatus, cutting the muslin for the filters, washing the apparatus, and working up the sugar into tablets. Here, also, young persons are employed solely as laborers. Their work, however, requires a certain degree of application.

Great Britain (Cf. p. 93) allows night work of young persons of more than 16 years of age only in those departments of the sugar refineries in which the knocking-out and cutting of loaf sugar is performed.

Austria.—The order cited above authorizes the employment at night of young persons (between 14 and 16) working at continuous processes in sugar factories as well as in refineries.

3. Oil mills.

The exception granted in France to sugar factories applies also to oil mills. The processes at which children may be employed are filling the sacks, shaking them after they have been pressed, and carrying empty sacks and wire hurdles. In this case the children are employed only in the capacity of porters. The majority of oil mills have ceased to make use of this privilege, which in 1907 affected 128 children.

4. Book and newspaper printing establishments.

Great Britain (Factory and Workshop Act 1901, art. 54).—Night work authorized for persons between 14 and 18 years of age. Length of shift, 12 hours including rest periods of altogether 1½ hours and an uninterrupted period of 12 hours' rest. Not more than six night shifts may be worked in a fortnight. Employment on the three-

shift system (8 hours' work and 16 hours' rest) is allowed. In newspaper printing offices (Factory and Workshop Act 1901, sec. 56) in which the printing is done only twice during the week, the night work of young persons from 16 to 18 years of age is allowed with a maximum working day of 12 hours in 24 hours. England is the only State allowing this exception. Inspector Hoare (Norwich) made, in 1899, the following declaration:

I am still of opinion that in newspaper printing offices boys 16 years of age should not be permitted to work the same hours as adults. In provincial towns it is the general consensus of employers that overtime work should be avoided, as there is no profit in it.¹

5. *Lace factories.*

Great Britain (Factory and Workshop Act, 1901, art. 37).—Young persons between the ages of 16 and 18 may be employed in lace factories operated by motive power between 4 a. m. and 10 p. m. Nine hours' rest must, however, be allowed during that period.

On page 36 of their Report to the Local Government Board on Proposed Changes in Hours and Ages of Employment in Textile Factories (London, 1873) Messrs. J. H. Bridges and T. Holmes say:

The machines for the manufacture of lace are worked exclusively by men. Owing to the irregularity of the demand and its dependence upon fashion, the ordinary restriction upon the moving power is modified, and the machines are allowed to run from 4 in the morning till 12 at night. This is done by two relays of workmen. The first comes at 4 and works till 9. His place is then taken by another, who works till 1. The first then resumes his work till 6. The second continues till 12. The payment is by the piece, and the two who work at the same machine are paid as one man, no attempt being made to discriminate their share of the work done. No practical difficulty is experienced in this arrangement.

A few women are employed in reeling cotton for the machines, and a few lads are engaged in filling the bobbins with thread, in replacing the empty bobbins by full ones, and in fitting them into their "carriages."

The inspector of factories, Mr. Rogers, of Derby, says in the report of 1900 (p. 247):²

There are comparatively few young persons working (nights in the lace industry) under the special exceptions in Derbyshire. The number is about 50. (Mr. Price enumerated in his memorandum on lace dressing, 1907, p. 269, about 100 male young persons.) The threading is done by boys, and as the time of a machine's run can not be exactly computed, it follows that some of this work has to be done at night, or the machine be stopped till morning in some cases. The necessity for this would be largely obviated by having duplicate "carriages," but the cost is so high (£130 to £160 [\$632.65 to \$778.64] per machine) that only very few firms have them.

He proposes to introduce double shifts of 5 hours during the day.

¹ Cited by Mrs. H. J. Tennant, *Night Work of Young Persons in the United Kingdom*, London, 1906, p. 41.

² Cited by Mrs. H. J. Tennant, *op. cit.*, p. 42.

6. *Enamel-ware factories.*

Belgium (Decree of Nov. 29, 1898).—Children between the ages of 14 and 16 may be employed at night (9 p. m. to 5 a. m.) during one week in every fortnight at enamel furnaces. Maximum period of employment (day and night shift), 11 hours; rest periods, 1½ hours; midday rest, 1 hour.

France (Decree of July 15, 1893).—Young persons between the ages of 13 and 18 may be employed at night for 10 hours out of 24, and must be granted rest periods amounting to 2 hours.

Two hundred and one young persons are employed in looking after the doors of the furnaces (e. g. in unskilled work).

Austria (Ministerial decree of Feb. 12, 1906) has prescribed that in factories in which the work is done in three 8-hour shifts young persons of 14 to 16 years of age who are employed at annealing, enameling, cleaning, carrying, and fetching cast articles and their sorting out may also be employed during their 8-hour shifts from 8 to 9 p. m.

7. *Mines and coke ovens.*

Germany (Order of March 24, 1903, respecting the employment of children in anthracite coal mines in Prussia, Baden, and Alsace-Lorraine).—In mines where an 8-hour shift is in force the first shift for children (between 14 and 16 years of age) may commence at 5 a. m. and the second shift may terminate at 11 p. m. On the eves of festivals they may be employed in 2 shifts from 4 a. m. to 1 a. m. The period of uninterrupted rest must be 15 hours. The period of rest preceding the shifts on the eve of holidays must be one of 13 hours. Rest periods of altogether 1 hour must be allowed, of which two must last at least 15 minutes, or three at least 10 minutes.

Austria (Decree of the Ministry of Agriculture, June 8, 1907, art. 3) does in general not permit the employment of young persons (14 to 16 years of age) during the night (8 p. m. to 5 a. m.). If, however, two day shifts are worked young persons may be employed until 11 p. m.

Belgium (Decree of March 15, 1893, and act of Dec. 31, 1909, and of June 5, 1911).—The night work of young persons between the ages of 14 and 16 is authorized in coal mines below ground from 9 p. m. to 5 a. m., and to 4 a. m. for those 12 to 13 years of age. Maximum night shift 9 hours. Young persons are employed as crutters and road men and in gathering up mine timber. Rest periods, one-eighth of the period of employment. On the surface of mines the employment of young persons under 16 years of age is prohibited.

An order of the same date authorized night work of young persons between the ages of 14 and 16 in the mines of Mariemont from 9 p. m. till midnight. The rest periods are the same as above. Occupations authorized, transport work during the second extracting shift in addition to the operations authorized by the general order cited above.

At coke ovens (order of the same date) young persons between the ages of 14 and 16 may be employed at night between 9 p. m. and 5 a. m. during a total working period of $10\frac{1}{2}$ hours. Rest periods, $1\frac{1}{2}$ hours, of which a principal rest must be of 1 hour's duration. The occupations authorized are work at the coke ovens and in recovery of the by-products.

Great Britain.—The coal mines act, 1911, provides that no boy under the age of 14 shall be employed in any mine below ground unless so employed before the passing of the act. Employment of boys over that age below ground at night is allowed, but the hours of work are subject to the provisions of the Coal Mines Regulation Act, 1908 (eight hours act). On the surface of mines the employment of boys under 16 is prohibited between the hours of 9 p. m. and 5 a. m., and there must be allowed an interval of not less than 12 hours between the termination of employment on one day and the commencement of the next employment.

The Metalliferous Mines Regulation Act, 1872, allows the employment of boys under 16 below ground at night, but provides that boys under 16 shall not be employed in or allowed to be for the purposes of employment in a mine below ground for more than 54 hours in any week or more than 10 hours in one day, with an interval of not less than 12 hours between each period of employment, or between the period of employment on Friday and the period of employment on the following Saturday of not less than 8 hours.

8. Bakeries.

Throughout Europe these are mainly small establishments serving the local demand. The exceptions in force have been authorized solely in the interests of the employers and their customers. During the last few years, however, several States have for hygienic reasons affecting the workmen and the consumers abolished night work in bakeries for adults as well as young persons.

(a) These States are as follows:

Norway abolished night work on June 11, 1883. The act of April 24, 1906, at present in force—

1. Prohibits the employment of children under 14;
2. Prohibits the night work of young persons between the ages of 14 and 18 between 8 p. m. and 6 a. m. without exception;

3. Establishes a maximum period of employment of 12 hours;
4. Includes rest periods amounting altogether to 2 hours, of which one must be allowed at midday;
5. Prohibits work on Sunday and holidays from 6 p. m. on the preceding day until midnight on the day in question.

Finland has also prohibited night work in a similar manner (Act of 22d May, 14th June, 1908):

1. No workman may be employed between 9 p. m. and 6 a. m.;
2. Maximum period of employment is 10 hours per day and 48 per week;
3. The weekly rest begins at 6 p. m. on Saturday and ends at midnight on Sunday.

Italy (Act of Mar. 22, 1908) prohibits night work between 9 p. m. and 4 a. m., and on Saturday between 11 p. m. and 4 a. m.

Proposals of a similar nature were laid before the **English** Parliament by a member in 1906 and the **Dutch** States General in 1909.

(b) **Denmark** and **Great Britain** only prohibit the night work of young persons.

Denmark (Act of Apr. 6, 1906).—The employment of young persons between the ages of 14 and 16 between 6 p. m. and 4 a. m.¹ is prohibited, and the period of employment of young persons between the ages of 16 and 18 must not exceed 9½ hours at night (10 hours in all communes excepting Copenhagen and Frederiksberg). Rest periods of not less than 1½ hours (2 hours in all communes excepting Copenhagen and Frederiksberg) must be allowed, and the uninterrupted period of rest preceding or succeeding night work must not be less than 8 hours. The weekly rest commences at noon on Sunday and lasts at least 24 hours in Copenhagen and Frederiksberg and 16 hours in all other communes.

Great Britain.—The night work of young persons under 16 is prohibited. Young persons between the ages of 16 and 18 may be employed in the part of a bake house in which the process of baking bread is carried on between 5 a. m. and 9 p. m. (Factory and Workshop Act, 1901, art. 38.) During this period of 16 hours, 7 hours must be allowed for rest and certain other conditions be complied with.

(c) On the other hand the night work of young persons in bakeries is allowed in—

Germany (Order of Mar. 4, 1896, relating to work in bakeries and confectioneries).—

1. Workmen and apprentices may be employed at night;
2. Period of employment, 12 hours, or 13 hours including a rest period of 1 hour.

¹ By the act of June 8, 1912, the prohibited hours are changed to 8 p. m. and 4 a. m.

Period of employment of apprentices—1st year of apprenticeship, 10 to 11 hours; 2d year, 11 to 12 hours; an uninterrupted period of rest of 10 hours in the first year and 9 in the second.

In addition to any supplementary work required to meet an extraordinary press of work, due to feast days or any other special circumstances, the employer may cause overtime to be worked on any 20 days in the year, to be determined by himself. The shifts may be increased by 2 hours each, if a weekly rest of 24 hours is allowed from 10 p. m. on Saturday.

Austria (Ministerial order of June 17, 1898).—Apprentices may be employed at night at the tables for not more than 4 hours in white-bread bakeries only. The Minister of Commerce issued the following circular respecting this work:

The only strictly industrial work in which young apprentices in white-bread bakeries should be employed is in table work, and it is only while that work is being carried on that the employment of apprentices at night is justifiable. The other work in which apprentices are habitually employed, and which consists in fetching and carrying, does not constitute part of their industrial training and can not therefore be considered to be proper work for them to do at night. This must be especially emphasized in view of the facts that it is particularly in work of this kind that children are illegally employed all night, and it is this work and the errand work in which apprentices are often employed which gives rise to the excessive hours of work so often denounced. Since the table work, which is the only kind of night work which is learned, does not take more than three to four hours, the employment of apprentices at night must be limited to that period.

Night work is also authorized in **France**, because the hours of work are not regulated there in establishments where no mechanical power is used employing less than 20 persons and no women, and because bakeries in general do not employ women or young persons during the night. Bread factories, however, are subject to the common rule.

In **Russia** "handwork" is not subject to any restriction as regards the period of employment.

9. *Isolated operations of a continuous character.*

In **Great Britain**, section 54, subsection 4, of the Factory and Workshop Act, 1901, provides that the secretary of state, by special order, may sanction the employment at night of young persons between the ages of 16 and 18 in any class of nontextile factories and workshops, provided that proof is produced that such employment will not injure their health and that it is necessary by reason of the nature of the operations. In pursuance of this provision the orders of March 11, 1903 (No. 187); of May 4, 1903 (No. 363); of August 9, 1904 (No. 1429); of February 18, 1905 (No. 108); and of April 10,

1911 (No. 360), have been issued authorizing the night work of male young persons of 16 to 18 years of age in the following cases:

1. In electrical stations (subject to certain conditions);
2. In those parts of a factory in which reverberatory or regenerative furnaces are used and are necessarily kept in operation day and night to avoid waste of material or fuel;
3. In the knocking out and cutting departments of sugar factories engaged in the refining of loaf sugar;
4. In the process of galvanizing sheet metal and wire in factories;
5. In such parts of mineral dressing floors in Cornwall as are appropriated to the processes of calcining and stamping;
6. In china clay works;
7. In factories and workshops connected with lead and zinc mines in which the concentration of ores is carried on;
8. In the processes of pressing and reeling cordite and nitrating and molding guncotton, in nontextile factories where the young persons are employed on the system of three shifts (8 hours);
9. In the process of continuous wire drawing carried on in nontextile factories;
10. In the process of making artificial silk fiber carried on in nontextile factories.

France (Decree of July 15, 1893, Table B).—Young persons between the ages of 16 and 18 may be employed at night on 120 days in the year in urgent work in the repairing of ships and power machines.

None of these occupations can be said to constitute part of an industrial training.

10. *Establishments with continuous operation in general.*

The countries where night work is most extensive are those which authorize night work in all establishments with continuous operation, whether it is necessary or not.

These are **Russia** (night work is prohibited only in the textile industries), **Hungary**, and **Sweden**.¹ **Portugal** may also be included because the age of protection is very low.

Hungary (Industrial Code, 1884, art. 115).—Five hours' night work is allowed in establishments where it is unavoidable.

Sweden (Act of Oct. 17, 1900, art. 8), on the other hand, authorizes the employment for 12 hours at night of young persons over 14 years of age in mines, metal works, rolling mills, factories, and other establishments with continuous fires, and also sawmills and the establishments annexed to them.¹

¹ By the act of June 29, 1912, such night work is permitted only by way of exception to young persons over 16 years of age.

Young persons must not, however, be employed on two consecutive nights, and 8 hours rest must be allowed between two shifts. But they may be employed at night continuously every third week in establishments working on the three-shift system.

Denmark (sec. 10, subsec. 2, of the factory act of April 11, 1901) allows limited night work (8 p. m. to 6 a. m.) of young persons of more than 15 years, by way of exception granted by the minister upon a proposal of the Labor Council, provided that this night work is necessary for occupational training.

11. *Limited night work on account of climatic conditions.*

Austria (order of May 27, 1885) authorizes a limited exception to the prohibition of night work in the case of silk mills.

Since, in view of the climatic conditions, work in silk mills in the months of June and July commences before 5 a. m. and terminates after 8 p. m., and the midday rest is correspondingly increased, young persons may be employed at night, provided that the legal maximum period of employment is not exceeded.

CHAPTER V.

TRANSITIONAL MEASURES.

The International Association regards the exception authorizing the night work of young persons over 16 in the glass industry as a purely temporary measure.¹ The authorization of unlimited night work which exists in some countries ought not to be continued, even during the period of transition. The number of hours ought to be fixed and the employment of young persons should be restricted to the minimum number which is required, in order to train the next generation of workmen.

This arrangement corresponds to the present technical conditions obtaining in the glass industry, which is in a state of transition. It is true that technical progress in the glass industry has led to longer shifts, owing to the introduction of tank furnaces, but the children have benefited by the abolition of unskilled work, which is due to new improvements.

With the introductions of pedal molds and mechanical carriers all pretext for employing children in glass works should have disappeared. In the district of Frankfort-on-the-Oder, the introduction of pedal molds in 1880 has resulted in a considerable reduction in the number of children employed; in 1886 the number had fallen by 33 per cent in the space of two years, and in the district of Breslau and Liegnitz the introduction of improved methods of production is leading gradually to the disappearance of child labor. By 1901, 17 Prussian glass works employed no children at all. Similarly in France, where children were very extensively employed in glass works, the introduction of mechanical carriers has led to the complete discontinuance of their employment in many localities.²

This is the opinion of all friends of technical progress. The wishes of many of them go still further, and some even want to see enforced the three-shift system, which has already been introduced in several advanced glass works.

"It is very desirable," says a report of the industrial inspector for Breslau, "that the daily period of employment of glass blowers should be limited by the Federal Council to eight hours. A period of transition, say of five years, would of course be required in order

¹ Decision of the subcommission on reason for this memorandum, p. 7.

² R. Grossmann, *Die technische Entwicklung der Glasindustrie*, p. 115. Leipzig, 1908.

that the glass manufacturers should have time to introduce the necessary alterations in their technical equipment."

The inspector of the district of Coblenz says:

Seeing that the period of employment is reduced by voluntary agreement in many establishments, it would be desirable and would inflict less hardship if the reduction was prescribed by law, in order that the small number of backward establishments should be brought into line.

The International Association has not adopted any attitude toward this suggestion. Since, however, the object of the resolutions of the association is the protection of young persons in order to preserve their vitality, they aim especially at accelerating the evolution which is clearly taking place in the industry. This acceleration is also in the interest of the industry itself, which will certainly be able within a period of five years to introduce the innovations which have already been used for years in the more advanced establishments. A fact which proves conclusively that five years would be an adequate period of transition is that the number of young persons employed at night is diminishing, even in those countries which authorize the most extensive exceptions. Thus in France the number fell from 11,721 in 1902 to 11,688 in 1907; and in the glass industry from 5,568 in 1902 to 5,389 in 1907. During that period the metal industry alone shows a considerable increase in the number of young persons employed at night (from 3,863 to 4,968), while on the other hand the diminution in the sugar industry (from 1,031 to 271) and in sugar-beet factories (from 103 to 54) was very marked. If the period of transition of five years suggested by the resolutions of the association were to be adopted, the increase in the number of young persons between 16 and 18 years of age employed in the glass and metal industries would be checked and a downward movement introduced without any serious revolution.

In this sense the French Chamber of Deputies accepted, without discussion, on the sitting of June 2, 1911, the following bill of Abbe Lemire, which will repeal all exceptions, provided it is passed by the Senate:

Sole section: Article 6 of the law of November 5, 1892, is repealed. In consequence all exceptions granted by this article are no more in force six months after the publication of this law.

At the same time the decree of administration concerning this article is repealed.

CHAPTER VI.

ADVANTAGES OF INTERNATIONAL REGULATION.

The international regulation of the prohibition of the night work of women in industrial employment, demanded both by associations of employers and of workmen, was carried out by the Berne Convention of September 26, 1906, and now a similar regulation of the prohibition of the night work of young persons is urged from many quarters. Thus, Mr. Levêque, divisional inspector at Lille, declares that it will not be possible to suppress night work in sheet-glass factories unless all the States concerned give their consent.¹

It is constantly argued that if one State alone took the initiative in this matter, the expenses of production of establishments employing only adults at night would be greater than in the case of those authorized to employ young persons. It has not been possible, from a technical point of view, to replace young persons everywhere by machinery, and even where this is possible from a technical point of view, the change could not be made without difficulty, in establishments which have not a large capital at their disposal.

The prohibition of night work by international agreement might lead to a temporary rise in the cost of production, which would be so slight that the efficacy of the reform would be much increased by this method of dealing with the question.

The consequences of the inequality of social legislation can be shown statistically only for those countries which publish statistics of night work, i. e., Belgium, France, and Sweden. These statistics date from 1896 in Belgium, 1902 in France, and 1905 in Sweden, and were therefore introduced before the Berne Convention respecting the prohibition of the night work of women came into operation.

At that time France had already prohibited the night work of women, while Belgium had regulated the hours of labor and rest periods for women under 21 years of age, and Sweden for women under 18 years of age. The result was as follows: Of every hundred persons working alternately on day and night shifts (the total number in Belgium was 53,895 in 1896, and in France there were 117,021 in 1902 and 143,549 in 1907, and in Sweden there were 43,157 in 1905) there were:

¹ Le travail de nuit des enfants dans les usines. Rapport de M. Levêque, Association du Nord de la Association nationale française pour la protection légale des travailleurs. Lille, 1909.

	Bel- gium, 1896.	Sweden, 1905.	France.	
			1902	1907
Male young persons under 16 years of age.....	7.86	¹ 6.4	¹ 10.02	¹ 8.14
Females (young persons and adults).....	5.68	1.2	.80	.18
Male adults.....	86.46	92.4	89.18	91.68

¹ Male young persons under 18 years of age.

These figures show that the proportion of young persons under 18 employed at night in France was slightly higher (in 1907) than that of young persons under 16 so employed in Belgium, while, on the other hand, the proportion of male adults (i. e., over 18) employed at night in France and Sweden was 5 per cent higher than in Belgium.

The mission of international protection is so to modify the conditions of employment in unhealthy and dangerous employments that in all countries only a minimum of young persons and women need be exposed to injurious influences. Thus the example quoted shows that for some years adult workmen will be employed at night instead of women. There exists here and there, however, although not in a very strong degree, a tendency to replace women's work by yet cheaper labor, and in particular by that of young persons, especially in paper and sugar factories and in printing establishments.

It is most important that this tendency should be checked, because the employment of young persons at night will increase the number of unskilled workers, who will later on swell the ranks of the unemployed. It is only where this danger does not exist, i. e., where the young persons working at night are employed as factory apprentices and not as cheap laborers, that there can be any question of partially retaining night work. But the assertion that in certain industries apprenticeship should commence at the age of 12 is absolutely refuted by experience. The night work of children between 12 and 14 should therefore not be tolerated in any circumstances, because even the employment by day of children of that age reacts unfavorably upon the vital forces of nations. In their petitions to the Reichstag and Bundesrat, the German glass manufacturers lay stress upon the effects of the competition which they encounter in consequence of the admission to employment of children of 12 years of age at night in France. It would, therefore, be more equitable to insist on the prohibition of the night work of children in France than to secure equality in the conditions of work by permitting the night work of children in Germany.

It is certain that these reforms would require from the manufacturers greater organizing power rather than financial sacrifices. In many industries greater innovations than those which, for the reasons set out in the memorandum, the International Association considers

to be indispensable have been introduced, thanks to the salutary constraint of the law. In the present case it is not only vital questions, such as education and hygiene which are affected, but the object of this policy is also to safeguard the energies and capabilities of future generations.

The wish of the association that the minimum age at which night work may be performed should be fixed as a rule at 18 is already realized in **France, Great Britain, Denmark, Finland, Norway, Sweden, Servia, Greece,¹ and Switzerland**; and in the **United States in California and Massachusetts** (to 21 years).

In many other States, such as **Germany**, where only the night work of young persons under 16 years of age is prohibited, the provisions relating to the prevention of accidents and to the hygiene of labor recognize so plainly that young persons between the ages of 16 and 18 are especially exposed to dangers of all kinds, that the raising of the age limit for admission to night work seems to be but the logical consequence of the attitude taken otherwise by the legislature.²

The wish that children under 14 should not be employed at night even in exceptional circumstances corresponds more closely to the existing condition of affairs. **France, Russia, and Portugal** would be the only States which would have to alter the law applying to the glass and iron industries. All the other countries of Europe, even those which allow work to commence at 12 or 13 years of age, in general only authorize the night work of children over 14 and that only in exceptional circumstances.

The International Association expresses the wish that the duration of the night's rest shall be at least 11 hours. **German** legislation was the first on the Continent to accept this definition, and the **Netherlands** followed January 1, 1912. But none of the States which signed the Berne Convention of 1906, which prescribed an 11-hour night's rest for women, will find it difficult to enforce this rule in establishments where both women and young persons are employed.

And, further, since it is the intention to restrict the existing and greatly varying exceptional provisions by uniformly abrogating exceptions which have become technically superfluous, and which are harmful from the social point of view, only those exceptions should be considered justifiable which are indispensable for technical reasons. These are concerned with certain specified operations in the glass and iron and steel industries for which systematic apprenticeship is required.

The International Association, then, only asks that "the duration of the exceptional night work of young persons shall be regulated by

¹ By act of Jan. 24-Feb. 6, 1912; see footnote, p. 10.

² K. Bittmann, *die Jugendlichen Arbeiter in Deutschland*, pp. 21, 34, 40, 49 et seq. Jena, 1910.

law." The law at present in force limits the night work of young persons in the glass and iron and steel industries to 8 hours in **Norway**; 10 hours in **France, Great Britain, and Russia**; 10½ hours in **Belgium**; less than 11 hours in **Switzerland** and 11 hours in the **Netherlands**; 12 hours in **Germany, Austria, Great Britain, and Sweden**;¹ in the British glass manufacture even shifts of 14 hours are allowed.

In the **Netherlands** the night work of young persons is altogether prohibited since January 1, 1912; in the United States **New Jersey** has since 1904 abrogated the former existing exception.

A day of rest on at least alternate Sundays is prescribed in almost all these States. In the **Netherlands** Sunday rest is granted every week, and the **Russian** law contains no provision dealing with this subject.

An international agreement respecting the duration of the night shift would be made valuable by imposing restrictions on the employment of young persons in alternate shifts of from 18 to 24 hours. The chief cause of the infractions committed in this connection would no longer hold good, and the way would be prepared for a general satisfactory arrangement of shifts in establishments with continuous operation. For this reason the international regulation of the employment of young persons offers the best guaranty that the temptation to exploit the labor of young persons will be reduced to a minimum, that the latter will be given a chance to acquire an education, and that the hope for a reform corresponding to technical developments and introduced with a full and expert understanding of the situation will be realized.

¹ By act of June 20, 1912, changed to 8 hours in Sweden.

APPENDIX.

AGE OF LEGAL EMPLOYMENT AND MAXIMUM LEGAL HOURS OF LABOR OF CHILDREN EMPLOYED IN FACTORIES IN THE UNITED STATES, JANUARY 1, 1913.

[This appendix was furnished for this memorandum by the United States Bureau of Labor Statistics.]

States.	Age below which—			Maximum legal hours of labor per day.	Night work prohibited between—
	Employment is prohibited.	Hours of labor are restricted.	Night work is prohibited.		
Alabama.....	12	14	16	1 60	<i>p. m. a. m.</i> 7 and 6
Arizona.....	14	² 16	² 16	8	7 and 7
Arkansas.....	14	14	14	10	7 and 6
California.....	15	18	18	9	10 and 5
Colorado.....	14	16	14	8	8 and 7
Connecticut.....	14	16	16	10	(⁸)
Delaware.....	14	16	16	9	6 and 7
District of Columbia.....	14	16	16	8	7 and 6
Florida.....	12	12	12	9	9 and 6
Georgia.....	12	12	14	10	7 and 6
Idaho.....	14	16	16	9	9 and 6
Illinois.....	14	16	16	8	7 and 7
Indiana.....	14	16	16	8	6 and 7
Iowa.....	14	16	16	⁴ 10	9 and 6
Kansas.....	14	16	16	8	6 and 7
Kentucky.....	14	⁵ 16	² 16	10	7 and 7
Louisiana.....	14	18	² 16	10	7 and 6
Maine.....	14	² 16	.....	10 (¹ 58)	.....
Maryland.....	14	16	16	10	8 and 8
Massachusetts.....	14	18	21	10 (¹ 54)	⁶ 10 and 6
Michigan.....	14	18	² 16	¹ 54	6 and 6
Minnesota.....	14	16	16	8	7 and 7
Mississippi.....	12	² 16	² 16	8	7 and 6
Missouri.....	14	16	16	8	7 and 7
Montana.....	16	.....	.....	.....	.....
Nebraska.....	14	16	16	8	8 and 6
New Hampshire.....	14	² 16	² 16	11 (¹ 58)	7 and 6.30
New Jersey.....	14	16	16	10 (¹ 55)	6 and 6
New York.....	14	16	16	8	5 and 8
North Carolina.....	12	18	14	⁷ 60	8 and 5
North Dakota.....	14	16	16	8	7 and 7
Ohio.....	14	² 16	² 16	8	6 and 7
Oklahoma.....	14	16	² 16	8	6 and 7
Oregon.....	14	16	16	10	6 and 7
Pennsylvania.....	14	² 16	² 16	10 (¹ 58)	9 and 6
Rhode Island.....	14	16	16	10 (¹ 56)	8 and 6
South Carolina.....	12	(⁹)	16	10	8 and 6
South Dakota.....	15	14	.....	10	.....
Tennessee.....	14	16	.....	1 60	.....
Texas.....	15	.....	.....	.....	.....
Utah.....	14	⁹ 14	.....	¹ 54	.....
Vermont.....	14	16	16	.....	(¹⁰)
Virginia.....	14	14	14	10	6 and 7
Washington.....	14	.....	16	.....	¹¹ 8 and 5
West Virginia.....	14	.....	.....	.....	.....
Wisconsin.....	14	16	16	8	6 and 7

¹ Per week.

² To 18 years for females.

³ After 10 p. m.

⁴ 9 hours if written consent of parent is obtained.

⁵ To 21 years for females.

⁶ 6 and 6 in textile factories.

⁷ Per week; no more may be required.

⁸ Law is general for cotton and woolen mills; no age limit.

⁹ To 16 years for females.

¹⁰ After 8 p. m.

¹¹ In bakeries.

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