The law of compensation for industrial diseases : being an annotation of Section 8 of the Workmen's Compensation Act, 1906, with chapters upon the powers and duties of certifying surgeons and medical referees; and the rules, regulations and forms relevant thereto, and including a special treatise upon every disease to which the act now applies, together with the special rules or regulations made under the factory and workshop acts for the prevention of such diseases / by Edward Thornton Hill Lawes.

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THE LAW
OF
COMPENSATION
FOR
INDUSTRIAL DISEASES

BEING AN ANNOTATION OF

SECTION 8 OF THE WORKMEN'S COMPENSATION ACT, 1906

WITH CHAPTERS UPON

THE POWERS AND DUTIES OF

CERTIFYING SURGEONS AND MEDICAL REFEREES:

AND THE

RULES, REGULATIONS AND FORMS RELEVANT THERETO

AND INCLUDING A

SPECIAL TREATISE UPON EVERY DISEASE

TO WHICH THE ACT NOW APPLIES

TOGETHER WITH THE SPECIAL RULES OR REGULATIONS
MADE UNDER THE FACTORY AND WORKSHOP ACTS
FOR THE PREVENTION OF SUCH DISEASES

BY

EDWARD THORNTON HILL LAWES, M.A., B.C.L.

OF LINCOLN'S INN AND THE WESTERN CIRCUIT, BARRISTER-AT-LAW:
RECORDER OF SALISBURY.

LONDON
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PREFACE.

The extension of the principle of Workmen's Compensation to industrial diseases has created a new branch of the law, which presents difficulties to both the legal and medical practitioner. This book is an attempt to give technical assistance to all who are brought into professional contact with the subject.

Part I. contains a full annotation of the lengthy and complicated eighth section of the Workmen's Compensation Act, as well as separate chapters upon matters affecting certifying surgeons and medical referees. I hope it will be found of assistance upon many questions which must arise with regard to certificates of disablement, suspension, appeals, and procedure generally.

The Law of Workmen's Compensation has now become a large subject. For reasons of space I have included only such Rules and Orders as affect Compensation for disease, and although questions have arisen from time to time which have not yet reached the High Court, I have quoted very few County Court decisions as authorities, because it is always difficult to obtain a reliable report, and no case is of much value unless it can be cited so as to be accessible to the practitioner.

Part II. contains a special treatise upon the twenty-four diseases included in the third schedule and subsequent orders of the Secretary of State; also an account of the industries in which each disease is usually found to occur; and where there exist special rules or regulations, made under the Factory Acts for the prevention of such diseases,

I have included them under the industries which they affect. So many of these codes contain precautions and warnings to both occupiers and workpeople, or give the certifying surgeon the power of suspension, that I feel they are necessary for reference, and I hope they will make this work a complete handbook on the subject.

In writing Part II., I have made free use of the many blue books which deal with the diseases and industries in question : especially the Factories and Workshops Annual Reports, the reports on separate Inquiries to the Home Office, the reports of the Dangerous Trades Committee, and the Industrial Diseases Committee of 1907 with its bulky minutes of evidence.

All of these authorities I believe I have acknowledged in their proper places. They form a veritable mine of information, and I desire here to express my indebtedness to them, as I have verified almost every detail from this source. For the explanation of words and definitions I have availed myself of well-known medical works, chiefly of Quain's Dictionary of Medicine.

I have to acknowledge much valuable and skilled assistance. Dr. Whitelegge, H.M. Chief Inspector of Factories, has throughout kindly allowed me to appeal to him for advice upon all sorts of questions. Dr. Legge, H.M. Medical Inspector of Factories, has taken great pains in reading and offering criticisms on Part II., and I am sure his knowledge and experience has insured its accuracy. I am glad to take this opportunity of sincerely thanking them both. I have also to thank Mr. R. R. Bannatyne of the Home Office who has helped me with many practical hints upon the working of the Act, and Mr. Fitzgerald Henderson of the Western Circuit who has given time to various stages of the book's progress.

THORNTON LAWES.

1 Mitre Court Buildings, Temple, E.C.,
May 1909.

CONTENTS.

PART I.

CHAPTER I.

CHAPTER II.

CHAPTER III.

CHAPTER IV.

CHAPTER V.

APPENDIX.

PART II.

TABLE OF CASES CITED.

TABLE OF STATUTES CITED.

THE LAW OF COMPENSATION

FOR

INDUSTRIAL DISEASES.

PART I.

INTRODUCTION.

The extension of the principle of Workmen's Compensation to industrial diseases in the Act of 1906 was the natural outcome of the previous Act of 1897 and the decisions under it.

Once the principle was admitted that workmen should be compensated by their employers for injuries by accident arising out of and in the course of their employment, it appeared only consistent that injuries or incapacity caused by disease due to the employment should also be included. Apart from the fact that some diseases are, in the ordinary acceptance of the word, accidental, the number of workmen employed in the many dangerous trades where diseases may be contracted, and where there is constant risk of illness, is very large ; the diseases are themselves at least as serious as most other forms of accident ; and there seemed no justification for drawing an arbitrary line of distinction between various sorts of employment, when the principle of the Act was no longer in an experimental stage.

The history of the distinction between diseases that amounted to accidents under the Act of 1897 and those that did not, is as follows :—

In *Fenton* v. *Thorley & Co. Ltd.* (1903, A. C. 443), the

House of Lords held that a workman who ruptured himself through over-exertion in turning a wheel suffered an "injury by accident." The meaning of the word "accident" was discussed at great length and the case is here referred to in order to quote a passage from the judgment of Lord Macnaughten, who says: "The words 'by accident' are, I think, introduced parenthetically, as it were, to qualify the word 'injury,' confining it to a certain class of injuries, and excluding other classes, as for instance injuries by disease, or injuries self-inflicted by design."

At that time the inclusion of diseases properly so-called within the scope of the Act of 1897 was certainly not contemplated, although in an earlier case blood-poisoning caused by a piece of coal working into a miner's knee had been held by the Court of Appeal to be an injury by accident within the meaning of the Act (*Thompson* v. *Ashington Coal Co.* (1901) 84 L. T. 412).

Two years later the important case of *Brinton's Ltd.* v. *Turvey* (1905, A. C. 230) came before the House of Lords. The Court of Appeal, affirming the County Court Judge, had decided that a workman who had contracted anthrax, owing to a spore from some wool getting into his eye, and had died, was injured by accident as much as if it had been a spark or poisonous liquid. The House of Lords affirmed this decision, Lord Macnaughten being in the majority, and Lord Robertson delivering a strong dissentient judgment against the inception of any disease being considered an injury by accident. Lord Lindley pointed out that the decision would not involve the doctrine that *all* diseases were accidents within the Act.

That case was immediately followed by *Steel* v. *Cammell Laird & Co.* (1905, 2 K. B. 233), where the workman was a caulker who used red and white lead for caulking ships. On a certain date he was seized with cramp in his hands, which was succeeded by partial paralysis and total incapacity from work. This was due to accumulated doses of lead: chronic lead poisoning, in fact. The County Court Judge

found that the lead poisoning was an injury by accident, but the Court of Appeal reversed this decision unanimously, on the ground that no date could be fixed which was an essential in the case of an accident. On the same principle it was decided by the Court of Appeal that "beat hand" and "beat knee," which are now scheduled diseases under the present Act, and which are caused gradually, were not "accidents" within the meaning of the Act of 1897 (*Marshall* v. *Holywell Coal Co.* (1895) 21 T. L. R. 494).

Here then was the distinction. Workmen who suffered from a complaint such as an infectious disease whereof the date of the "accident" could be approximated, were entitled to compensation, whereas those who had contracted a disease due to accumulated poison, just as serious in its consequences, just as much due to the nature of the employment, but slower and more insidious in its inception, found themselves outside the Act.

In extending the right of compensation to industrial diseases by means of sect. 8 of the present Act, the policy of the Legislature was to do away with this inequitable distinction. It is impossible as yet to make the Act apply to every sort of industrial complaint, and there are still many diseases, no doubt mainly due to occupation, which are outside the scope of the Act, and for which there still remains the distinction between cases that are "accidents" and those that are not, as explained above. This distinction is expressly reserved by sub-sect. (10) of sect. 8.

The Diseases to which the Act Applies.

The Act itself schedules six industrial diseases and gives power to the Home Secretary to add to the number by Order. A Departmental Committee was at once appointed, and upon their report[1] appearing, sixteen[2] more diseases

[1] Report of the Departmental Committee for Industrial Diseases. May 15, 1907.

[2] Eighteen diseases were actually included in the Order, but two of these, viz. arsenic and lead poisoning, were repeated merely in order to schedule an addition to the processes in each case.

were added to the list by Order dated May 22, 1907, and by a further Order, dated December 2, 1908, which followed a second report[1] of the same committee, two[2] more diseases were added, so that there are at present twenty-four diseases to which sect. 8 applies, and no doubt others will be added in the future as knowledge of them becomes industrially more complete.

These twenty-four diseases include some well-known and some little-known diseases, but they are all strictly industrial or occupation diseases, and are included not so much from the point of view of the number of people who are likely to suffer from them, as from their being so specific to the employment, that injury by the employment can be established in individual cases. Some are diseases little known to medical men generally, but most are familiar to those who have to administer the Factory Acts, and especially to the certifying surgeons in districts where particular industries give rise to particular complaints : for instance, certifying surgeons in the Potteries would be on the look-out for and familiar with the symptoms of lead poisoning, or a Bradford surgeon with anthrax.

The scheduled diseases which do not occur in trades governed by the Factory Acts, and with which certifying surgeons will therefore have no special acquaintance are the following : ankylostomiasis, glanders, nystagmus, caisson disease, beat hand, knee, and elbow, synovitis of the wrist, chimney-sweeper's cancer, and telegraphist's cramp.

Some of these are particularly miners' complaints. The Factory Acts do not apply to mines, and the certifying surgeons have no duties in connection with mines : but the useful provisions in sub-sect. (5) of sect. 8 meets this difficulty by enabling the Home Secretary to appoint a medical practitioner with the powers and duties of a certifying surgeon, and no doubt those who have experience in the

[1] Second Report of the Departmental Committee. October 12, 1908.

[2] Three diseases are scheduled in this case, but one of them, viz. "eczematous ulceration," is merely an alteration of the wording of the same disease in the Order of May 22, 1907.

respective trades and diseases will be appointed. In some collieries in the north of England two such special appointments have already been made, while in the case of telegraphist's cramp the Order provides that the Post Office medical officer in charge of the workman, if authorised to act by the Postmaster-General, shall be substituted for the certifying surgeon.

In this connection an argument has been used, which has never been entirely confuted. It is suggested that sect. 8, in applying the principle of workmen's compensation to these industrial diseases, does so only in cases where the process mentioned in the Third Schedule and Orders is carried on under conditions to which the Factory and Workshop Act, 1901, would be applicable.[1] That was not the intention of those who framed the Act, nor the view of the Departmental Committee upon whose report the Orders of 1907 and 1908 were based, nor (it is contended) is there any language in the section to justify such an interpretation, which would very much curtail its scope.

It is true that suspension can only take place in trades that have been certified as dangerous by the Secretary of State, and in processes in which the special rules or regulations[2] made under the Factory Acts give a power of suspension. But the workman having proved his suspension, as required in the earlier part of the sub-section (clause ii), is entitled to compensation under the succeeding words, if he also proves that the disease which he contracted, and for which he was suspended, is due to the nature of any employment (within the twelve months' limit) *other than that from which he was suspended*, and which may not be a process under the Factory Act rules and regulations at all.

In the case of disablement the sub-section is also fairly clear : it makes use of the machinery of the Factory Acts

[1] Cf. *Haylett* v. *Vigor & Co.* (1908), 2 K. B. per Kennedy L.J. at p. 843.

[2] See p. 23, infra, as to the difference between special rules and regulations.

as regards certifying surgeons, and gives them (not very explicitly perhaps) new powers under this Act, beyond their powers under the Factory Act, viz., to certify as to disablement in all cases of diseases to which sect. 8 applies, whether the process is one within the jurisdiction of the Factory Act or not.

Many diseases may rightly be regarded as trade diseases, as they are known to be specially prevalent amongst workers in particular industries, but are not sufficiently specific to be included in the scope of this Act, as they are also frequently found amongst people with other occupations. Bronchitis and fibroid phthisis are conspicuous instances.

Bronchitis has no doubt an industrial origin in many trades: flax workers, dock labourers handling dusty cargoes, chemical workers and tinplate workers who inhale gases and fumes, and workers in many dusty employments suffer from it in a larger proportion than the rest of mankind. But other people also contract it, and as there is no definite symptom which differentiates bronchitis due to inhalation of dust or gases from the ordinary type of bronchitis, it is obviously impossible to say whether any particular case is the result of the occupation or not. No workman could prove his case: no court of law or arbitrator should be asked to decide it.

Fibroid Phthisis is a pulmonary disease of slow growth, due to the inflammation caused by the inhalation of dust which impairs large areas of the lung tissues. It is often complicated by the supervention of tubercular phthisis, as the impaired lung is apt to harbour the bacillus. It is a specific and sufficiently distinguishable trade disease amongst grinders, potters, masons, ganister miners and others who are employed continuously in gritty and dusty occupations, but has not been included in the Schedule to the Act for two reasons: the first, because the disease is of such slow growth that it would not be fair to impose the compensation upon the employer under whom the

workman had been serving during the twelve months prior to the incapacity, and secondly, because for years before the disease can be definitely diagnosed the patient may suffer from symptoms such as an asthmatic or bronchial cough which is not distinctive: indeed, many who have such symptoms may not suffer from fibroid phthisis, even if they continue in the trade. In no other scheduled disease is there such a long period of possible premonitory symptoms. To schedule such a disease would end in many losing their employment before any disease is contracted, and many who never would contract the disease.[1] The remedy for these complaints is to be found in the careful regulations for ventilation and prevention of dust which in recent years have had the special attention of the Factory Department, with very beneficial results.

Application of the Act to Industrial Diseases.

Except in a marginal note the section does not use the phrase "industrial disease"; it speaks of "disease due to the nature of the employment." In applying the principles of the Act to such diseases some of its provisions have been modified as being unsuitable, for a disease differs from other accidents, especially in its origin and results, which both manifest themselves more gradually than in other injuries.

The section begins by simplifying the proof of the accident, and employs the machinery of the Factory Act, 1901, for that purpose. Except in the case of death, which has to be proved to have been "caused by" the disease, and which does not require particular discussion here, proof of the disease before a surgeon appointed under that Act is substituted for legal proof before a judge or arbitrator.

Where a certifying surgeon certifies that a workman is disabled by a disease to which the section applies, or where

[1] Report of the Departmental Committee on Compensation for Industrial Diseases, 1907.

the workman is suspended by a surgeon under a power in any Factory Act regulation on account of having contracted any such disease, no further proof is required of the workman having contracted the disease. The disablement or suspension is treated as the happening of the accident, and if the disease is due to the nature of any employment in which the workman was employed within the last twelve months, he is entitled to compensation *as if* the disease were a personal injury by accident.

It will be noticed that in the case of disablement the certifying surgeon's certificate is essential to the workman's right to compensation : but he does not require a certificate if he has been suspended, though by the regulations made under the Act he may apply for one, and must do so if he wishes to appeal to the medical referee.

The dates of disablement and suspension are important with regard to the procedure under sect. 2 as to giving notice of the accident as soon as practicable, and making a claim for compensation within six months. The date of suspension creates no difficulty, and is not modified by the Act : it is the date when the workman was actually suspended.

The date of disablement is such date as the certifying surgeon certifies, or if he is not able to certify a date, that on which the certificate is given : or such date as the medical referee may determine on appeal : or where the workman dies without a certificate, the date of death.

The medical referee is created by sect. 10 of the Act for various purposes, of which one of the most important is to decide appeals from certifying surgeons, who have given or refused to give certificates of disablement, or have suspended or refused to suspend a workman : either the workman or the employer may appeal, and if the medical referee allows an appeal against a refusal to give a certificate of disablement, he is to determine the date of disablement.

Both the certifying surgeon and the medical referee have therefore new and important powers and duties under this

Act, which are collected and discussed in more detail hereafter in separate chapters.

There are certain differences between disablement and suspension in this section, which, although noted elsewhere, may be conveniently collected here.

DISABLEMENT.—The section requires the certificate of a certifying surgeon or medical referee as proof of disablement; the certificate must also give the date of disablement. The regulations provide that the certificate must be in writing. No time is provided within which the certificate must be granted after disablement: it may be granted at any time provided the claim for compensation is made within six months from the date of disablement, without which it will be of no avail; also, if the certificate gives a date of disablement more than twelve months since the employment ceased, it will be useless. The workman need not be in the particular employment in which the disease was contracted, nor apparently in any employment at all when the certificate is granted. If a certifying surgeon refused it on such grounds, an appeal would lie to the medical referee.

SUSPENSION.—The section does not require any certificate as proof of suspension, which is proved in the usual way: the date of suspension speaks for itself. The regulations provide for a certificate, and make the practice similar to that in cases of disablement. This does not affect the workman's claim, but if either he or the employer wish to appeal to the medical referee a certificate must be obtained. If such certificate is obtained, it may, as in the case of disablement, be granted at any time, subject to the claim being made within six months of suspension, and the workman being employed within twelve months previous to suspension at the employment to which his disease was due.

Suspension must, from its nature, take place while the workman is in an employment in which the Factory Act regulations and special rules give the certifying or appointed surgeon the power to suspend.

Industrial Origin of Diseases Presumed.

An important modification is contained in sub-sect. (2) by means of which the burden of proof is shifted so that the industrial origin of the diseases to which the section applies, in most cases of their occurrence, is presumed. In the case of ordinary accidents the applicant must prove that the injury arose out of and in the course of the employment: so in the case of diseases to which the section does not apply, and which must be proved to be accidents, he must do the same. With regard to most of the scheduled diseases, however, the processes in which they are usually found to occur are also scheduled in a second column, and if the workman who contracted such a disease was employed at or immediately before the date of disablement or suspension in the process set opposite that disease, the disease is presumed to be due to the nature of the employment. The burden of proof is shifted on to the employer to prove that the disease is not due to the employment, except where the certifying surgeon certifies that in his opinion it is not so due.

This sub-section creates no new liabilities: it merely shifts the burden of proof after the applicant has brought himself within the provisions of sect. 8. Its legal aspect is fully dealt with in the notes hereafter, and all that need be added here is a reminder that if the process in which the workman was employed at the time in question is not scheduled, the burden of proof is not shifted, and remains upon the applicant.

There is no definition of the word "process" in the Act, and questions may arise as to its meaning.

Another modification made by this section, based on the presumed industrial origin of the disease, is that liability is thrown primarily on the employer who last employed the workman during the twelve months' limit in the employment to the nature of which the disease is due, and not necessarily the last employer at the date of disablement. He is also the person to whom notice of death,

disablement or suspension must be given. The section gives him safeguards by which he can escape liability and throw it on to others, or make them share it, and which are based upon the gradual onset of disease as compared with the precise moment at which an accident happens.

Sequelæ.

The words "or its sequelæ" occur after the mention of many of the diseases in the first column of the Third Schedule and the Order of May 22, 1907. Thus: "Lead poisoning or its sequelæ," "Mercury poisoning or its sequelæ" are instances. The word "sequelæ" has never before been used in an Act of Parliament, and it is necessary to ascertain its meaning.

The word "sequela" itself simply means "that which follows"—the result or consequence. In medicine it is used to denote a phenomenon or condition supervening as the result of disease. In Quain's "Dictionary of Medicine" it is defined as a "symptom or morbid condition which either remains or supervenes after various diseases have run their course, such as renal disease after scarlet fever, paralysis after diphtheria, or cardiac disease after acute rheumatism."

In this Act it is not defined, but it is suggested that it means some definite complaint which can be shown to be the result of the disease in question, even if the disease itself has passed away.

The effect of adding "or its sequelæ" to the disease in the first column is to allow the applicant to show that that disease was either the proximate or ultimate cause of death or disablement. If the applicant relies upon the sequela of a scheduled disease as the immediate cause of death or injury, he must show that that sequela was in fact caused by the particular disease, and not merely that it was a possible sequela, or one common to that and other diseases in other words, that the scheduled disease was the ultimate cause of the death or injury. The Court will not infer that

a complaint which may be the sequela of more than one disease is, in the case before them, the sequela of a selected scheduled disease.

This has already been decided by the Court of Appeal. Where a painter [1] showed signs of plumbism in September, and was removed to a hospital on September 25, before which date all traces of plumbism had passed away, and died on October 2, the County Court Judge found the following facts :—(*a*) the immediate cause of death was granular kidney ; (*b*) granular kidney is a sequela of lead poisoning, and also of gout, alcholism, heart pressure and other complaints ; (*c*) lead poisoning was not proved to have been the cause of the granular kidney or of the death ; on the other hand, the employers did not prove that it was not the cause of death. Upon these findings he made an award in favour of the workman's dependents.

The Court of Appeal reversed this finding upon the grounds that the burden of proof was upon the applicant to show that the death was caused by lead poisoning, or by a disease shown *in this case* to have been a sequela of lead poisoning, and that sub-sect. (2) does not alter the burden of proof or come into operation until death is proved to have been so caused.

The Master of the Rolls said : " It is not sufficient that death was caused by something which may in some cases be a sequela of lead poisoning, but may also be a sequela of gout or alcoholism. In short, it must be proved that death was a consequence of lead poisoning in the case of this particular individual, not necessarily a direct or immediate consequence, but at least a remote consequence."

Lord Justice Farwell said : " It is clear that if ' sequelæ ' be translated into plain English and called ' or its consequences '—i.e. the consequence, not a possible consequence —the allegation then is, that the man died, not from lead poisoning, but from the consequence of lead poisoning, and it is as necessary for him to prove this case as it would be

[1] *Haylett* v. *Vigor & Co.* (1908) 2 K. B. 837.

for him to prove that he had died from lead poisoning, if that had been the case. The Schedule cannot be read as if the words were 'lead poisoning or granular kidney': it can only be 'lead poisoning or granular kidney produced by or consequent on lead poisoning.'"

Lord Justice Kennedy added that the first column of the Schedule appeared to him to be unfortunately ambiguous, and that the words "or its sequelæ" may have been inserted in order to exclude the argument that lead poisoning was only the remote cause, and that therefore the employer was not liable.

In such a case as this it rests with the workman to show that the kidney disease was the sequela of lead poisoning. He must show by medical evidence that it was of the kind clinically and pathologically identical[1] with that which results from lead poisoning; that the other causes of the same morbid condition were absent or negligible; and hence that lead was the true cause. The statistics as to occupation diseases published in the decennial supplement to the Annual Report of the Registrar-General show the high mortality, relatively to the rest of the population, from Bright's disease among certain classes of workers in lead.

It is impossible to catalogue all the sequelæ of the scheduled diseases that may arise. Many will be found in the description of each disease in Part II of this book. Some are so conspicuously the result of certain diseases that medical authority will probably be able to prove the connection between the disease and the sequela in most cases: we may instance some forms of paralysis, such as wrist drop in lead poisoning and necrosis of the jaw in phosphorus poisoning: others are common to several diseases, e.g. paralysis of various kinds is the result of other trade diseases besides lead poisoning, and is common

[1] This phrase is used to avoid the assumption that the name given to a disease is conclusive. Diseases classed under one name are not necessarily one and the same. Granular kidney and acute nephritis are both kidney diseases, but the latter has very little to do with plumbism.

amongst human beings generally. We have already referred to two conspicuous instances in bronchitis and fibroid phthisis, and we may mention others, such as neuritis, conjunctivitis and blindness, and various forms of sickness and headache, all of which are common as sequelæ of more than one disease, and are found to occur in the population generally. The difficulty already mentioned of proving that such complaints are the result of any one particular disease must arise from time to time, as in many cases medical opinion could not be any more certain than that granular kidney was the sequela of lead poisoning in the contested case above discussed.

CHAPTER I.

THE WORKMEN'S COMPENSATION ACT, 1906.

(6 Edw. 7, c. 58.)

Section 8.

Application of Act to industrial diseases.

8.—(1) Where—

(i) the certifying surgeon appointed under the Factory and Workshop Act, 1901 (1 Edw. 7, c. 22), for the district in which a workman is employed certifies that the workman is suffering from a disease mentioned in the Third Schedule to this Act and is thereby disabled from earning full wages at the work at which he was employed; or

The Certifying Surgeon is appointed under the Factory Acts and has powers and duties under those Acts and under this Act, all of which are collected and discussed in a separate chapter, as being too long for the subject-matter of a footnote.

In this Act the phrase includes a medical practitioner appointed for the purpose by the Secretary of State under sub-sect. (5), and the Post Office medical officer, if authorised to act by the Postmaster-General, in cases of telegraphist's cramp—a modification made under sub-sect. (6) in the Home Secretary's Order of December 2, 1908. See p. 52.

The duties of a certifying surgeon under this clause of sect. 8 include personal examination of the workman, and delivery to him of a certificate either of disablement, or of refusal to certify disablement, in the forms scheduled to the regulations made under this section. See pp. 73, 137.

District in which a Workman is Employed.—The areas for which the certifying surgeons are appointed are fixed by H.M. Chief Inspector of the Factory Department at the Home Office. The name and address of the certifying surgeon for

any district can be ascertained at any factory in the district, as by sect. 128 of the Factory Act, 1901, these particulars must be affixed in every factory and workshop. The Home Office have also issued a memorandum in which they say that any workman desiring to know the name of the certifying surgeon for the district in which he is employed, will be informed upon application being made to them.

Workman.—It is not every employé that is a " workman " ; regard must be had to the general scope and intention of the Act, which is somewhat wider than the Act of 1897.

The Act of 1897 did not define the word " workman," but said what it included.

The Act of 1906, sect. 13, goes further and says what it does not include and what it means.

By this definition " workman " *does not include :—*

(i) Any person employed otherwise than by way of manual labour whose remuneration exceeds £250 a year.

If the work is substantially manual labour the £250-limit does not apply.

Manual labour is not the same as manual work. The phrase occurs in sect. 10 of the Employer's and Workmen's Act, 1875, and the decisions under that Act are material, but the " workmen " contemplated by the two Acts may be different. (Se the dissenting judgment of Farwell L.J. in *Bagnall* v. *Levenstein Ltd.* (1907) 1 K. B. 531, citing *Jackson* v. *Hill* (1884) 13 Q. B. D. 618.) See p. 19.

Telegraph clerks, persons engaged in writing or driving do manual work, but not manual labour. (See *Cook* v. *North Metropolitan Tramways Co. Ltd.* (1887) 18 Q. B. D. 683.)

The test is what is the man's primary duty. The driver and conductor of a tramcar or omnibus do not do manual labour, nor the guard of a goods' train, although his duty is at times to assist in coupling or uncoupling trucks (*Cook* v. *North Metropolitan Tramways, supra ; Morgan* v. *London General Omnibus Co. Ltd.* (1884) 13 Q. B. D. 832 ; *Hunt* v. *Great Northern Rly.* (1891) 1 Q. B. 601). But a driver of a motor omnibus whose duty is to do necessary repairs when out with his omnibus is engaged for manual labour (*Smith* v. *Associated Omnibus Co.* (1907) 1 K. B. 916).

Remuneration.—The same word occurs in Sch. I. 2 (*a*). It is not the same as salary or wages (cf. *Reg.* v. *Postmaster–*

General (1876) 1 Q. B. D. 658); it includes commission or gratuities, and is very similar to earnings (see p. 23). It is not confined to money payments: any thing which has a money value to the workman must be included and estimated, such as the use of a uniform supplied by the employers, although remaining their property (*Great Northern Rly.* v. *Dawson* (1905) 1 K. B. 331), or board and lodging. The test of the value of board and lodging is not what the workman saves by it, or what he could board himself for, but what the reasonable style of board provided would have cost him to purchase (*Dothie* v. *Robert Macandrew & Co.* (1908) 1 K. B. 803). Where there is no practical test this will be the cost to the employer (*Rosenqvist* v. *Bowring & Co. Ltd.* (1908) 2 K. B. 108).

(ii) A person whose employment is of a casual nature, *and* who is employed otherwise than for the purposes of the employer's trade or business.

The "and" is important. A man employed to do casual work for the purposes of the employer's trade is not excluded.

Casual Nature.—See a discussion of this phrase by Buckley L.J. in *Hill* v. *Begg* (1908) 2 K. B. 802.

Where a man was regularly employed to clean the windows of a private house whenever they wanted cleaning, being summoned by a post-card and paid at the end of each job, the employment was of a casual nature (*Hill* v. *Begg*, supra).

But where a woman was employed to do the washing at a private house, and went regularly on the Friday of each week and on alternate Tuesdays, without being told to do so on each occasion, the employment was not casual: there was a contract of service of a periodical nature which was absent in *Hill* v. *Begg*, which was distinguished (*Dewhurst* v. *Mather* (1908) 2 K. B. 754). Therefore employment is not casual merely because it is intermittent or periodical.

For the Purposes of the Employer's Trade or Business.—This phrase seems to afford scope for a variety of questions as to what are the purposes of any trade or business.

If a window cleaner is casually employed to clean the windows of an office, is he employed for the purposes of the business? Everyone requires light for the purposes of his business. Does it make any difference if the employer is an artist, or architect, or matcher of colours, and requires rather more light than other people? Or can he only claim compensation if the business is one in which window cleaning is an integral part, e.g. if he were employed by a firm of house decorators, or by a window cleaning association?

"Purposes" would seem to imply more than "requirements," rather the "objects and scope" of the business: see however *Johnston* v. *Monasterevan Store Co.* (1909) 2 Ir. R. 108 (repairing roof of house used solely for business): cf. *Rennie* v. *Reid* (1908) S. C. 1051 (cleaning windows of a doctor's house). There are no English cases.

(iii) A member of a police force (defined in sect. 13).

(iv) An outworker (defined in sect. 13).

(v) A member of the employer's family dwelling in his house.

"Member of a family" is defined in sect. 13. See p. 100.

Apart from this definition other classes of persons are excluded by the terms of the Act, viz.:—

(vi) Persons in the Naval and Military service of the Crown (sect. 9).

(vii) Independent contractors, as they do not work under a "contract of service."

The line between an independent contractor and a workman employed under a contract of service is not always easy to draw, and leads to some fine distinctions (see *Vamplew* v. *Parkgate Iron & Steel Co.* (1903) 1 K. B. 851, and earlier cases there cited, and see the Scotch cases of *McCready* v. *Dunlop & Co.* (1900) 2 F. 1027; *Paterson* v. *Lockhart* (1905) 7 F. 954; *Chisholm* v. *Walker & Co.* (1909) S. C. 31.

Judicial decision has also excluded—

(viii) A partner in the employer's firm.

It has been held that a partner who had the practical experience (of mining and quarrying) and who did all the manual labour, for which he was paid weekly wages independently of any profits as a partner, was not a "workman" within the meaning of the Act, on the ground that the intention of the Act was to exclude cases where the same person was both employer and employé: it contemplated a relationship between two opposite parties (*Ellis* v. *Joseph Ellis & Co.* (1905) 1 K. B. 324).

Presumably this decision would not be extended to exclude a workman who had shares in his employer's company.

Two recent decisions under the Act of 1897 lay down the principle that the word "workman" in the Act is used in its "ordinary, sensible, and popular meaning." Therefore the certificated manager of a mine, paid a yearly salary, who did not do the manual labour in the mine, although his presence was required there, was not within the "general scope of the Act" (*Simpson* v. *The Ebbw Vale Steel, Iron & Coal Co.* (1905) 1 K. B. 453). And a man who had taken a degree as a master

of science, and was employed for his scientific attainments at a salary and commission upon his inventions and improvements, although he dressed as an ordinary workman and spent much of his time in the works in manual labour, was held to be employed as a scientific expert and not as a workman (*Bagnall* v. *Levenstein Ltd.* (1907) 1 K. B. 531, Farwell L.J. dissenting).

It is impossible to ignore these two decisions, although, if our view is correct, the reasons given in them are not applicable to the Act of 1906, because, as we shall shortly see, the word "workman" in that Act cannot be confined to its popular meaning.

Save for the persons above mentioned as excluded, the definition says that the term "workman" "means any person who has entered into or works under a contract of service or apprenticeship with an employer, whether by way of manual labour, clerical work or otherwise, and whether the contract is express or implied, is oral or in writing."

The only question is how far this definition is wider than that of the Act of 1897. It obviously intends to include all persons of either sex who work under a contract of service, whether they are paid a yearly salary or a weekly salary, and whether they do manual labour or not, unless they are expressly excluded. But the only verbal addition to the definition is "clerical work."

Is the "general scope of the Act" wider? Or is "workman" still used in its "ordinary, sensible, and popular meaning"? In other words, is the reasoning of the Court of Appeal in the two cases last cited (*Simpson* v. *Ebbw Vale* and *Bagnall* v. *Levenstein Ltd.*) to prevail under the Act of 1906?

It is suggested that the word "workman" is no longer used quite in its popular meaning, and that the scope of the Act is widened by the inclusion of many classes of persons hitherto unknown as workmen, notably persons engaged in clerical work, and in the use of telegraphic instruments, and indeed everyone who works under a contract of service, and whose remuneration does not exceed £250 a year.

It is a question in the arbitration whether a man is a workman to whom the Act applies: it is no part of the certifying surgeon's duty to inquire or to certify as to this.

Certifies.—The wording of the Act does not require the certificate of disablement to be in writing, but the regulations of June 21, 1907, prescribe a form in the schedule thereto for

Certificate must be in writing.

the certificate and say that the certifying surgeon shall deliver it to the workman. It must therefore be a written certificate.

The certificate will no doubt be usually admitted : if it is not, the certifying surgeon must be called to prove it, or his handwriting and identity must be proved to make it evidence. As a matter of practice, in many cases the evidence of the certifying surgeon will be required as a witness upon other matters.

The intention of the Act was to do away with the technical difficulties of a law suit, and to provide the workman with a simple process by which he could prove the medical part of his case before a certifying surgeon or medical referee, whose decision was to take the place of that of a judge as to the suffering and disablement.

The Act therefore does not say, "where a workman is suffering from a disease and is thereby disabled," and thus put the proof of this upon the applicant in the arbitration, but says, "where a certifying surgeon certifies that a workman is suffering from a disease and is thereby disabled, &c." There is an important distinction between these two phrases, and the language used raises the question whether the certificate of the certifying surgeon is conclusive of the facts therein contained and certified, or whether the certifying surgeon can be cross-examined upon it, or any question raised in Court as to whether the workman is in fact suffering from the disease and is thereby disabled.

Certificate, how far conclusive

On the one hand it may be urged that to make the certificate conclusive upon these points may work hardship where the surgeon has made a mistake, or has been misled, or where new symptoms have arisen which alter the character of the disease : also that nothing is said about the certificate being conclusive, as in the case of the medical referee's certificate, and that if the certifying surgeon is called as a witness (he may be a necessary witness upon other matters) he should be liable to be cross-examined as other witnesses.

The answer to this is that this clause of the Act substitutes the certifying surgeon's certificate for proof of the facts of suffering and disablement, and provides a remedy for either party who is aggrieved by the action of the certifying surgeon, viz. to appeal to a medical referee, whose decision is final (see *f*).

It is therefore submitted that if the employer comes into court without having appealed to the medical referee, the certifying surgeon's certificate is conclusive of the facts which he is empowered by this section to certify, but not more. The

certifying surgeon if called as a witness cannot be cross-examined as to his reasons for certifying, nor as to the facts certified, nor can any question be raised that the workman was not in fact suffering from the disease and thereby disabled from earning full wages at the work at which he was employed.

There may be an exception to this if fraud on the part of the certifying surgeon is alleged, but even then the obvious remedy is to appeal to the medical referee.

See Form 9 of the Workmen's Compensation Rules (infra, p. 121), where the facts to be certified are not included in the questions in the arbitration.

In this respect clause (i) of this sub-section differs from clause (ii), where, owing to a change in the language, no certificate is required, and where it may become a question in the arbitration whether the workman was suspended on account of having contracted the disease. It is true that in this case also the forms do not include this as a question in the arbitration, but there can be no doubt that they should have been so drafted.

The proof required to enable a workman to establish his right to compensation for disablement under this section is, first, proof that the certifying surgeon has certified as already stated, and then, by the evidence of doctors coupled with that of himself or his associates, as may appear necessary, that the disease is due to the nature of any employment in which he was employed within the twelve months' period, except in cases under sub-sect. (2), where this is presumed.

It is important to remember that it is not part of the certifying surgeon's duty to certify that the disease is due to the nature of the employment : that is part of the proof of the case. This has been so often wrongly stated that it is especially emphasised here.

Disease mentioned in the Third Schedule to this Act.—This includes now any disease mentioned in the Orders made by the Secretary of State under the powers contained in sub-sect. 6 of this section. There are at present a total of twenty-four diseases to which this Act applies (see pp. 4, 53). All these diseases are described in Part II of this book.

Is thereby disabled.—It is essential that the certifying surgeon should certify as to this. It is not sufficient that he merely certifies that the workman is suffering from the disease, and for the workman to prove he is thereby disabled from earning full wages.

Earning Full Wages.—The workman's capacity for earning full wages after the disease is made the criterion as to whether the case is one for compensation: if disablement from earning full wages is certified, then compensation is based upon "earnings," and "average weekly earnings," under Sch. I.

It is a question entirely for the certifying surgeon or medical referee whether the workman is disabled from earning full wages: it is a phrase not easy to interpret in all sets of circumstances.

"Full wages" is an expression repeated from sect. 1 of the Act, and appears to mean full wages for the injured workman in question—not full wages for the best-known workman at the particular kind of work. The certificate should not as a rule be granted unless the workman is disabled from or rendered less capable of earning the wages he would have been earning but for the disease. In most cases no doubt a total cessation or substantial reduction of wages will be proved, but if it comes to a question of evidence as to what wages the workman could earn if he had not suffered the disease, it is suggested that he cannot take the standard of a workman more skilled than himself. Moreover, the mere fact that the employer takes him back at the same wages as before the disablement is not conclusive against the workman: nor his refusal to return to the same employer or to the same wages. He has a right to seek work elsewhere, though his refusal may not tell in his favour, as it must be some evidence of his ability to work and earn wages: the same wages as before the disease may be paid out of kindness or for different or less valuable work. If the disease in fact renders him less capable of performing a substantial part of the work at which he was employed, he is disabled from earning full wages at that work, whatever his actual wages are. The matter would be adjusted when it came to compensation by a nominal weekly payment liable to review in the future.

These principles are the result of such cases as *Pomphrey* v. *Southwark Press* (1901, 1 Q. B. 86), *Chandler* v. *Smith* (1899, 2 Q. B. 506), *Irons* v. *Davis & Timmins* (*ibid.*, 330), *Fraser* v. *G. N. of Scotland Rly.* (1901, 3 F. 908), and may help to guide the certifying surgeon in what may sometimes be a difficult question where a disease is not very apparent.

Wages and earnings.

There is a distinction between wages and earnings which may become material in this connection. "Wages" seems to mean "earnings as between employer and employé":

"earnings" to mean "earnings in the employment from the employer and strangers." Gratuities—or "tips"—that are not illicit or received secretly, or trivial, and do not encourage neglect of duty, must be taken into consideration in estimating "average weekly earnings" for the purposes of compensation under the Act, but apparently are not included in "full wages." This seems to be the result of the judgment of the Court of Appeal in the recent case of *Penn* v. *Spiers & Pond* (1908, 1 K. B. 766; 24 T. L. R. 354). Tips.

It must be remembered that a workman who has received compensation under the Act for partial incapacity, is estopped from claiming wages during the time he has been disabled (*Elliott* v. *Liggens* (1902) 2 K. B. 84).

The Work at which he was employed.—The application of these words is not restricted to employment "at or immediately before the date of disablement," as in the case of processes under sect. 2. In fact, the only definite restriction as to time seems to be the twelve months mentioned later in the section, which does not apply to the certifying surgeon's certificate.

The proper interpretation seems to be as follows:—The injured workman may apply for a certificate of disablement, although he is in a different employment to that in which the disease was contracted, or no employment at all. If the certifying surgeon is satisfied that he is disabled by the disease from earning his full wages at *any* work at which he has been employed within a time which appears to the surgeon reasonable, having regard to the nature of the disease and other circumstances, he should grant a certificate. If he refuses, there is an appeal to a medical referee. Where the workman has voluntarily left his employment some time before he applies for a certificate, it will no doubt add much to the certifying surgeon's difficulties, but the matter is entirely for him or the medical referee on appeal to decide.

(ii) a workman is, n pursuance of any special rules or regulations made under the Factory and Workshop Act, 1901, suspended from his usual employment on account of having contracted any such disease; or

Special Rules or Regulations.—*Special Rules* were made under the unrepealed sections of the Factory and Workshop Acts, 1891 (sects. 8, 9, 10, and 12 and First Schedule) and 1895

(sects. 12, 24 (3), and 28), which empowered the Chief Inspector of Factories to serve a notice in writing on the occupier of a factory or workshop certified as dangerous, proposing special rules, and provided a method of arbitration where they were objected to. These codes of special rules are not therefore in force until they have been established individually for each factory. They are gradually being replaced by regulations, which once established are in force in all factories of the class for which they are made.

Regulations are made by the Home Secretary under the authority of the Factory and Workshop Act, 1901, sects. 79[1] to 86, which provide for a public inquiry in the case of objections. They must be laid before both Houses of Parliament before they come into force, and when made must be posted up in the factory or workshop.

Breach of either special rules or regulations renders the offender liable to a fine : £10 in the case of an occupier, owner, or manager, and £2 in the case of any other person (see Act of 1901, sect. 85 ; Act of 1891, sect. 9).

Special Rules or Regulations made under the Factory and Workshop Act, 1901.—There being no special rules made under the Act of 1901, as explained in the last note, there is an error in drafting this phrase, which should have been " special rules or regulations made under the Factory Acts." It does not seem a vital error for the following reasons :—

The Act of 1901, sect. 161 (2), provides that all special rules " made or having effect under any enactment hereby repealed shall continue to have effect as if they had been made under this Act."

Moreover, to construe the phrase strictly would have the effect of excluding all cases of compensation for suspension under special rules, which would to a very large extent defeat the object of the clause : therefore if necessary the Court would, *ut res magis valeat quam pereat*, confine the words " made

[1] Sect. 79 (which is based on but is rather wider than sect. 8 of Act of 1891 and sect. 28 of Act of 1895) is as follows :—

Where the Secretary of State is satisfied that any manufacture, machinery, plant, process, or description of manual labour, used in factories or workshops, is dangerous or injurious to health, to life or limb, either generally or in the case of women, children or any other class of persons, he may certify that manufacture, machinery, plant, process, or description of manual labour to be dangerous ; and thereupon the Secretary of State may, subject to the provisions of this Act, make such Regulations as appear to him to be reasonably practicable and to meet the necessity of the case.

under the Factory and Workshop Act, 1901," to the regulations only, and leave the special rules without any qualifying description.

The special rules and regulations now in force in the various dangerous trades connected with the diseases to which the section applies are included in the discussion of these diseases in Part II of this book.

Suspended.—The special rules and regulations in force for many trades contain provisions for the periodical examination of the workpeople in dangerous processes, and give the certifying or appointed surgeon a power to suspend them from their employment. This suspension is sometimes, but not always, required to be in writing in the Health Register kept by the occupiers, and signed by the surgeon. Such suspension will often take place as a precautionary measure before the disease is actually or seriously contracted.

The trades in which the regulations and special rules contain a power of suspension are as follows: *Regulations*—Electric accumulators, paints and colours, heading of yarn and vitreous enamelling (all lead poisoning trades), nitro- and amido-derivatives of benzene. *Special Rules*—Earthenware and china, transfers for the same, white lead (all lead poisoning), lucifer matches (power given to the appointed dentist), bichromate or chromate of potassium or sodium, and vulcanising of india-rubber (bisulphide of carbon).

This clause (ii) does not use the word "certify" or "certificate," or prescribe any form of suspension beyond what may be contained in the Factory and Workshop Act. The regulations, however, of June 21, 1907 (see p. 129, infra), adopt the same procedure as under clause (i), and prescribe a form of certificate of suspension or refusal to suspend, which the certifying or appointed surgeon must deliver to the applicant. There is nothing to authorise this in the Act, the words of which are merely: "where a workman is suspended." The suspension is treated as the happening of the accident, and no date has to be certified as in case of disablement, and it seems clear that the Act does not contemplate any certificate in the case of suspension. The question arises how far these regulations affect the proof of the workman's claim. Had they made the production of a certificate of suspension a condition precedent, they would have been so far *ultra vires* (cf. *The Queen* v. *Pawlett* (1873) L. R. 8 Q. B. 491; *R.* v. *Bird and others* 1898) 2 Q. B. 340), but they impose no condition, nor do they

A certificate of suspension is not essential.

make the certificate proof of the suspension : they only provide a procedure to be adopted if either the workman or the employer applies for a certificate.

The workman may avail himself of this, but what good it will do him in his claim, beyond knowing what the appointed surgeon says as to the cause of suspension, it is difficult to see, for he must prove his suspension in the ordinary way.

However, in case of appeal to the medical referee the certificate is essential, as neither the workman nor the employer can appeal without it, as the certificate or a copy must be sent with the application for a reference to the Registrar of the County Court (Regulation 9, post, p. 133).

The nature of the necessary proof under this clause is interesting. Suspension has no effect, for the purposes of a claim for compensation, unless it is " on account of having contracted " the disease. If the applicant is without the support of the surgeon who suspended him, he must prove, first, his suspension in pursuance of special rules or regulations, and then that the suspension was on account of having contracted the disease. The only way to do this is to call medical evidence that he had the disease at the time : possibly the appointed surgeon will be called on behalf of the employers to prove that he had not. It is true that precautionary suspension gives no right to compensation if the disease is not in fact contracted; but in cases where a man is suspended with indefinite symptoms or because he is ill and the surgeon cannot fully diagnose the complaint, and he is proved to have had the disease very soon afterwards, it will be impossible to say (in most diseases) that the suspension was not on account of the man having contracted the disease.

The proper question, it is submitted, is not what the surgeon thought at the time was a reason for suspension, but whether in fact the man had the disease, and was therefore suspended. The fact that the workman after suspension voluntarily left the employment, or was discharged before the disease was fully manifested cannot affect the question.

In practice, the question to be decided in cases of suspension will often be merely, Had the applicant the disease at the time ? Upon this there will be room for difference of medical opinion, as many of the diseases are of slow growth, and have complicated symptoms.

The facts of an unreported case will illustrate this.

The applicant claimed compensation for suspension on account of having contracted lead poisoning in the respondent's

white lead works. The respondents denied the suspension and the poisoning, and said the applicant had been discharged by payment of a week's wages in lieu of notice. Two doctors called on behalf of the applicant said they examined him in November and December, and found him undoubtedly suffering from an attack of lead poisoning. For the respondents the appointed surgeon said he examined the man on October 7 : he was suffering from a slight attack of colic : it was not a very clear case of lead poisoning ; he asked to be allowed to resume work on October 14, and was allowed to work in the yard : on October 24 he was again refused permission to resume his proper work. On October 26 he was discharged with a week's wages. Another doctor who examined him in January said there was then no evidence of lead poisoning. The County Court Judge held that the applicant was suffering from lead poisoning, and was entitled to compensation.

It seems that in cases of suspension, if the workman is dissatisfied with the appointed surgeon's view of his case, it is still open to him to go, in case of disablement, to the certifying surgeon, if he is not the same person as the appointed surgeon, for a certificate of disablement, which, if granted, will avoid calling various medical opinions as to whether he has contracted the disease, for, as we have seen, the certificate of disablement is final as to his suffering from the disease, the only appeal being to a medical referee (see p. 20).

Suspension, it will be remembered, must take place while the workman is in the employment to which the Factory Act regulations apply, but the certificate of suspension may be granted subsequently. The only limits of time are those common to every case, viz. the six months within which all claims for compensation under the Act must be made, and the twelve months' period within which the disease must manifest itself (see pp. 29, 31).

His Usual Employment.—These words are presumably intended to exclude cases where men are suspended from some special branch of work which they had been temporarily doing but can continue their ordinary work.

On Account of having contracted.—This phrase is fully discussed in the note "suspended," supra.

Any such Disease, i.e. any disease mentioned in the Third Schedule, or in any subsequent Order made by the Secretary of State under sub-sect. 6 of this section.

See note supra, p. 21, "Disease mentioned in the Third Schedule to this Act.

(iii) the death of a workman is caused by any such disease;

Is caused by.—In the case of death, no certificate of a certifying surgeon is required. The burden of proof lies upon the applicant to show that death was a consequence of the disease, not necessarily a direct or immediate consequence, but at least a remote consequence (see per Cozens-Hardy M.R. in *Haylett* v. *Vigor & Co.* (1908) 2 K. B. at p. 840.) Until that is done sect. 8 has no application at all (ibid.). This will involve medical evidence as a rule. The proof must not be left ambiguous or in doubt, as the Court will not infer that the disease was the cause of death, any more than they will infer that an accident arose out of and in the course of the employment (cf. *Macdonald* v. *Owners of S.S. Banana* (1908) 2 K. B. 926).

This is important to remember, in cases where other complications and doubtful symptoms supervene, as in *Haylett* v. *Vigor* (see p. 12). Once it is proved that death was caused by the disease, and the workman was employed in a process scheduled, the burden of proof shifts by reason of sub-sect. (2) (see p. 48).

and the disease is due to the nature of any employment in which the workman was employed at any time within the twelve months previous to the date of the disablement or suspension, whether under one or more employers, he or his dependants shall be entitled to compensation under this Act as if the disease or such suspension as aforesaid were a personal injury by accident arising out of and in the course of that employment subject to the following modifications :—

And the Disease is due.—This section puts the onus of proof primarily upon the applicant to satisfy the Court that the disease is due to the nature of an employment within the

twelve months. Sub-sect. (2), however, shifts that onus in so many processes relating to the scheduled diseases, that the exception will prove the rule in most cases, and the presumption will be that the disease is due to the nature of the employment, and the onus will be upon the employer to prove the contrary. It must, however, always be remembered that unless the case comes strictly within sub-sect. (2), the onus is upon the applicant as above stated. In no case is it for the certifying surgeon or appointed surgeon to certify that the disease is due to the nature of the employment.

To the Nature of any Employment.—These are the operative words of the section, the object of which is to apply the Act to industrial diseases. They recognise the principle that certain complaints are due to and are identified with known causes in industrial occupations. At the same time they must not receive an interpretation wider than they can fairly bear. The applicant must (it is submitted) prove that the disease in each case is due to *some definite quality* in the employment, not merely that the employment is vaguely of the kind that may cause the disease. For instance, if he alleges lead poisoning, he must prove that the employment involved the use or handling of lead. If he fails in that, he fails altogether : if he does prove that, the presumption is in his favour and the employer must rebut it to succeed.

See further as to this on next page.

Any Employment.—Not necessarily the employment at the date of disablement, suspension or death : the modifications make this perfectly clear. No doubt in most cases claims will relate to diseases due to the employment at such date.

Within the Twelve Months Previous.—If the onset of a disease is so slow or so slight that it does not cause disablement, suspension or death for more than twelve months, the right to compensation may be lost in two events. In other words a time limit of two kinds is imposed.

A time limit.

1. Where the workman has left the employment to the nature of which the disease is due for a year or more before the date of disablement or suspension, the claim for compensation cannot be entertained at all.
2. Where the workman has not left the employment, the employer may still escape if there is nothing in the

nature of the employment to cause the disease during the previous year.

The applicant has to prove that the "**disease is due to the nature of any employment in which the workman was employed at any time within the twelve months previous.**"

The whole phrase must be read together, and the words "within the twelve months" qualify the "nature" of the employment as well as the "employment."

If the workman fails to satisfy the judge that there was something, or the employer proves that there was nothing, in the nature of the work within the last twelve months to cause the disease, although before that period there had been, and although the workman was still in the employment within that period, there is a good defence to the claim. It becomes a question of fact to be decided in the arbitration whether the disease was due to the "nature" of the employment within the twelve months' period.

Nature of employment.

This construction has been adopted in the County Court, and the facts of an unreported case will illustrate it.

The applicant claimed compensation for lead poisoning in the hand file cutting industry, and had been employed for the respondents for thirty-five years. Lead poisoning is familiar in this industry. On November 7, 1907, the certifying surgeon certified lead poisoning, with July 27 as the date of disablement. Another doctor had certified occupation neurosis on August 19, and upon the applicant complaining of colic afterwards certified lead poisoning on October 31. He stated the symptoms were marked and characteristic anæmia, colic, constipation, thickened arteries, the extensor muscles impaired, and tremor. The applicant was still suffering and unfit for work at the date of trial in February, 1908. The applicant said that until quite recently the bed for the file was made of pewter, and there was lead in pewter, as he had seen it mixed. That was done away with two or three years ago: the respondents had called in all the old beds and given the men new metal: he did not know what was in the new metal, or that it was tin and antimony without any lead. Upon this the learned County Court Judge held that there was no case for the respondents to answer: there was no evidence that the disease was due to the nature of the work during the previous twelve months. It had not been shown that there was lead used in the metal. He rejected the construction that if it was proved that the

employment was within twelve months, it was not necessary to prove that the disease was caused within the twelve months.

There is another time limit under sect. 2. The claim for compensation must be made within six months from the occurrence of the accident, i.e. in the case of disease, from the date of disablement, suspension, or death, unless the failure to make a claim was occasioned by mistake, absence from the United Kingdom, or other reasonable cause. This six months is illusory, as the "claim for compensation" does not mean initiation of proceedings, but a notice of claim sent to the employer (*Powell* v. *The Main Colliery Co. Ltd.* (1900) A. C. 366), and if such notice of claim has been sent within the six months, no amount of delay in commencing the proceedings will be fatal: there is no time limit in that respect. There need not, however, be delay, as the employer can himself take the case to arbitration.

Meaning of claim for compensation.

Not a formal application for arbitration.

The "claim for compensation" need not be in writing (*Lowe* v. *Myers* (1906) 2 K. B. 265), but must be for a definite and specific amount (*Thompson* v. *R. W. Goold & Co* (1908) 25 T. L. R. 163, following the Scotch decisions there cited). Lord Shand in *Powell* v. *The Main Colliery Co.* (supra) intimates that a claim to be valid should be specific, and the parties, the sum demanded, and the date of the accident mentioned.

Need not be in writing.

But must be specific.

A notice of accident under sect. 2 is not the same as a claim for compensation (*Perry* v. *Clements* (1901) 17 T. L. R. 525).

The Date of Disablement or Suspension.—The date of disablement is by sub-sect. (4) fixed by the certificate of disablement or, in the case of death, is the date of death; the date of suspension speaks for itself, and is not fixed by any certificate or in any other way.

Under One or More Employers.—Where there is more than one employer, modification (*c*) (p. 39) provides that the compensation shall be recovered from the employer who last employed the workman during the twelve months in the employment to the nature of which the disease was due, subject to the right of that employer to join others who employed the workman in the dangerous employment within the period, and make them contribute their quota to the amount of compensation.

He or His Dependents.—The workman is entitled to claim compensation in the case of disablement or suspension. In

the event of his death, his dependents have the right, which is independent of him and of which he cannot deprive them during his life (*Williams* v. *Vauxhall Colliery Co.* (1907) 2 K. B. 433), and which survives to an executor of a sole dependent in the case of death, as it is a statutory right, and not a personal action (*Darlington* v. *Roscoe & Sons* (1907) 1 K. B. 219) : *aliter* where a sole dependent died before any claim was made (ibid. ; *O'Donovan* v. *Cameron* (1901) 2 Ir. R. 633, which however has not been followed in Scotland : *Hendry* v. *United Collieries Ltd.* (1908) S. C. 1215, Lord McLaren dissenting).

Death.

Legal disability.

A difficult question arises whether the dependents have a right to compensation, independently of the workman, in case of legal disability, as well as in case of death. The result of the authorities last cited is that the right to compensation is a statutory right, and the workman cannot during his life deprive his dependents thereof.

The general policy of Sch. I. is to give the right to the dependents in the case of death, and to the workman himself in case of total or partial incapacity. Nowhere in the Act is the right given to the dependents in the case of incapacity in very definite language. It is true that sect. 8, with which we are here most interested, says " he or his dependents shall be entitled to compensation under the Act," but that may only mean " he or his dependents in the case of death according to Sch. I. of the Act." It is hardly enough, of itself, to alter the policy of the Act, if the intention is to grant the right to dependents only in the case of death.

Clause 7 of Sch. I. assists us to a certain extent : under that clause, where a weekly payment is payable to a person under any legal disability, a County Court may order it to be paid during the disability into Court, and the provisions of the Schedule with respect to sums required to be paid into Court shall apply : that is to say, the provisions of clause 5 as to payment into Court in case of death apply. Those provisions speak of the " persons entitled " under the Act, and certainly contemplate the dependents, as they only contemplate the case of death. Rule 57, which deals with payment into Court under clause 7, does not carry the question any further : it simply says the sum shall be paid to or applied for the benefit of the " person entitled." The whole question is, Who is the person entitled ? Is it the workman or his dependents ? If a workman who is receiving a weekly payment for incapacity becomes a convict or a lunatic, can his dependents apply under

clause 7 for an order for the money to be paid to them ? The question may be of great moment in a case of disease, such as lead poisoning, which sometimes affects the brain. Can his family get the weekly payments or benefit of the lump sum if the weekly payment is redeemed ?

It is submitted that they can. They would seem to be persons entitled, because the provisions of clause 5 apply : in other words, the provisions in case of death are made to apply to a case of legal disability, and the persons entitled are the persons who would be entitled in the case of death.

The point has never been raised in the High Court. In a County Court, where the workman had been convicted and sentenced to prison, the Judge reduced the award to one penny per week, and expressed a hope that an arrangement would be made to pay the balance to the dependents.

It is submitted that, failing agreement—or, indeed, in any such case—upon application and with or without agreement, the proper course is to order the money to be paid into Court during the disability, and applied for the benefit of the persons entitled, as in the case of death.

That would seem to be the better opinion on a difficult point : apart from the legal question, it is the most beneficial interpretation, and in accordance with the policy of the Act.

Who are dependents.

Dependents are defined in sect. 13 as members of the workman's family (a phrase also defined), wholly or in part dependent upon his earnings. Illegitimate children and grandchildren are included, also posthumous children, whether legitimate (*Williams* v. *Ocean Coal Co.* (1907) 2 K. B. 422) or illegitimate (*Schofield* v. *Orrell Colliery Co.* (1909) 1 K. B. 178), but not the mother of an illegitimate child (ibid.), nor, apparently, adopted children.

The question who are dependents is a question to be determined in the arbitration in default of agreement. (See Sch. I. (8), and Form 10, p. 124, infra.)

Father and son.

Dependency is said by the House of Lords to be entirely a question of fact, irrespective of the standard of living, or the class to which the family belong : *Main Colliery Co.* v. *Davies* (1900, A. C. 358), where a father earning 25*s.* a week as a collier, and receiving the wages earned by his son, amounting to 8*s.* a week, was held to be partially dependent upon the son. Lord Shand, however, while agreeing that the father and son were mutually partially dependent, said he thought that some standard of living must be taken into consideration : if the

father were well off you are not to look at the mere question, "Did the father use the money? did he spend the money?" He agreed that the proper principle was that dependent means dependent for the ordinary necessaries of life, and for maintenance of himself and his family for a person of that class and position in life.

Lord Shand's principle of dependency.

A pauper inmate of a workhouse towards whose maintenance a son in fact makes no contribution is not in part dependent on the son's earning, although there is an obligation under the poor law for him to contribute to the father's maintenance (*Rees* v. *The Penrikyber Colliery Co.* (1903) 1 K. B. 259).

Father in workhouse.

Dependency, however, is not always a pure question of fact, as the cases of husband and wife illustrate.

In *Coulthard* v. *Consett Iron Co.* (1905, 2 K. B. 869), Collins M.R. distinguished the case of husband and wife from the two cases of father and son above, on the ground that there is direct obligation on the husband to support the wife, and that she does not cease to be dependent on the husband's earnings, where there are no alternative means of subsistence on which she can rely or on which she is in fact relying. In a lengthy judgment all the Scotch cases on this question were reviewed.

Husband and wife.

In *Williams* v. *The Ocean Coal Co.* (1907, 2 K. B. 422), Cozens-Hardy M.R. (at p. 427) said: "Dependency must always be a mixed question of law and fact," and quoted Holmes L.J. in *Queen* v. *Clarke* (1906, 2 I. R. at p. 163), where he states that the proper conclusion to be drawn from certain admitted facts is a pure question of law.

The result of the cases is as follows:—There is a presumption in favour of the dependency of a wife: it is not a mere question whether the wife is in fact getting any part of the husband's earnings at his death. It is a presumption that can be rebutted by facts (cf. *Williams* v. *Ocean Coal Co.* supra at p. 427). In exceptional cases, notwithstanding the primary obligation, the wife could not be said in any reasonable sense to be wholly dependent: she might have means of her own, or might be earning her own livelihood, or might be living apart from her husband under an express or implied agreement to make no claim upon him (cf. *Coulthard* v. *Consett Iron Co.* supra at p. 874; *Lindsay* v. *Stewart* (1908), S. C. 762).

"If a workman's wife has at the time of her husband's death independent means of support of any kind, which neither are derived through or from her husband, nor could, without

her consent, be appropriated by him, such as private income coming to her separately and apart from her husband, or money earned by her in business, the case is one of partial dependence" (per Kennedy L.J. in *Senior* v. *Fountains & Burnley Ltd.* (1907) 2 K. B. at p. 567).

The presumption is not rebutted by the mere fact that the husband had deserted his wife, or did not contribute to her maintenance, nor by the wife being supported by her relatives out of charity, nor by the fact that she was earning money in domestic service, or by casual work, or had been or was at the date of death in the workhouse, or in a lunatic asylum (*Kelly* v. *Hopkins* (1908) 2 Ir. R. 84). In such cases the wife is wholly dependent, and so is her child unborn at the date of death but born alive afterwards (*Coulthard's* and *Williams'* cases, supra). It is also fair argument to say, while dealing with the question of desertion or living apart, that the longer the undutiful conduct of the husband continues, and the older the wife becomes, the less able is she to earn her living. Lapse of time makes her, in fact, more and more dependent. A widow and three young children are also *wholly* dependent on the husband's earnings, although three older children earned wages which they paid to their father, and which thereby enabled him to support himself and the home on a better footing (*Senior* v. *Fountains & Burnley Ltd.*, supra).

Wife in workhouse.

In the event of death the scale of compensation to which the dependents are entitled depends upon whether they are wholly or in part dependent upon the workman's earnings: hence the importance of this question. In the case of total dependency it is a sum not less than £150 and not exceeding £300, equal to the workman's earnings for three years. In the case of partial dependency it is a sum reasonable and proportionate to the injury to the dependents (see First Schedule (1)).

Compensation.—See infra, p. 43, note, "Amount of Compensation." "Compensation under the Act is given in respect of loss of wages and not for personal suffering." Per A. L. Smith L.J. (*Irons* v. *Davis & Timmins* (1899) 2 Q. B. at p. 332.)

As if the Disease.—This section of the Act treats a scheduled disease *as if* it were an accident. It leaves untouched the question whether a disease not scheduled is an accident (see sub-sect. 10) Each case outside this section must depend

upon its facts, and on the principles of the cases to which attention is drawn in some detail in a later note. P. 55.

Or such Suspension as aforesaid.—These words seem entirely superfluous having regard to the words of clause (ii), "having contracted any such disease."

Personal Injury by Accident arising out of and in the Course of that Employment.—These are the first words of the first section of the Act, and describe the kind of accident that gives the right to compensation. As regards scheduled diseases a discussion of this phrase is not very material: its meaning is important as regards other diseases and other accidents. The *locus classicus* for the meaning of this phrase is *Fenton* v. *Thorley & Co.* (1903, A. C. 443), where there are also definitions of the word "accident" in the judgments of Lords Macnaughten and Lindley (see p. 2, supra).

The words "out of" are not the same as "in the course of," and are additional to them (see *Armitage* v. *Lancs. & Yorkshire Rly.* (1902) 2 K. B. 178).

The applicant in a case of a scheduled disease has not to prove that the disease arose out of and in the course of an employment, but that it is due to the nature of the employment, which, unless presumed, means some definite industrial causation. See note, "nature of any employment," p. 29.

That Employment.—I.e. the employment to the nature of which the disease is due: not any employment within the twelve months, nor necessarily the last employment where there are more than one. The last employer may succeed under modification (*c*) in throwing the burden of paying part or all the compensation on to another employer.

The Following Modifications.—These modifications are intended to meet the difficulty of treating diseases as accidents. They are additional to the provisions and defences in other sections of the Act. They apply only to such diseases as are mentioned in the Third Schedule, or included therein by a subsequent Order. Any other diseases must be proved to be "accidents" within the meaning of sect. 1 of the Act in order to give the right to compensation, and the modifications and defences of this section will not apply to them.

(*a*) The disablement or suspension shall be treated as the happening of the accident;

The object of this modification is to meet difficulties of complying with sect. 2 in the case of diseases. That section provides that proceedings shall not be maintainable unless notice of the accident has been given as soon as practicable after the happening thereof, and unless the "claim for compensation" (see p. 31, supra) has been made within six months from the occurrence of the accident causing the injury, or, in the case of death, within six months from the time of death.

There can be no distinction between the "happening" and the "occurrence" of an accident.

This clause must be read together with modification (*e*) (infra) which contemplates the giving notice of death, disablement, or suspension, and both must be read together with and as a modification of sect. 2.

The intention is that the employer should have full notice of the disablement or suspension, and not a mere notice of accident. Rule 39 (2) provides that the notice required by sect. 2 shall state the date and cause of the disablement or suspension, and where a certificate of disablement or suspension has been given, a copy shall on demand be furnished to the employer. See p. 119, infra.

(*b*) If it is proved that the workman has at the time of entering the employment wilfully and falsely represented himself in writing as not having previously suffered from the disease, compensation shall not be payable;

This modification is intended to enable employers to protect themselves from the risk of employing men who have previously suffered from a disease which is likely to recur again with fresh exposure. Many of the scheduled diseases, notably lead poisoning, predispose the patient to further attack.

Employers would be well advised to insist upon this written representation, and in many cases it would assist them to take also a statement of where the workman had previously been employed during the previous twelve months, so as to facilitate their inquiries with regard to the provisos in modification (*c*).

This modification makes no distinction between temporary and serious permanent disablement as is to be found in sect. 1 (2) (*c*), which deals with serious and wilful misconduct of the workman. Whether the disease results in death or temporary or permanent disablement, compensation is not payable if the workman has wilfully and falsely represented himself in writing as not having previously suffered from the disease.

"**Wilfully and Falsely**" means more than carelessly and recklessly. A representation is fraudulent if made recklessly, without caring whether it is true or false. The present expression (it is submitted) goes further than this. "Wilful" means deliberate, see p. 62. Therefore the representation must be proved to be deliberately false to the knowledge of the workman who made it. This may be of importance in cases where a workman has been ill and has not troubled or cared to find out what he suffered from, or whether it was an industrial disease. Unless it were proved that he knew that he had had the particular disease before he made the representation in writing, it would be difficult to find him guilty of wilful and false representation.

A question may arise as to the construction of this modification in cases where the workman has been employed at intervals: not only where the labour is casual, but where he has left the employment for a time, once or more than once, and returned to it again. If he has made a representation at the time of entering the employment for the first time, must that be repeated each time he re-enters the employment in order to safeguard the employer's interests? Or will his original representation, if wilful and false, disentitle him to compensation in a subsequent employment with the same employer? There is not much to guide us in the proper meaning of the clause in such cases, but it is suggested that, generally speaking, it would be an unreasonable interpretation to say that there must be a separate representation made each time the man is taken on in the employment.

The defence afforded by this modification is distinct from and additional to that in sect. 1 (2) (*c*), which applies equally to all accidents and diseases, and which disallows compensation for an injury attributable to the serious and wilful misconduct of the workman, except in cases of death or serious and permanent disablement. As to this see p. 61.

(*c*) The compensation shall be recoverable from the employer who last employed the workman during the said twelve months in the employment to the nature of which the disease was due :

Industrial diseases have a known origin in many kinds of employment, and the Act here recognises a natural presumption, that the last employment of the dangerous kind (or, in the words of the Act, to the nature of which the disease is due), and not necessarily the last employment of all, is the one to which the disease is really due, and therefore makes compensation primarily recoverable from the employer who last employed the workman in the dangerous employment of the kind, with safeguards by which he can rebut the presumption, and either escape liability altogether, or shift it on to others, or make others share it.

The same principle is found in modification (*e*) as to the giving of notices necessary under sect. 2. The employer who is primarily liable is the person to whom notice of death, disablement or suspension must be given.

It must always be remembered that before the employer is called upon to establish his defence under these provisos, the applicant must prove his case of disablement, suspension or death under clauses (i), (ii), and (iii) of this sub-section : except in case of processes under sub-sect. (2), he must also prove that the disease is due to the nature of the employment. See the notes to the earlier parts of this sub-section, and cf. *Haylett* v. *Vigor & Co.* in footnote to proviso (ii), p. 41, infra.

For the purposes of convenience, all the defences open to an employer are collected in Chapter II.

Provided that—

(i) the workman or his dependants if so required shall furnish that employer with such information as to the names and addresses of all the other employers who employed him in the employment during the said twelve months as he or they may possess, and, if such information is not furnished or is not sufficient to enable that employer to take proceedings under the next following

proviso, that employer upon proving that the disease was not contracted whilst the workman was in his employment shall not be liable to pay compensation ; and

The object of these provisos is to give the employer the opportunity of raising a defence of fact in the case of disease, which could not be open to him in the case of accident.

Although a "gradual process" is only mentioned in proviso (iii), the fundamental idea is that a disease usually takes some time to manifest itself, and that it will often happen that the "last employer" within the meaning of the section is not in fact the employer or the only employer in whose employment the disease was contracted.

As to proviso (i) : Apparently only in case of failure to furnish names and addresses sufficiently to enable the employer *to take proceedings* can the employer escape by proving generally that the disease was not contracted in his employment. See next proviso, note.

To take Proceedings under the next following Proviso means to join such other employer as a party to the arbitration.

(ii) if that employer alleges that the disease was in fact contracted whilst the workman was in the employment of some other employer, and not whilst in his employment, he may join such other employer as a party to the arbitration, and if the allegation is proved that other employer shall be the employer from whom the compensation is to be recoverable ; and

If the employer who is made *prima facie* liable under modification (*c*) desires to add any other employer as a party to the arbitration under this proviso, he must file with the Registrar in duplicate a notice according to Form 19 (p. 126, infra). The Registrar must then make an order (Form 20) adding such other employer, and may adjourn the hearing of the arbitration for such time as is necessary for him to be served.

Copies of this notice and order must be sent by post to the applicant and the original respondent. Copies of the applicant's request and particulars and notice of day fixed must be

served on the added respondent in accordance with Rule 15, with the original respondent substituted for the applicant.

The rules as to respondents apply to the added respondent from the date of service as if he were originally made respondent.

At the hearing all questions between the applicant and the original and added respondents must be decided, and the award shall be a complete adjudication upon all the questions involved, including costs as between the applicant and respondents, and as between the respondents themselves (Rule 39 (4) of the Workmen's Compensation Rules).

It appears from the wording of this proviso that the original respondent must make the allegation against some other definite employer, and must prove it in order to escape liability. It is not sufficient under this proviso that he prove generally that the disease was not contracted in his employment, as in the case of proviso (i). If he fails in his allegation against the added respondent, even if he can prove that the disease was not contracted in his employment, he must pay compensation. This may occasionally work a hardship, but the language seems quite clear.

Under this proviso (ii) the respondents in *Haylett* v. *Vigor & Co.* (1908, 2 K. B. 837)—the only case in which so far sect. 8 has been judicially interpreted—added another respondent. It was a case of lead poisoning, and the workman had worked many years for the added respondent as a painter, and only for three or four days for the original respondents. The original respondents were able to escape altogether, and under this proviso the County Court Judge made an award against the added respondent, which was, however, set aside by the Court of Appeal on other grounds, viz. that it had not been proved by the applicant that the death was caused by the disease or its sequelæ.

The hardship above referred to would have occurred in this case (supposing the death was proved to have been caused by the disease), if the original respondents had failed in their allegation against the added respondents. They would have had to pay compensation to a house painter for lead poisoning when he had only been employed by them for about three days. There is lead in house paint, so that they could not prove that the disease was not due to the nature of the employment: there are no doubt a great many cases of plumbism

amongst house painters, but they cannot contract it in three or four days at that occupation. The object of the Act is that some one who has employed the workman in an employment in which lead is used should be liable to pay compensation: that some one is the employer who last employed him during the twelve months in the employment to the nature of which the disease is due, and he can only escape this statutory liability by coming strictly within one of the defences indicated in the Act. In such a case as this the only escape seems to be that the applicant has not supplied sufficient information as to other employers.

> (iii) if the disease is of such a nature as to be contracted by a gradual process, any other employers who during the said twelve months employed the workman in the employment to the nature of which the disease was due shall be liable to make to the employer from whom compensation is recoverable such contributions as, in default of agreement, may be determined in the arbitration under this Act for settling the amount of the compensation;

There are no cases reported of contribution being awarded under this section. It is a question to be decided in the arbitration, just as much as the matters under the previous proviso, only the procedure differs rather remarkably. Instead of the simple process of an added respondent, by Rule 39 (5), the third party procedure under Rules 19–23, 25 and 26 is adopted. These rules should be carefully followed, and Form 23 is made applicable to the case of disease. Under this proviso several employers may be added, and it will be noticed that it only applies to cases of diseases contracted by a gradual process. It would be hazardous to state definitely which of the diseases to which the Act applies will be included in this phrase, but of very few of them could it be said for certain that they are not of such a nature. To a certain extent the answer to this must depend upon the medical evidence in each case. Some diseases have both an acute and a chronic form. Full accounts of each disease will be found in Part II. of this book.

(*d*) The amount of the compensation shall be calculated with reference to the earnings of the workman under the employer from whom the compensation is recoverable ;

This modification is somewhat similar to but in lieu of the clause Sch. I. (2) (*b*), which provides for the calculation of average weekly earnings where there are concurrent contracts of service.

The Amount of Compensation.—The scale and conditions of compensation are fixed by the First Schedule : this should always be referred to, but the amounts payable in different events may be seen at a glance in the following table :—

Where Death Results.

If the workman leaves	The compensation is
1. Total dependents . .	A sum equal to three years' earnings, *or* if the period of employment has been less than three years, 156 times his average weekly earnings during actual employment. The total sum to be not less than £150 and not more than £300, less a deduction of any weekly payments made under this Act, or any lump sum paid in redemption thereof.
2. Partial dependents .	A sum to be agreed upon not exceeding the above sum for a total dependent, *or* a sum determined to be reasonable and proportionate to the injury to the dependents.
3. No dependents . .	Expenses of attendance and burial—not exceeding £10.

Where Total or Partial Incapacity Results.

If the workman is	The compensation is a weekly payment during incapacity, not exceeding
1. Totally incapacitated .	50% of his average weekly earnings during previous twelve months, or less period if not so long with same employer. The weekly payment not to exceed £1.
1a. And if he is under 21 *and* his average earnings are less than £1 per week	100% is substituted for 50% above, but the weekly payment shall in no case exceed 10*s*. See infra, *Review*.
2. Partially incapacitated	50% as above, and not exceeding £1—and in no case exceeding the difference between his average earnings before the accident and the amount he is earning or is able to earn in some suitable employment or business after the accident.

In fixing the amount of the above weekly payments *regard shall be had to any payment, allowance, or benefit* which the workman may receive from the employer during the period of his incapacity (Sch. I. (3)).

Review.

Any weekly payment may be reviewed at the request of either party (Sch. I. (16)). If the workman was under twenty-one at date of accident, and the review takes place more than twelve months after the accident, the weekly payment may be increased to any amount not exceeding 50% of the weekly sum which the workman would probably have been earning at the date of the review if he had remained uninjured, but not in any case exceeding £1.

The object of allowing a weekly payment to be reviewed and ended, diminished or increased, is to enable the employer to pay less where the workman gets better : or the workman to apply to be paid more where he gets worse. Where there is no change, neither party is entitled to apply to alter the award, or to show that it was wrong (see *Crossfield & Sons* v. *Tanian* (1900), 2 Q. B. 629 ; and cf. *Sharman* v. *Holliday & Greenwood Ltd.* (1904) 1 K. B. 235).

The employer is not liable to pay compensation at all if the incapacity does not last one week, and if it lasts less than two weeks no compensation is payable for the first week. In the

case of glassworker's cataract, compensation is not payable for a period longer than six months in all, nor for more than four months unless the workman has undergone an operation for cataract.

Earnings.—See sect. 2 of the First Schedule, which gives the rules for computing earnings and average weekly earnings.

Earnings may include gratuities and may be distinguished from wages (pp. 17, 22, supra), but do not include any sum paid by the employer to cover any special expenses entailed on the workman by the nature of the employment (Sch. I. 2 (*d*)). This does away with the decision of the House of Lords in *Midland Rly. Co.* v. *Sharpe* (1904, A. C. 349).

Compensation is not given for personal suffering, but for loss of earnings. The test is the wage-earning capacity of the workman after his accident or disease: that is, the difference between the amount of average earnings before the disease and the amount he is able to earn after it (*Pomphrey* v. *Southwark Press* (1901) 1 Q. B. 90). If he is disabled from doing a substantial part of his work he is not capable of performing the work at which he was employed: and although he is receiving the same wages or even earning more than before the accident, his wage-earning capacity may be diminished, and a nominal sum by way of weekly payment may be awarded, subject to review in the future under Sch. I. 16, or the fixing of the amount may be postponed (see *Irons* v. *Davis & Timmins Ltd.* (1899) 2 Q. B. 330; *Chandler* v. *Smith* (1899) 2 Q. B. 506). A refusal to return to work, whether to the same wages or to different work, does not exclude the workman's right to compensation. It affords evidence of ability to earn wages, and should be taken into account in fixing the amount of compensation (*Fraser* v. *Great North of Scotland Rly.* (1901) 3 F. 908; 38 S. L. R. 653; *Clarke* v. *Gas Light & Coke Co.* (1905) 21 T. L. R. 184). The workman must make *bona fide* attempts to get work in such cases (ibid.).

For a critical discussion of sect. 2 of Sch. I. as to the method of calculating the rate of remuneration, and the meaning of the word "grade," see the judgment in the Court of Appeal in *Perry* v. *Wright and other cases* (1908) 1 K. B. 441.

Incapacity for the purposes of awarding compensation must not be confused with the disablement or suspension mentioned in sect. 8. It is not necessarily the same, and may be governed by different considerations. It is a question for the arbitrator

when he comes to award the amount of compensation to decide not only whether incapacity, total or partial, results, but how long it lasts. He must be satisfied that the incapacity results from the disease, and continues to result from the disease and not from any other cause. In some cases there may be a suggestion of malingering, or refusal to undergo reasonable medical treatment, or some other cause which supervenes as a cause of incapacity. Each case must be decided according to its own facts and merits by the arbitrator, who has a wide discretion, and there is naturally room for a considerable variety of individual opinion. There are, however, a few guiding principles to be found in the cases.

Incapacity.

Medical treatment.

There is no power to compel the workman to undergo an operation, or any course of medical treatment: but his refusal may result in the compensation being reduced or refused. In the case of diseases, such as we are dealing with in this book, the question of treatment is more likely to arise than a surgical operation, but the principle is the same. If a man refuses to accept the best known remedies of modern science, it seems impossible to say that his incapacity is due to the injury or disease: it may be, and probably is, due to a supervening cause, viz. his refusal to take proper remedies and treatment.

In one case where an award of 10*s.* a week had been made, the County Court Judge upon this principle reduced it to 2*s.* per week, upon evidence that the injured workman, by undergoing a course of treatment, "which hardly deserved the name of an operation," might be so improved that he could earn much more than 10*s.* in his employment.

In the case of scheduled diseases there is generally a well-known course of treatment for curing or alleviating the illness, and where the workman refuses to undergo such treatment, unless it involves risk, the award should either be greatly reduced or altogether refused, according to circumstances.

Operation.

The workman must not be expected to undergo an operation, which is attended with considerable risk, or as to the benefits of which medical opinion differs. But if he refuses to undergo a trifling operation involving very slight risk, and which is likely to terminate incapacity, he cannot continue to claim full compensation (*Warncken* v. *Moreland & Co. Ltd.* (1909) 1 K. B. 184, which brought the English law into line with the Scotch cases).

Every operation is attended with some risk, however slight: it is a question of reasonableness, and the County Court Judge has full discretion as to terms of compensation in his award.

(*e*) The employer to whom notice of the death, disablement, or suspension is to be given shall be the employer who last employed the workman during the said twelve months in the employment to the nature of which the disease was due, and the notice may be given notwithstanding that the workman has voluntarily left his employment;

The employer to whom notices must be given is the employer who is made primarily liable, and not necessarily the last employer who employed the workman. See p. 39, supra.

Sect. 2 provides for the giving of notice "*as soon as practicable*" after the happening of the accident, i.e. in the case of disease after the date of disablement or suspension. This sub-section makes another important modification of sect. 2, in a case of disease under sect. 8. The notice may be given *notwithstanding that the workman has voluntarily left his employment;* in all other cases it must be given before the workman has voluntarily left the employment in which he was injured.

Sect. 2 should be referred to for details as to when a notice or claim for compensation is bad, and the proceedings barred in consequence: it is less strict than the corresponding section of the previous Act, and allows for defects and inaccuracies caused by "mistake, absence from the United Kingdom, or other reasonable cause."

(*f*) If an employer or a workman is aggrieved by the action of a certifying or other surgeon in giving or refusing to give a certificate of disablement or in suspending or refusing to suspend a workman for the purposes of this section, the matter shall in accordance with regulations made by the Secretary of State be referred to a medical referee, whose decision shall be final.

The reference to the medical referee under this clause has the characteristics of an appeal from the certifying surgeon. It is fully dealt with and the regulations relating to it are discussed in the separate chapter upon medical referees, sect. 1, post, p. 76. Two sets of regulations will be found dealing with medical referees :

(i) Those dated June 21, 1907, under this section, included in the regulations as to certifying and other surgeons, post, p. 129.

(ii) Those dated June 24, 1907, under the first and second schedules, post, p. 146.

The references and regulations in each differ and are fully explained in the chapter on medical referees.

(2) If the workman at or immediately before the date of the disablement or suspension was employed in any process mentioned in the second column of the Third Schedule to this Act, and the disease contracted is the disease in the first column of that Schedule set opposite the description of the process, the disease, except where the certifying surgeon certifies that in his opinion the disease was not due to the nature of the employment, shall be deemed to have been due to the nature of that employment unless the employer proves the contrary.

This is a most important modification introduced to meet the case of diseases, but only affects the burden of proof.

In the case of ordinary accidents the onus of proving that they arose out of and in the course of the employment is upon the applicant for compensation. In the absence of any evidence, or if the evidence is quite ambiguous, the arbitrator cannot infer that the accident arose out of or in the course of the employment, and the claim for compensation fails (*McDonald* v. *The Owners of the S.S. Banana* (1908) 2 K. B. 926). The scheduled diseases are treated as the natural outcome of certain employments, and the applicants for compensation in respect of them have a presumption in their favour, which shifts the burden of proof in many cases. Opposite most of the diseases in the schedule and orders appears in a second column a description of the industrial process in which each

disease is usually found to occur. The meaning of this is explained by this sub-section, and the effect of the whole section is as follows :—

The applicant must prove all that is required of him by the first three clauses of sect. 8, viz. disablement, suspension, or death, as explained above (pp. 20–28) : so far the burden of proof is not altered. Then if he proves that at or immediately before the date of disablement or suspension he was employed in a process in the second column set opposite the disease in the first column (which has already been proved to have been contracted) that disease is presumed to be due to the nature of that employment, and the applicant is not called upon to prove it to be so due, unless the certifying surgeon certifies that in his opinion it is not so due, in which case the applicant must call evidence to prove it to be so due, as the burden of proof remains upon him.

If, however, the workman has been employed in any other process except that in the second column set opposite the contracted disease, the burden of proof is not shifted at all, this sub-section is not called into operation, and the applicant must prove that the disease is due to the nature of the employment.

It follows from what has been said that this sub-section does not create any new liability : it deals only with evidence and shifts the burden of proof in certain cases *after* the applicant has brought his case within the operation of the earlier part of the section (*Haylett* v. *Vigor & Co.* (1908) 2 K. B. 840, per Cozens-Hardy M.R. and Farwell L.J.).

Process mentioned in the Second Column.—The word "process" is not defined in the Act, and a question may arise as to its meaning. In each case there is a "description of the process" in the second column, and we find such various kinds of work as "handling of wool," "mining," "chimney-sweeping," and "the care of any equine animal" all included in the description of the processes to which various diseases are presumed to be due. It is clear that a wide definition of the word is necessary to include all the scheduled processes.

In some quarters it has been thought that "processes" means more than mere "work," "employment," or "occasional user," and must be something in the nature of a regular branch of an industry. In fact there are grounds for saying that the

word was put into the Act with the intention of restricting its meaning in that way, but that cannot affect the meaning it must acquire from its use throughout the schedule and orders, and such an interpretation would no doubt have the effect of excluding many workpeople, to whom the section is now made to apply, from its benefits.

To take the processes set opposite to anthrax: the suggestion apparently is that a dock labourer, who is employed to unload general cargoes and is not usually unloading wool, is not employed in a process of "handling wool" if he occasionally carries a bale of wool, and that the process of handling wool is confined to the sorting and carding of wool and such-like industries. It may possibly be that in this connection wool means shorn fleeces, and not wool on the animal, and that a farm labourer handling a carcase is not employed in a process of handling wool, though it would be difficult to say that when he is sheep shearing he is not engaged in the process of handling wool.

One more instance may be taken—A man on one or two occasions uses a compound of lead for an employer who does not ordinarily use lead in his trade: is he not accurately described as "employed in a process involving the use of lead"? It can hardly be said that the number of times a man is employed can alter his employment into a "process," as casual employment is expressly within the Act.

It must be remembered that where regulations or special rules require periodical examination in lead processes, the word "process" only includes the processes specified. See Third Schedule, p. 115, infra.

Except where the Certifying Surgeon certifies that in his Opinion the Disease was not due to the Nature of the Employment.—This certificate must, if possible, be given simultaneously with the certificate of disablement or suspension (if any), but may be given separately upon application by the employer and payment of the prescribed fee (see chapter on certifying surgeons, and the regulations, p. 131).

It can only be given in cases that arise under this sub-section, i.e. where the process of employment is set in the second column opposite the contracted disease. It is apparently intended to be given only in a case of disablement or suspension, and not in the case of death, except where there was a certificate of disablement given before death: the regulations do not

provide for any such certificate in the case of death, but there is nothing in the section to that effect, and nothing to prevent an employer from applying for such a certificate, nor the surgeon from giving one in a proper case, where the workman has died without a certificate of disablement.

This certificate, like all else in the sub-section, only affects the burden of proof. It does not affect a workman's right to a certificate of disablement: that is to say, the certifying surgeon must not refuse to certify the disablement because he is of opinion that the disease is not due to the nature of the employment: he can only add the latter certificate to the former. Nor has the certifying surgeon a right to certify that in his opinion the disease *is* due to the nature of employment. That is for the arbitrator to decide, and is a matter of evidence and presumption under sub-sects. (1) and (2). These points should be remembered, as mistakes as to them are frequently being made.

(3) The Secretary of State may make rules regulating the duties and fees of certifying and other surgeons (including dentists) under this section.

See the Regulations dated June 21, 1907, p. 129.

Certifying Surgeons includes medical practitioners appointed under sub-sect. 5, and also the Post Office medical officer under the Order of December 2, 1908.

Other Surgeons includes the "appointed surgeons" under the Factory Act Rules or Regulations (see p. 72), and also an "appointed dentist" under the Lucifer Match Rules. There are no separate regulations under this section as to dentists.

(4) For the purposes of this section the date of disablement shall be such date as the certifying surgeon certifies as the date on which the disablement commenced, or, if he is unable to certify such a date, the date on which the certificate is given: Provided that—

(*a*) Where the medical referee allows an appeal against a refusal by a certifying surgeon to give a certificate

of disablement, the date of disablement shall be such date as the medical referee may determine :

(*b*) Where a workman dies without having obtained a certificate of disablement, or is at the time of death not in receipt of a weekly payment on account of disablement, it shall be the date of death.

This is a modification of the Act to fix a date in cases of disease under sect. 8 corresponding to the date of injury by accident in other cases.

There is no difficulty in fixing the date of suspension, which is the date on which the workman was actually suspended, and no modification is required for this.

The date of disablement as fixed by this sub-section must be remembered throughout all proceedings under sect. 8, and especially in (*a*) ascertaining the happening or occurrence of the accident, (*b*) giving notice of accident as soon as practicable under sect. 2, (*c*) making claim for compensation within six months under sect. 2, and (*d*) fixing the twelve months' period which is the time limit within which all cases of disease must manifest themselves to give a right to compensation under this section. (See p. 29.)

(5) In such cases, and subject to such conditions as the Secretary of State may direct, a medical practitioner appointed by the Secretary of State for the purpose shall have the powers and duties of a certifying surgeon under this section, and this section shall be construed accordingly.

Two special appointments have already been made by the Secretary of State in the mining district near Wakefield. A certifying surgeon under the Factory Act has, by reason of that Act, no duties in connection with mines.

(6) The Secretary of State may make orders for extending the provisions of this section to other diseases and other processes, and to injuries due to the nature

of any employment specified in the order not being injuries by accident, either without modification or subject to such modifications as may be contained in the order.

Two orders have been made under this sub-section. That of May 22, 1907, following the report of the Departmental Committee upon Industrial Diseases, dated May 15, 1907, added sixteen more diseases to the original six in the schedule, and made modifications in arsenic- and lead-poisoning, so as to include the process of handling as well as the use of arsenic and lead in each case. A subsequent Order of December 2, 1908, following the second report of the Departmental Committee, dated October 12, 1908, added two further diseases, viz. cataract in glassworkers and telegraphist's cramp, with modifications in each case. These modifications are notable : a glassworker is entitled to compensation only for six months in all, and only for four months unless he has undergone an operation for cataract. In the case of telegraphist's cramp, the Post Office medical officer under whose charge the workman is placed is, *if authorised to act* for the purposes of sect. 8, substituted for the certifying surgeon. This order also modified " eczematous ulceration of the skin " in the previous order by omitting the words " caustic or corrosive " before " liquids," in order to include alkaline solutions in laundry work.

See p. 116.

See p. 118.

(7) Where, after inquiry held on the application of any employers or workmen engaged in any industry to which this section applies, it appears that a mutual trade insurance company or society for insuring against the risks under this section has been established for the industry, and that a majority of the employers engaged in that industry are insured against such risks in the company or society and that the company or society consents, the Secretary of State may, by Provisional Order, require all employers in that industry to insure in the company or society upon such terms and under such conditions and subject to such exceptions as may be set forth in the Order. Where such a company or society

has been established, but is confined to employers in any particular locality or of any particular class, the Secretary of State may for the purposes of this provision treat the industry as carried on by employers in that locality or of that class, as a separate industry.

(8) A Provisional Order made under this section shall be of no force whatever unless and until it is confirmed by Parliament, and if, while the Bill confirming any such Order is pending in either House of Parliament, a petition is presented against the Order, the Bill may be referred to a Select Committee, and the petitioner shall be allowed to appear and oppose as in the case of Private Bills, and any Act confirming any Provisional Order under this section may be repealed, altered, or amended by a Provisional Order made and confirmed in like manner.

(9) Any expenses incurred by the Secretary of State in respect of any such Order, Provisional Order, or confirming Bill shall be defrayed out of moneys provided by Parliament.

Mutual trade insurance schemes have been found useful in the pottery trade. These clauses are designed to give such schemes a chance of being made compulsory under the force of an Act of Parliament. The experiment has not been made; nor has it yet been asked for: nor is it very likely to be asked for. These clauses safeguard those who object from anything like undue haste.

First, there must be an application by some employers or workmen in any industry to which sect. 8 applies; then, if after an inquiry it appears that a mutual trade insurance society for risks under this section has been established, that a majority of employers in the industry are insured, and that the society consents, the Secretary of State may make a Provisional Order under sub-sect. (7). This is to be of no force until confirmed by Parliament, and if any petition is presented against the Order it will be referred to a select committee before the Bill confirming the order is made law.

(10) Nothing in this section shall affect the rights of a workman to recover compensation in respect of a disease to which this section does not apply, if the disease is a personal injury by accident within the meaning of this Act.

This sub-section expressly reserves the workman's right to compensation where a *non-scheduled* disease amounts to an accident. In other words, the question that arose under the Act of 1897 still remains for all diseases to which the Act does not apply: viz. when and under what conditions does such a disease amount to a personal injury by accident arising out of and in the course of the employment? No doubt there will be divergence of opinion in the future, as there has been in the past, but the main principles upon which this question should be answered can be gathered from the reported cases, some of which have been referred to already, when this question was touched upon in the introduction.

In *Fenton* v. *Thorley & Co.* (1903, A. C. 443), Lord Macnaughten said that in the phrase "personal injury by accident arising out of and in the course of the employment" the words "arising out of and in the course of the employment" qualify the whole phrase "injury by accident," and not merely the word "accident": that the word "accident" qualifies the word "injury," confining it to a certain class of injuries; and that *the word "accident" is used in the popular and ordinary sense of the word as denoting an unlooked-for mishap or an untoward event which is not expected or designed.* Definitions of accident.

Lord Lindley said the word meant *any unintended and unexpected occurrence which produces hurt or loss.*

The House were unanimous, and rejected any technical meaning for the word "accident." It was a case of rupture, and is now the *locus classicus* as to the meaning of "injury by accident" in the Act. Rupture.

In an earlier case, blood poisoning, caused by a piece of coal getting into a miner's knee and resulting in death, was held to be an accident within the Act (*Thompson* v. *Ashington Coal Co.* (1901) 84 L. T. 412). Blood poisoning.

In subsequent cases, anthrax, contracted through a spore or bacillus getting into the eye (*Brinton's Ltd.* v. *Turvey* (1905) A. C. 230), and an epileptic seizure causing a fall down a Anthrax. Epileptic fit.

hatchway (*Wicks* v. *Dowell & Co. Ltd.* (1905) 2 K. B. 225), were both decided to be accidents.

Lead poisoning.

On the other hand, chronic lead poisoning was held not to be an accident (*Steel* v. *Cammell Laird & Co.* (1905) 2 K. B. 233).

Enteritis.

Two further cases have been reported since the Act of 1906 was passed. Enteritis contracted through inhaling sewer gas when employed in a sewer, by reason of which long-existing heart disease was accelerated, was held not to be an accident within the meaning of the Act (*Brodrick* v. *L. C. C.* (1908) 2 K. B. 807 ; 24 T. L. R. 822).

Heat stroke.

Heat stroke contracted in raking out ashes in a stokehold is an accident (*Ismay Imrie & Co.* v. *Williamson* (1908) Ap. C. 437). The first appeal to the House of Lords under this Act.

There was much difference of judical opinion in these cases.

Brinton's v. *Turvey* (1905) A. C. 230.

The Earl of Halsbury L.C. in the anthrax case said the Act excludes and was so intended to exclude idiopathic disease, but that when some affection of our physical frame is induced by accident we must not be misled by medical phrases such as disease. He instances a tack or poisonous substance cutting the skin and setting up *tetanus*, or an injury to the head setting up *septic poisoning*, or spilling corrosive acid on the hands and causing *erysipelas*. These are diseases, but to call the consequences of an accidental injury a disease does not alter the nature of the injury.

Lord Macnaughten agreed that the accidental character of an injury is not removed by the fact that it sets up a well-known disease.

Lord Robertson, in a dissenting judgment, intimated that such reasoning must apply to every infectious disease, and probably to non-infectious diseases as well. He pointed out that the instances given by Lord Halsbury postulate an accident independent of the inception of the disease.

In the case of the epileptic fit Collins M.R. said that the proximate cause of the injuries was the fall, and the fit was the remote cause : and that an accident does not cease to be such because the remote cause is idiopathic disease.

Steel v. *Cammell Laird & Co.* (1905) 2 K.B. 233.

In the lead poisoning case, where the Court of Appeal decided that chronic poisoning was not an accident, the same learned judge said that the injury arose through long exposure to the poison : that this could not be considered a series of

accidents, and that the Act (of 1897) applied to cases in which a date could be fixed as that on which the injury came about.

Lord Justice Mathew said that the workman was following a dangerous occupation, and it could not be said that the case was unexpected or fortuitous or unforeseen, and was not, therefore, an accident.

Lord Justice Cozens-Hardy also said that lead poisoning was an "occupation" disease, and not unforeseen and not unexpected, and that the Act negatives the idea of an injury due to some or all of a succession of accidents.

Broderick v. *L.C.C.* (1908) 2 K. B. 807.

In the case of enteritis caught from sewer gas, decided under the Act of 1906, the same Lord Justice (now Master of the Rolls) rejected the argument that catching the poisonous bacillus was an accident. He distinguished the anthrax case as decided on the special findings of the County Court Judge, and said that sect. 8, in providing compensation for certain scheduled trade diseases "as if they were injuries by accident," indicated that such diseases were not considered to be accidents.

Ismay Imrie & Co. v. *Williamson* (1908) A. C. 437.

In the case of heat stroke in a stokehold, which was decided by the House of Lords a few days after the sewer case was in the Court of Appeal, the facts were that the applicant's husband was shipped on the *Majestic* at New York as a trimmer: he was sent by the Seamen's Mission and was in a starving condition, and had had no previous experience of trimming, being a brass finisher by trade. He was engaged in drawing ashes that had fallen from the furnace, and at his third shift fell down in a faint from heat stroke: he was taken to the hospital and died within two hours. The conditions of the stokehold were normal and the temperature 96°. The medical evidence showed that, owing to his low vitality, the deceased was unable to withstand the normal high temperature. Heat stroke is common in the stokehold and the engine-room, but in the case of men who are not unfit and know what to do, seldom if ever leads to serious consequences, as the symptoms give ample warning.

Lord Macnaughten, who differed from the majority of the House, adopted much the same line of reasoning as the Court of Appeal in the two last mentioned cases of lead poisoning and enteritis from sewer gas. He said the description "personal injury by accident" if applied to this case was equally applicable to an attack of bronchitis or pneumonia brought on by

a sudden and violent chill : the death was due to the physical state of the workman and the nature of the employment : it was just what anyone would have expected who saw the man and knew what a trimmer had to do.

This argument did not appeal to the majority of the House. Lord Loreburn L.C. said that predisposing weakness was immaterial : that the heat stroke was an unlooked-for mishap in the course of the employment ; in common language it was a case of accidental death : that the case was concluded by *Fenton* v. *Thorley & Co. Ltd.* (1903, A. C. 443), and that in construing this Act there was a risk of frustrating it by excess of subtlety, which he was anxious to avoid.

Lord Ashbourne adopted Lord Macnaughten's definition of accident in *Fenton* v. *Thorley*, which he re-affirmed in the anthrax case, and said every word of it applied to this case, the facts of which are in many ways more simple and more direct than in the case of anthrax. He also said that the fact of a disease not being scheduled did not affect the question by reason of this sub-section (10).

It is suggested that these various and conflicting decisions and dicta warrant the following propositions :

(i) The Act does not affect the question whether non-scheduled diseases are accidents or not. It expressly says so in sect. 8, sub-sect. 10, and if anything to the contrary were intended by the Court of Appeal in *Broderick* v. *L. C. C.* (1908, 2 K. B. 807), that is disposed of by the House of Lords in *Ismay* v. *Williamson*. The same criteria must be applied as under the old Act. Was the disease not only due to the employment, but also, in the ordinary and popular sense of the words "injury by accident," an unlooked-for mischief, an untoward event not expected or designed, an unintended occurrence which produced hurt or loss ?

(ii) There is no distinction between diseases that are infectious and those that are non-infectious merely on that ground. The catching of a bacillus may be as much an accident as any other untoward event : the method and data of its impact is often as well known as in the case of anthrax, decided by the House of Lords, and as much an injury by accident as if it were a rupture or heat stroke.

(iii) Generally speaking, idiopathic and chronic diseases are excluded from the Act, which does not contemplate long exposure or the gradual growth of maladies as a series of

accidents: no date can be assigned as the happening of the accident in such diseases.

(iv) A disease is equally accidental whether it follows as the result of an injury, as in the cases instanced by Lord Halsbury (supra, p. 56), or causes the accident, as in the case of a fatal fall due to a fit (*Wicks* v. *Dowell*, supra, p. 55). An accident does not cease to be such because idiopathic disease is a remote cause.

(v) In the same way the physical condition of the workman which renders him more liable to accident does not take away the accidental nature of the occurrence. He may be physically unfit, specially prone to epilepsy, heart disease, or other complaints: it does not render an accident any the less an accident that the results may be more serious to an individual.

(vi) The fact that the employment may be dangerous, and the disease in question an "occupation" disease, and therefore in one sense not altogether unexpected, does not make the disease any the less unintended and undesigned event, and therefore an accident within the Act.

This, it is contended, is a necessary conclusion from the two House of Lords' cases on the subject viz., *Brinton's* v. *Turvey* and *Ismay* v. *Williamson*, especially the latter, which, in spite of much judicial difference of opinion, both in the House of Lords and in the Irish Courts below, does much to settle the principles upon which cases under this sub-section must be decided. If the earlier decision of *Broderick* v. *L. C. C.* in the Court of Appeal is in conflict with *Ismay* v. *Williamson*, it must give way.

In *Broderick* v. *L. C. C.* (supra) the County Court Judge found that the workman contracted enteritis by inhaling sewer gas, and the result was to accelerate long-existing heart disease and to incapacitate him for work before the time when the heart disease would otherwise have done so: that this was not an injury by accident: that it was an incident of his work that noxious gases should be present in the atmosphere in which he worked, and that the work therefore involved the risk of poisoning by such fumes, so that the case could not be said to be unexpected or fortuitous or unforeseen, but was a result which might be caused to anyone engaged in such work. The Court of Appeal affirmed the County Court Judge some ten days before the House of Lords gave judgment in *Ismay* v. *Williamson* (supra).

It certainly seems that inhaling a bacillus in a sewer is not

less accidental than getting heat stroke in a stokehold or catching an anthrax bacillus in the eye from sorting or carrying wool, an industry which we know from published returns involves that special risk : moreover, the impact of the bacillus of enteritis is not harder to determine than that of anthrax : neither disease is due to gradual or accumulated origin. The argument that the employment involved the particular risk, and that the disease was not therefore unexpected and not accidental is finally rejected (it is submitted) by the House of Lords : and the same high authority lays it down that the fact that the condition of the workman was such as to render the disease more fatal than to a man who was physically sound, is immaterial. For these reasons it is difficult to reconcile *Broderick* v. *L. C. C.* with the decisions in the House of Lords.

CHAPTER II.

THE EMPLOYER'S DEFENCES.

THE defences that are open for an employer to a claim for compensation for industrial disease may be usefully collected here.

He may escape liability upon successfully proving:

I. That the workman has not been disabled for a period of one week from earning full wages at the week at which he was employed. See 1 (2) (*a*).

II. That the matter is *res judicata*: either that he has paid damages for the injury in an action at law independently of this Act, or that such action failed, and that it was not determined in such action that the injury is one for which he would have been liable to pay compensation under this Act. See 1 (2) (*b*) and 1 (4); cf. *Edwards* v. *Godfrey* (1899) 2 Q. B. 333.

III. That the workman has recovered damages for the injury against some other person, and is not entitled to recover compensation. See sect. 6. This is not likely to arise in the case of disease.

IV. That the injury to the workman is attributable to the serious and wilful misconduct of the workman. This defence is not available in case of death or serious and permanent disablement resulting from the disease. I. (2) (*c*).

Serious and wilful misconduct of the workman may be an important question in industries in which scheduled diseases occur, especially with regard to the breach of Factory Act rules and regulations.

It is necessary to ascertain:

First, what is meant by the phrase generally; and,

Secondly, how it should be interpreted with regard to industrial diseases.

1. *Generally.*—The earlier cases are collected and the meaning of the phrase discussed in *Johnson* v. *Marshall Sons & Co. Ltd.* (1906, A. C. 409). The expression means much more than carelessness or negligence : " serious " means that the conduct, and not the result, is serious : " wilful " imports deliberation, not mere thoughtlessness, or an act upon the spur of the minute.

The cases may be summarised as follows : To deliberately run a risk after warning (*John* v. *The Albion Coal Co. Ltd.* (1901) 18 T. L. R. 27 ; *Brooker* v. *Warren* (1906) 23 T. L. R. 201) ; the breach of an important rule of safety made by a railway company (*Bist* v. *L. & S. W. Ry. Co.* (1907) 23 T. L. R. 471; *McCaffrey* v. *G. N. R. Co.* (1902) 36 Ir. L. T. R. 27); or in a factory as to not cleaning machinery while in motion (*Guthrie* v. *Boase Spinning Co. Ltd.* (1901) 3 F. 769, 38 S. L. R. 483) ; and in Scotland, drunkenness (*McGroarty* v. *John Brown & Co. Ltd.* (1906) 43 S. L. R. 598) have all been decided to be serious and wilful misconduct. On the other hand, disobedience of a notice posted on a lift as to its use is misconduct, but not serious and wilful misconduct (*Johnson* v. *Marshall &c.*, supra); and if the accident is done on a sudden impulse, in spite of previous warning, it is not wilful (*Reeks* v. *Kynock Ltd.* (1901) 18 T. L. R. 34).

The breach of a statutory regulation has generally been held to be serious and wilful misconduct, but not if it is unknown to the workman, or not generally observed. It appears that the same principles are applicable as in other cases. This part of the subject is dealt with more fully below.

2. *As to Industrial Diseases.*—In applying these principles, serious and wilful misconduct may be divided into two heads :

(*a*) Breach of a regulation imposed by the employer for the immunity of the workmen.

As has been so often said, each case must depend upon its own circumstances. The importance of the regulation as regards the consequence of its breach must be considered. In all the cases, rules made for the safety of the workman and the public have been considered important (see per Lord Halsbury in *Bist* v. *L. & S. W. Rly.* supra ; *Brooker* v. *Warren*, supra). Was the object of the regulation to prevent disease, and could the disease be reasonably anticipated from its

breach? Was it generally observed and enforced in the employment? Had the workman been warned? Was it known to him? These are the questions that are material in deciding whether the misconduct is deliberate and serious.

(*b*) Breach of Special Rules and Regulations made under the Factory Acts.

In industries that have been certified as dangerous or unhealthy (in which are included several that give rise to scheduled diseases), there are in force special rules or regulations which impose statutory duties and penalties for their breach, upon both employers and workpeople.[1]

The breach of such regulations, made as they are under an Act of Parliament for the purpose of preventing particular industrial diseases, at once raises the defence of serious and wilful misconduct. Will every breach be serious and wilful misconduct? The answer is no: the same principles must be applied as in other cases; there must be a deliberate breach. There will, however, be no doubt (it is submitted) upon some points which are open in other cases: viz. the importance of the regulation, and the "seriousness" of its breach: and it must generally be known to the workman, as the regulations are posted in every factory under the Act, and the employers are bound to see them carried out.

Brooker v. *Warren* (supra) was a case of breach of a regulation under the Factory and Workshop Act, 1901, which required the fencing of dangerous machinery. A guard was provided for a circular saw, and the workman warned to use it by his employer and by the Factory Inspector. He persisted in working without it and was killed. The Court pointed out the importance of the rule for the safety of the workman and others employed near him, and characterised it as a clear case of serious and wilful misconduct.

The breach of a rule made under the Coal Mines Regulation Act, 1887, was the subject of discussion in *Rumball* v. *The Nunnery Colliery Co.* (1899, 80 L. T. 42). The workmen were unable to get at their work without removing some props (the breach of regulation complained of), and in consequence the roof fell in and caused the injuries. The County Court Judge

[1] See p. 23 supra, for the explanation of the difference between Special Rules and Regulations. The penalties for breach of either are, for an occupier, owner, or manager, £10, and for any other person (including a workman), £2.

found as a fact that there was no serious and wilful misconduct. The Court of Appeal held there was evidence to support the County Court Judge's finding, and said :

" It is not true to say that every breach of the rules under the Coal Mines Regulation Act, 1887, will necessarily amount to serious and wilful misconduct within the Act. The circumstances under which the breach occurred must be ascertained and the whole matter considered."

These are the only English cases reported on the breach of a statutory rule : in one it is regarded as clearly serious and wilful misconduct ; in the other, exonerating circumstances seem to have been found in the fact that the men's work was obstructed, and the breach of the rule something of a necessity to enable them to do their work.

In Scotland all the cases of breach of a statutory rule are under the Coal Mines Regulation Act, 1887. Lord McLaren says it is a principle of universal application that the infraction of a mining rule amounts to serious and wilful misconduct, unless the workman was excusably ignorant of the rule, or breaks it through some paramount necessity, or if the rule is in fact not observed, the workman may be held to be excused in thinking it no longer in observance (*Dobson* v. *United Collieries Ltd.* (1905) 8 F. 241 ; 43 S. L. R. 260 : cf. per Lord Young in *Lynch* v. *Baird & Co. Ltd.* (1904) 6 F. 271). Cases of such serious and wilful misconduct are : *Dailly* v. *John Watson Ltd.* (1900, 2 F. 1044—carrying cartridges with naked lamp) ; *O'Hara* v. *Cadzow Coal Co. Ltd.* (1903, 5 F. 439—not erecting props) ; *United Collieries Ltd.* v. *McGhie* (1904) 6 F. 808 ; and *George* v. *Glasgow Coal Co.* (1909) A. C. 123 (breach of shaft rules).

The result seems to be that the breach of a special rule or regulation made under the Factory Acts must usually be regarded as serious and wilful : there may be trifling and occasional breaches of less important rules, or the rules may have very wrongly fallen into oblivion and be unknown to the workman, so that the disobedience is excused. If the disease is one of gradual or accumulated origin, it may be difficult to prove that one breach is serious and wilful ; but where there is constant and persistent refusal to obey the rules, unless the employers have neglected to enforce them, it is submitted that such conduct must be serious and wilful.

Attributable.—The onus is upon the employer to prove that

the disease is attributable to the serious and wilful default of the workman. It must be a question of evidence—usually of medical evidence—whether the disease is so attributable. The Court will not disturb the finding of the arbitrator as to this unless he has acted upon a wrong principle or without evidence. There may be proof of serious and wilful misconduct, without any proof that the disease is attributable to it: if so the defence will fail (cf. *Glasgow Coal Co.* v. *Sneddon* (1905) 7 F. 485). In the case of gradual diseases this difficulty in the way of the defence is bound to occur sometimes.

A few illustrations as to the application of these principles to the breach of Factory Act regulations and special rules, to be found in Part II. of this book, may be useful.

Anthrax.

The regulations as to the various processes of wool sorting, combing and carding, and for the use of horsehair, and the special rules as to the handling of dry hides from China, &c., are all designed for the prevention of anthrax. In all these three sets of rules the persons employed must report an open cut or scratch to the foreman, and must not work till the wound is healed or properly treated and covered—a most important provision for the prevention of external anthrax. If the employer can show that the applicant for compensation for temporary incapacity had an open wound, which he did not report, and continued his work, and that the anthrax spore attacked him at that spot, it seems arguable that the disease is attributable to his serious and wilful misconduct, and that compensation should be disallowed.

Lead poisoning.

In several different sets of regulations and special rules for various industries, designed to prevent lead poisoning, it is provided that no person after suspension shall work in a lead process without the written sanction of the appointed surgeon, or partake of food in any room where a lead process is carried on, or interfere with the appliances provided for the removal of dust or fumes. These are important regulations framed with a knowledge of the causes of lead poisoning, and with a view to its prevention. If a workman claiming compensation for temporary incapacity is proved to have returned, after suspension, and without leave, to the lead process, or to have surreptitiously brought food into the workshop and constantly eaten it there, e.g. the persistent sucking of sweets, which is no doubt a frequent source of lead poisoning amongst girls; or to have removed or worked without the appliances

for preventing dust or fumes, there can be no doubt of the seriousness and deliberation of his conduct, and the only question should be the difficult one as to how far the disease is proved to be attributable to such conduct.

V. That notice of the death, disablement, or suspension was not given to the employer who last employed the workman during the previous twelve months in the employment to the nature of which the disease was due, as soon as practicable after the disablement or suspension; or that such notice was bad, unless the defect was not prejudicial to the employer's defence, or was occasioned by mistake, absence from the United Kingdom, or other reasonable cause. In the case of disease, the notice may be given notwithstanding that the workman has voluntarily left his employment. See 2 (1) and 8 (1) (*e*).

VI. That the claim for compensation (as to the meaning of which see p. 31) has not been made within six months of the death, disablement, or suspension: unless the failure to make it was occasioned by mistake, absence from the United Kingdom, or other reasonable cause (see 2 (1)), or unless this defence has been waived by an agreement that there was a statutory liability, as by keeping the matter open for negotiations by payment of weekly payments (see *Wright* v. *John Bagnall & Sons Ltd.* (1900) 2 Q. B. 240). Mere payment of weekly payments is, however, not evidence of such waiver (see *Rendall* v. *Hill's Dry Dock & Engineering Co. Ltd.* (1900) 2 Q. B. 245).

The following defences are available only in cases of industrial disease:

VIII. That the workman has not proved a certificate of disablement, or that such certificate is bad for not containing all that is required of it by sect. 8 (1) (i).

IX. That the workman was not suspended in pursuance of any Factory Act rules or regulations on account of having contracted the disease. See sect. 8 (1) (ii).

X. That the applicant has not proved that death was caused by the disease. 8 (1) (iii).

XI. That the applicant has not proved that the disease was due to the nature of an employment in which the workman was employed at any time within twelve months previous to the date of disablement or suspension. 8 (1).

XII. That the applicant has not proved that the "sequela" alleged of any disease is definitely the sequela of that particular disease: it is not sufficient to prove the complaint is a possible sequela of a scheduled disease (*Haylett* v. *Vigor & Co.* (1908) 2 K. B. 837).

This defence applies in all cases of either disablement, suspension or death, where the Act schedules a disease or its sequelæ, and where the sequela is alleged to be the cause of the injury.

XIII. That the workman at the time of entering the employment wilfully and falsely represented himself in writing as not having suffered from the disease. 8 (1) (*b*).

XIV. That the disease was not contracted in his employment, and that the applicant has not furnished sufficient information as to the names and addresses of all the other employers during the twelve months to enable him to take proceedings by joining such other employers as parties to the arbitration. 8 (1) (*c*) (i).

XV. That the disease was in fact contracted whilst the workman was in the employment of some other employer whom he has joined as a party to the arbitration. 8 (1) (*c*) (ii).

XVI. Finally, he may partially escape liability, in the case of a disease contracted by a gradual process, by joining as third parties to the arbitration any other employers who during the twelve months employed the workman in the employment to the nature of which the disease was due, and getting a decision that they are liable to make contributions to him in respect of the compensation he has to pay. 8 (1) (*c*) (iii).

CHAPTER III.

MEDICAL EXAMINATION OF WORKMAN.

Suspension of Compensation.

The employer may require a workman who seeks compensation under the Act to submit himself for examination by a duly qualified medical practitioner, provided and paid by the employer (and in accordance with regulations made by the Home Secretary under Sch. I., 15 (p. 107, infra) either—

i. Under Sch. I. (4), where a workman has given notice of an accident, that is to say before any proceedings are taken or any compensation is paid at all.

The words "where a workman has given notice of an accident" are not a condition precedent in all cases: the want of notice may be cured or waived.

Where a workman commenced proceedings without giving such notice and the employers in their answer took no objection to the want of notice, but alleged that the applicant had recovered, and applied for a stay on the ground that the workman refused to submit to medical examination, the Court of Appeal held that the workman could not rely upon the giving of a notice as a condition precedent to the obligation to submit to medical examination under this clause (*Osborn* v. *Vickers Sons & Maxim* (1900, 2 Q. B. 91).

Or ii. Under Sch. I. (14) where a workman is receiving weekly payments under the Act: that is to say, whether by award or by agreement.

If the workman refuses to submit to such examination, or in any way obstructs the same, his right to compensation, or to take or prosecute any proceedings under the Act, or to such weekly payments is suspended until such examination has taken place.

The regulations dated June 28, 1907, made under this Schedule provide that the examination shall be at reasonable hours : no definition of this phrase is given—it remains a question of fact for the arbitrator. A workman in receipt of weekly payments shall not be required after a month has elapsed from the date of the first payment or of the award where one has been made, to submit himself against his will except at intervals specified in the regulations. See p. 160.

The object of these provisions as to medical examination is to enable the employer to ascertain the nature and extent of the workman's injury or disease : to decide whether he is malingering : whether to admit the claim or contest it, or apply for a review of weekly payments. Without such provisions the employer might very well be paying compensation in a fraudulent claim or after the workman's recovery.

By Sch. I. (20), where a right to compensation is suspended, no compensation shall be payable in respect of the period of suspension. The employer should apply for suspension under these clauses in accordance with Rule 55 of the Workmen's Compensation Rules, 1907, which specifies the practice.

CHAPTER IV.

CERTIFYING SURGEONS.

Their Powers and Duties.

A CERTIFYING SURGEON means a duly registered medical practitioner,[1] appointed by a Factory Inspector under the authority of the Factory and Workshop Act, 1901, s. 122.[2]

Since the passing of the Workmen's Compensation Act, 1906, the phrase also includes a medical practitioner appointed by the Secretary of State under sect. 8, sub-sect. (5) of that Act, to have the powers and duties of a certifying surgeon under sect. 8.

The Home Secretary has so far made two such special appointments in the district of the certifying surgeon at

[1] I.e., registered under the Medical Act, 1858, s. 34, and the subsequent Acts, together known as the Medical Acts.

[2] This section is as follows :—

122.—(1) Subject to such regulations as may be made by the Secretary of State, an inspector may appoint a sufficient number of duly registered medical practitioners to be certifying surgeons for the purposes of this Act, and may revoke any such appointment.

(2) Every appointment and revocation of appointment of a certifying surgeon may be annulled by the Secretary of State upon appeal to him for that purpose.

(3) A surgeon who is the occupier of a factory or workshop, or is directly or indirectly interested therein, or in any process or business carried on therein, or in a patent connected therewith, shall not be a certifying surgeon for that factory or workshop.

(4) The Secretary of State may make rules for the guidance of certifying surgeons, and for the particulars to be registered respecting their visits, and for the forms of certificates and other documents to be used by them.

(5) Every certifying surgeon shall, if so directed by the Secretary of State, make any special inquiry and re-examine any young person or child.

(6) Every certifying surgeon shall in each year make at the prescribed time a report in the prescribed form to the Secretary of State as to the persons inspected during the year and the results of the inspection.

Wakefield for applications for certificates for disablement from miners, and by a modification contained in his Order of December 2, 1908, applying the section to telegraphist's cramp, has, so far as regards a workman employed by the Postmaster-General substituted for the certifying surgeon the Post Office medical officer under whose charge the workman is placed, if he is authorised to act for the purposes of the section by the Postmaster-General.

Where there is no certifying surgeon for a factory or workshop, the Poor Law medical officer for the district in which the factory or workshop is situate shall act for the time being as the certifying surgeon for that factory or workshop (F. & W. Act, 1901, s. 123).

A surgeon who is occupier of or interested in a factory is disqualified from being a certifying surgeon of that factory (ibid., sect. 122, see last note).

Certifying surgeons have powers and duties under both the Factory Act and the Workmen's Compensation Act, which for the sake of easy reference are collected here :—

I. Under the Factory & Workshops Act, 1901, they have the following powers and duties :—

(*a*) To make special inquiry and examine any young person or child, if so directed by the Secretary of State (sect. 122).

(*b*) To make an annual report to the Secretary of State as to the persons inspected during the year, and the results of the inspection (sect. 122).

(*c*) To make full investigation as to the nature and cause of death or injury caused by accidents (sect. 20).

(*d*) To personally examine young persons and children and grant certificates of fitness for their employment (sects. 64, 65, 67).

(*e*) To carry out the periodical examination and other duties, such as suspension, entry in the Health Register, &c., imposed upon them by the regulations and special rules which are in force for the

industries and processes certified to be dangerous under sect. 79.[1]

Many industries are certified to be dangerous under that section because they give rise to industrial diseases, which the regulations and special rules are intended to prevent.

The regulations and special rules in force for industries which usually give rise to diseases to which sect. 8 of the Workmen's Compensation Act applies, are included in Part II. of this book, together with a description of the process to which they belong. Under most of them the certifying surgeon or appointed surgeon[2] has duties of periodical examination, and a power of suspension.

The fees to be paid to a certifying surgeon for duties under the Factory and Workshop Act, 1901, are dealt with by sect. 124 and an Order of March 2nd, 1904, which revokes Part II. of Schedule V. of that Act.

II. Under the Workmen's Compensation Act, 1906, sect. 8, and the regulations[3] made under that section, certifying surgeons or medical practitioners appointed by the Secretary of State for the purpose, have the following additional powers and duties :—

Certificate of Disablement.

1. To certify that the workman is suffering from a disease to which sect. 8 applies, and is thereby disabled from earning full wages at the work at which he was employed. Sect. 8 (1) (i).

Where a workman applies for a certificate of disablement and pays the prescribed fee,[4] the certifying surgeon must

[1] This section is set out at p. 24, supra.

[2] The "appointed surgeon" mentioned in certain regulations and special rules means the qualified medical practitioner (who may be the certifying surgeon), appointed by the Chief Inspector, or by the occupier with the approval of the Chief Inspector to carry out the duties of periodical examination, suspension from employment, and entry in the Health Register of the particulars of his examination.

[3] Regulations dated June 21, 1907; see p. 129. These regulations contain a definition of both "certifying surgeon" and "appointed surgeon" for the purposes of the regulations.

[4] The prescribed fees are smaller in cases where the surgeon makes the examination in performance of his duties under the Factory Act than in other cases; see p. 132.

obtain particulars[1] as to the workman's name, disease, symptoms, and employment, and proceed to examine him at once (if he has made application in person) or give him notice of the time and place for such examination.

After such personal examination the certifying surgeon must either grant a certificate of disablement or certify that he is not satisfied that the workman is entitled to such certificate, and in either case deliver the certificate to the workman.

The certificate must be in writing, and in the form in the schedule to the regulations. The Home Office supply certifying surgeons with forms on application.

The certifying surgeon must, as far as the matters he has to certify, regard himself as the judge, because his certificate is proof of such matters, and they are not again proved in the arbitration. Only the medical referee, on appeal, can disturb his decision, and in the absence of such appeal, his certificate is conclusive of the matters he is empowered to certify, but not more. This, it is contended, is the result of the section, and is fully discussed above, p. 20.

Having decided that the workman is suffering from the disease, the certifying surgeon has still to say whether he is thereby disabled from earning full wages at his work (see p. 21).

Finally comes the question of the date of disablement: he has to certify the date on which disablement commenced, if he can (8 (4)).

He will often be asked to fix it some long time back, as that will be of benefit to the workman. He must be the judge of what evidence weighs with him in each disease and according to the symptoms. It is impossible to lay down any general principle to apply to all cases, except that in a doubtful case the certifying surgeon should require somewhat strict proof of disablement as a fact, and not as

[1] The schedule to these regulations contains specimen forms for each step, particulars to be obtained, notices, &c.

a surmise. If a man is really disabled from doing his work properly and earning full wages, there will, as a rule, be clear symptoms or other evidence.

The certifying surgeon must always remember that he has no power to certify that the disease is due to the nature of the employment.

It has already been said that the certificate is conclusive of the facts it certifies : if that is so there can be no question in Court as to whether the workman was in fact suffering from the disease and disabled. If the certifying surgeon is subpœnaed to attend, he may no doubt be asked many other questions as to probable duration of incapacity, and so forth, but he ought not to be examined or cross-examined upon the facts in the certificate or his reasons for certifying. If he is, he should appeal to the judge to disallow the question.

Certificate of Suspension.

2. It will be remembered that a certificate of suspension is not required to prove a workman's claim where he has been suspended under sect. 8 (1) (ii), and he must prove the necessary facts without it.

The certificate is, however, required if either party wish to appeal to the medical referee.

The regulations provide that where a workman is suspended after examination in pursuance of any special rules or regulations made under the Factory and Workshops Act, 1901, or where such suspension is refused after the personal examination, the certifying or appointed surgeon must on the application of either the workman or the employer, and on payment of the prescribed fee, certify such suspension or refusal to suspend, and deliver such certificate to the applicant.

Suspension is fully dealt with above, p. 25.

Certificate that Disease is not due to the Nature of the Employment.

3. Where a certificate of disablement is given or a workman suspended, and the case comes within sub-sect. (2), and

the disease is presumed to be due to the employment in the scheduled process, the certifying or appointed surgeon must, if of opinion that the disease is not due to the nature of the employment, certify accordingly.

This certificate should only be given when the legal presumption is in favour of the applicant: it should never be given when the onus of proof is upon him. Nor should the certifying surgeon ever certify that the disease *is* due to the nature of the employment: he has no such power. Neither must he refuse to give a certificate of disablement because he is of opinion that the disease is not due to the nature of the employment. The question is not for him to decide: he must give the two certificates.

Under the regulations this certificate must, if possible, be given simultaneously with the certificate of disablement or suspension (if any), but may be given separately on application by the employer and payment of the prescribed fee. As to granting of this certificate in the case of death, see p. 51, supra.

The certifying or appointed surgeon must keep a copy of any certificate given by him, together with any other documents relating to the case. Copies of any such certificate must, on payment of the prescribed fee, be supplied by the surgeon to the employer and the workman (Regulation 6).

CHAPTER V.

MEDICAL REFEREES.

Their Powers and Duties.

Medical Referees for the purposes of this Act are appointed by the Secretary of State (i.e. the Home Secretary), with the sanction of the Treasury under the powers contained in sect. 10. They must be "legally qualified medical practitioners," that is to say, persons registered under the Medical Act, 1858, sect. 34, and the subsequent Acts, together known as the Medical Acts.

Their powers and duties under the Act, and certain clauses of the first and second schedules and the regulations[1] made thereunder, are to determine certain matters referred to them, and are here collected: viz. as follows:—

Appeals from Certifying Surgeons.

1. To decide matters referred[2] to them upon application of *either party* aggrieved by the action of a certifying or other surgeon in certifying or refusing to certify disablement or suspension.

This is under sect. 8 (1) (iii) (*f*).

The decision of the medical referee is *final*.

The procedure under the regulations[3] made under this section is as follows:—

[1] Two sets of Regulations have been made, viz.:—
i. Regulations dated June 21, 1907 (already referred to as to certifying surgeons), made under the Act; see post, p. 129.
ii. Regulations dated June 24, 1907, made by the Secretary of State and the Treasury as to the duties and remuneration of Medical Referees under the first and second schedules of the Act. See post, p. 146.
There is a definition of "medical referee" in both sets of regulations.

[2] The words "reference" and "referred" are used throughout, except in sect. 8 (4) (*a*), where the word "appeal" is used.

[3] I.e., the regulations dated June 21, 1907, post, p. 129. These should be referred to for all details, such as time, forms of notice, &c.

The application may be made by either party to the registrar of the County Court for the district in which the workman is employed : it must be in writing, stating the grounds upon which the reference is asked for, and accompanied by the certificate or copy thereof appealed against. When the application is in order, the registrar must[1] refer the matter to a medical referee, and make an order directing the workman to submit himself for examination by the medical referee.

The medical referee must be one of those appointed for the County Court circuit (or sub-division) in which the case arises, provided that where a medical referee has been specially appointed by the Home Secretary for deciding any specified case or class of cases, then the reference will be to him. Where a surgeon by whose action an applicant is aggrieved has been made a medical referee, the reference must be to another medical referee authorised to act.

The medical referee, on receipt of the order from the registrar, must fix a time and place for a personal examination, and send notice thereof to both parties. If they fail to appear as required, unless it is proved to be unavoidable, and unless the medical referee requires expert assistance, he must decide on the matter referred to him forthwith, upon such information as shall be available, and with or without personal examination. Except in cases where the workman fails to appear after notice the medical referee, before deciding the matter, must make a personal examination of the workman, and consider any statements made or submitted by either party.

The medical referee has, in the prescribed forms, to notify his decision to the registrar, to the applicant, and to the respondent, and send a statement to the Home Office of the fees due to him at the end of each quarter. He is allowed two guineas for all the duties connected with each matter referred, with an allowance for mileage, and in cases involving special difficulty he may apply to the Home

[1] See also Workmen's Compensation Rules, 1907, rule 82 (2) (p. 121).

Secretary for special expert assistance. Where a medical referee allows an appeal against the refusal of a certifying surgeon to give a certificate of disablement, he must determine the date of disablement. Sect. 8 (4) (*a*).

Certificate of Fitness for Employment.

2. To certify as to a workman's condition or fitness for employment, or whether or to what extent his incapacity is due to the accident, where *both parties*, who are unable to agree, apply for a reference.

Under Schedule I. (15), where the employer and workman cannot, after examination and report by a medical practitioner, come to an agreement as to the workman's condition or fitness for employment, the registrar of a County Court on application being made by *both parties* may refer the matter to a medical referee. His duty is then to give a certificate as to the condition of the workman and his fitness for employment, specifying where necessary the kind of employment for which he is fit. Also where the employer and workman cannot come to an agreement as to whether or to what extent the incapacity of the workman is due to the accident, the medical referee's certificate shall apply as if this were a question as to the condition of the workman. The medical referee's certificate shall (in the words of the Act) be conclusive evidence of the matters so certified (Schedule I. (15)).

By the regulations[1] made under the first and second schedules of the Act, in the absence of special circumstances, the medical referee must be one of those appointed for the County Court circuit or sub-division, as in the case of appeals from certifying surgeons last dealt with, provided that where there has been a previous reference in any case any subsequent reference in the same case shall if possible be made to the same referee. He must not accept any reference unless signed by the registrar and sealed with the seal of the County Court. He must send to the

[1] Regulations dated June 24, 1907, see p. 146, infra.

Home Office at the end of each quarter a statement of the fees due to him, and certify the distance if he claims mileage, and in cases involving special difficulty he may apply to the Home Secretary for special expert assistance.

By the regulations [1] which apply specially to references under Schedule I. (15), the duties of the medical referee, on receipt of the reference duly signed and sealed, are : (i) to fix a time and place for the examination, and send notice thereof to both parties signing the application ; (ii) to personally examine the workman and consider any statement by either party ; (iii) to give a certificate in the prescribed form, and to forward it to the registrar. The fee allowed is, for a first reference, two guineas, and for a subsequent reference to the same referee, one guinea, with an allowance where mileage is necessary.

Certificate of Permanent Incapacity.

3. To certify whether the incapacity resulting from injury is likely to be of a permanent nature where the workman ceases to reside in the United Kingdom.

Under Schedule I. (18) if a workman receiving a weekly payment ceases to reside in the United Kingdom, he shall thereupon cease to be entitled to receive any weekly payment unless the medical referee certifies that the incapacity resulting from the injury is likely to be of a permanent nature. If the medical referee so certifies, the workman shall be entitled to receive quarterly the amount of the weekly payments accruing due during the preceding quarter so long as he proves in such manner and at such intervals as may be prescribed by rules of Court, his identity and the continuance of the incapacity in respect of which the weekly payment is payable. The certificate in this case also is, it is submitted, conclusive.

The regulations [2] in force under this clause are exactly similar to those under clause 15, with the exception

[1] Regulations dated June 24, 1907, regs. 9 to 13. See p. 148.
[2] Ibid., regs. 14 to 18 ; see p. 149.

that the referee need not consider any statements of the parties at the examination.

His fee is one guinea in this case.

As to the proceedings and duties of the registrar in a case under this clause, see Workmen's Compensation Rules, 1907, Rule 62.

Sitting as Assessor.

4. To sit as assessor with a County Court Judge.

By Schedule II. (5) a Judge of County Court may, "if he thinks fit," summon a medical referee to sit with him.

The only regulation[1] specially affecting references under this clause is as to the remuneration of the medical referee, which is a fee of three guineas, with an allowance for travelling over two miles. The general regulations above referred to also apply.

Report of Medical Referee.

5. To report on matters submitted by a committee, arbitrator, or judge.

By Schedule II. (15) any committee,[2] arbitrator, or judge may, subject to regulations made by the Secretary of State and the Treasury, submit to a medical referee for report any matter which seems material to any question arising in an arbitration.

The Regulations (20–24) under this clause make it a condition that before making any reference, the committee, arbitrator, or judge shall be satisfied, after hearing all medical evidence tendered by either side, that such evidence is either conflicting or insufficient on some matter which seems material to a question arising in the arbitration, and that it is desirable to obtain a report from a medical referee on such matter.

[1] Regulations dated June 24, 1907, reg. 19; see post, p. 149.

[2] The Act mentions "any committee representative of an employer and his workmen with power to settle matters under this Act in the case of the employer and workman": Sch. II. (1). The regulations of June 24, 1907, have adopted these words as a definition of "committee."

On making the reference to the medical referee, the committee, arbitrator, or judge must make an order for the examination of the injured workman by the medical referee. They must be satisfied that he is in a fit condition to travel, and direct him to attend at such time and place as the referee may fix. It is the workman's duty to obey such an order. If they are satisfied that he is not in a fit condition to travel, they must so state in the reference.

The reference must be in writing, and state the matter referred in the form prescribed in the schedule to the regulations : it must be accompanied by a general statement of the medical evidence given, which must be signed by the witnesses, if given before a committee or agreed arbitrator, and the witness may add any necessary explanation or correction. The reference, if made by a committee, must be signed by the chairman or secretary of the committee : if made by an agreed arbitrator, by the arbitrator : if made by a judge or an appointed arbitrator,[1] by the judge or arbitrator, or registrar of the Court in which the arbitration is pending, and forwarded to the registrar, who must countersign it and send it or forward it forthwith to the medical referee.

In cases of a reference by a committee or agreed arbitrator it must be directed in general terms to " one of the medical referees appointed, &c.," without naming one, and forwarded to the registrar, who must see that it is in accordance with the regulations, and insert the name of the medical referee proper to be appointed before countersigning and forwarding to the medical referee.

The medical referee's duties on receiving a reference duly signed and sealed are—

(*a*) to appoint a time and place for examination of the workman, and send him notice thereof ;

(*b*) to give his report in writing and forward it to the registrar.

[1] An " appointed arbitrator " means a single arbitrator appointed by a Judge under Sch. II. (3).

The report may be remitted to the medical referee for a further statement on any matter not covered by the original reference, by request signed and forwarded in the same manner as the reference.

The fees allowed for these references, including examination and written report, are, for a first reference, two guineas, and for a further statement or subsequent reference one guinea.

See Regulations 27–30, pp. 151, 152.

APPENDIX.

WORKMEN'S COMPENSATION ACT, 1906.

(6 Edw. 7, Chapter 58.)

An Act to consolidate and amend the Law with respect to Compensation to Workmen for Injuries suffered in the course of their Employment. A.D. 1906.

[21st December, 1906.]

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows :—

Liability of employers to workmen for injuries.

1.—(1) If in any employment personal injury by accident arising out of and in the course of the employment is caused to a workman, his employer shall, subject as herein-after mentioned, be liable to pay compensation in accordance with the First Schedule to this Act.

(2) Provided that—

(*a*) The employer shall not be liable under this Act in respect of any injury which does not disable the workman for a period of at least one week from earning full wages at the work at which he was employed :

(*b*) When the injury was caused by the personal negligence or wilful act of the employer or of some person for whose act or default the employer is responsible, nothing in this Act shall affect any civil liability of the employer, but in that case the workman may, at his option, either claim compensation under this Act or take proceedings

independently of this Act; but the employer shall not be liable to pay compensation for injury to a workman by accident arising out of and in the course of the employment both independently of and also under this Act, and shall not be liable to any proceedings, independently of this Act, except in case of such personal negligence or wilful act as aforesaid:

(*c*) If it is proved that the injury to a workman is attributable to the serious and wilful misconduct of that workman, any compensation claimed in respect of that injury shall, unless the injury results in death or serious and permanent disablement, be disallowed.

(3) If any question arises in any proceedings under this Act as to the liability to pay compensation under this Act (including any question as to whether the person injured is a workman to whom this Act applies), or as to the amount or duration of compensation under this Act, the question, if not settled by agreement, shall, subject to the provisions of the First Schedule to this Act, be settled by arbitration, in accordance with the Second Schedule to this Act.

(4) If, within the time herein-after in this Act limited for taking proceedings, an action is brought to recover damages independently of this Act for injury caused by any accident, and it is determined in such action that the injury is one for which the employer is not liable in such action, but that he would have been liable to pay compensation under the provisions of this Act, the action shall be dismissed; but the court in which the action is tried shall, if the plaintiff so choose, proceed to assess such compensation, but may deduct from such compensation all or part of the costs which, in its judgment, have been caused by the plaintiff bringing the action instead of proceeding under this Act. In any proceeding under this sub-section, when the court assesses the compensation it shall give a certificate of the

compensation it has awarded and the directions it has given as to the deduction for costs, and such certificate shall have the force and effect of an award under this Act.

(5) Nothing in this Act shall affect any proceeding for a fine under the enactments relating to mines, factories, or workshops, or the application of any such fine.

Time for taking proceedings.

2.—(1) Proceedings for the recovery under this Act of compensation for an injury shall not be maintainable unless notice of the accident has been given as soon as practicable after the happening thereof and before the workman has voluntarily left the employment in which he was injured, and unless the claim for compensation with respect to such accident has been made within six months from the occurrence of the accident causing the injury, or, in case of death, within six months from the time of death :

Provided always that—

(*a*) the want of or any defect or inaccuracy in such notice shall not be a bar to the maintenance of such proceedings if it is found in the proceedings for settling the claim that the employer is not, or would not, if a notice or an amended notice were then given and the hearing postponed, be prejudiced in his defence by the want, defect, or inaccuracy, or that such want, defect, or inaccuracy was occasioned by mistake, absence from the United Kingdom, or other reasonable cause; and

(*b*) the failure to make a claim within the period above specified shall not be a bar to the maintenance of such proceedings if it is found that the failure was occasioned by mistake, absence from the United Kingdom, or other reasonable cause.

(2) Notice in respect of an injury under this Act shall give the name and address of the person injured, and shall state in ordinary language the cause of the injury and the date at which the accident happened, and shall be served on the employer, or, if there is more than one employer, upon one of such employers.

(3) The notice may be served by delivering the same at, or sending it by post in a registered letter addressed to, the residence or place of business of the person on whom it is to be served.

(4) Where the employer is a body of persons, corporate or incorporate, the notice may also be served by delivering the same at, or by sending it by post in a registered letter addressed to, the employer at the office, or, if there be more than one office, any one of the offices of such body.

Contracting out.

3.—(1) If the Registrar of Friendly Societies, after taking steps to ascertain the views of the employer and workmen, certifies that any scheme of compensation, benefit, or insurance for the workmen of an employer in any employment, whether or not such scheme includes other employers and their workmen provides scales of compensation not less favourable to the workmen and their dependents than the corresponding scales contained in this Act, and that, where the scheme provides for contributions by the workmen, the scheme confers benefits at least equivalent to those contributions, in addition to the benefits to which the workmen would have been entitled under this Act, and that a majority (to be ascertained by ballot) of the workmen to whom the scheme is applicable are in favour of such scheme, the employer may, whilst the certificate is in force, contract with any of his workmen that the provisions of the scheme shall be substituted for the provisions of this Act, and thereupon the employer shall be liable only in accordance with the scheme, but, save as aforesaid, this Act shall apply notwithstanding any contract to the contrary made after the commencement of this Act.

(2) The Registrar may give a certificate to expire at the end of a limited period of not less than five years, and may from time to time renew with or without modifications such a certificate to expire at the end of the period for which it is renewed.

(3) No scheme shall be so certified which contains an obligation upon the workmen to join the scheme as a

condition of their hiring, or which does not contain provisions enabling a workman to withdraw from the scheme.

(4) If a complaint is made to the Registrar of Friendly Societies by or on behalf of the workmen of any employer that the benefits conferred by any scheme no longer conform to the conditions stated in sub-section (1) of this section, or that the provisions of such scheme are being violated, or that the scheme is not being fairly administered, or that satisfactory reasons exist for revoking the certificate, the Registrar shall examine into the complaint, and, if satisfied that good cause exist for such complaint, shall, unless the cause of complaint is removed, revoke the certificate.

(5) When a certificate is revoked or expires, any moneys or securities held for the purpose of the scheme shall, after due provision has been made to discharge the liabilities already accrued, be distributed as may be arranged between the employer and workmen, or as may be determined by the Registrar of Friendly Societies in the event of a difference of opinion.

(6) Whenever a scheme has been certified as aforesaid, it shall be the duty of the employer to answer all such inquiries and to furnish all such accounts in regard to the scheme as may be made or required by the Registrar of Friendly Societies.

(7) The Chief Registrar of Friendly Societies shall include in his annual report the particulars of the proceedings of the Registrar under this Act.

(8) The Chief Registrar of Friendly Societies may make regulations for the purpose of carrying this section into effect.

Sub-contracting.

4.—(1) Where any person (in this section referred to as the principal) in the course of or for the purposes of his trade or business contracts with any other person (in this section referred to as the contractor) for the execution by or under the contractor of the whole or any part of any work undertaken by the principal, the principal shall be liable

to pay to any workman employed in the execution of the work any compensation under this Act which he would have been liable to pay if that workman had been immediately employed by him; and where compensation is claimed from or proceedings are taken against the principal, then, in the application of this Act, references to the principal shall be substituted for references to the employer, except that the amount of compensation shall be calculated with reference to the earnings of the workman under the employer by whom he is immediately employed:

Provided that, where the contract relates to threshing, ploughing, or other agricultural work, and the contractor provides and uses machinery driven by mechanical power for the purpose of such work, he and he alone shall be liable under this Act to pay compensation to any workman employed by him on such work.

(2) Where the principal is liable to pay compensation under this section, he shall be entitled to be indemnified by any person who would have been liable to pay compensation to the workman independently of this section, and all questions as to the right to and amount of any such indemnity shall in default of agreement be settled by arbitration under this Act.

(3) Nothing in this section shall be construed as preventing a workman recovering compensation under this Act from the contractor instead of the principal.

(4) This section shall not apply in any case where the accident occurred elsewhere than on, or in, or about premises on which the principal has undertaken to execute the work or which are otherwise under his control or management.

Provision as to cases of bankruptcy of employer.

5.—(1) Where any employer has entered into a contract with any insurers in respect of any liability under this Act to any workman, then, in the event of the employer becoming bankrupt, or making a composition or arrangement with his creditors, or if the employer is a company in the event of the company having commenced to be wound up, the rights of the employer against the insurers as respects

that liability shall notwithstanding anything in the enactments relating to bankruptcy and the winding up of companies, be transferred to and vest in the workman, and upon any such transfer the insurers shall have the same rights and remedies and be subject to the same liabilities as if they were the employer, so however that the insurers shall not be under any greater liability to the workman than they would have been under to the employer.

(2) If the liability of the insurers to the workman is less than the liability of the employer to the workman, the workman may prove for the balance in the bankruptcy or liquidation.

(3) There shall be included among the debts which under section one of the Preferential Payments in Bankruptcy Act, 1888, and section four of the Preferential Payments in Bankruptcy (Ireland) Act, 1889, are in the distribution of the property of a bankrupt and in the distribution of the assets of a company being wound up to be paid in priority to all other debts, the amount, not exceeding in any individual case one hundred pounds, due in respect of any compensation the liability wherefor accrued before the date of the receiving order or the date of the commencement of the winding up, and those Acts and the Preferential Payments in Bankruptcy Amendment Act, 1897, shall have effect accordingly. Where the compensation is a weekly payment, the amount due in respect thereof shall, for the purposes of this provision, be taken to be the amount of the lump sum for which the weekly payment could, if redeemable, be redeemed if the employer made an application for that purpose under the First Schedule to this Act. 51 & 52 Vict. c. 62. 52 & 53 Vict. c. 60. 60 & 61 Vict. c. 19.

(4) In the case of the winding up of a company within the meaning of the Stannaries Act, 1887, such an amount as aforesaid, if the compensation is payable to a miner or the dependents of a miner, shall have the like priority as is conferred on wages of miners by section nine of the Act, and that section shall have effect accordingly. 50 & 51 Vict. c. 43.

(5) The provisions of this section with respect to

preferences and priorities shall not apply where the bankrupt or the company being wound up has entered into such a contract with insurers as aforesaid.

(6) This section shall not apply where a company is wound up voluntarily merely for the purposes of reconstruction or of amalgamation with another company.

Remedies both against employer and stranger.

6. Where the injury for which compensation is payable under this Act was caused under circumstances creating a legal liability in some person other than the employer to pay damages in respect thereof—

(1) The workman may take proceedings both against that person to recover damages and against any person liable to pay compensation under this Act for such compensation, but shall not be entitled to recover both damages and compensation ; and

(2) If the workman has recovered compensation under this Act, the person by whom the compensation was paid, and any person who has been called on to pay an indemnity under the section of this Act relating to sub-contracting, shall be entitled to be indemnified by the person so liable to pay damages as aforesaid, and all questions as to the right to and amount of any such indemnity shall, in default of agreement, be settled by action, or, by consent of the parties, by arbitration under this Act.

Application of Act to seamen.

7.—(1) This Act shall apply to masters, seamen, and apprentices to the sea service and apprentices in the sea-fishing service, provided that such persons are workmen within the meaning of this Act, and are members of the crew of any ship registered in the United Kingdom, or of any other British ship or vessel of which the owner, or (if there is more than one owner) the managing owner, or manager resides or has his principal place of business in the United Kingdom, subject to the following modifications :—

(*a*) The notice of accident and the claim for compensation may, except where the person injured is the master, be served on the master of the ship as if he were the employer, but where the accident happened and the incapacity commenced on board the ship it shall not be necessary to give any notice of the accident :

(*b*) In the case of the death of the master, seaman, or apprentice, the claim for compensation shall be made within six months after news of the death has been received by the claimant :

(*c*) Where an injured master, seaman, or apprentice is discharged or left behind in a British possession or in a foreign country, depositions respecting the circumstances and nature of the injury may be taken by any judge or magistrate in the British possession, and by any British consular officer in the foreign country, and if so taken shall be transmitted by the person by whom they are taken to the Board of Trade, and such depositions or certified copies thereof shall in any proceedings for enforcing the claim be admissible in evidence as provided by sections six hundred and ninety-one and six hundred and ninety-five of the Merchant Shipping Act, 1894, and those sections shall apply accordingly : 57 & 58 Vict. c. 60.

(*d*) In the case of the death of a master, seaman, or apprentice, leaving no dependants, no compensation shall be payable, if the owner of the ship is under the Merchant Shipping Act, 1894, liable to pay the expenses of burial :

(*e*) The weekly payment shall not be payable in respect of the period during which the owner of the ship is, under the Merchant Shipping Act, 1894, as amended by any subsequent enactment, or otherwise liable to defray the expenses of maintenance of the injured master, seaman, or apprentice :

(*f*) Any sum payable by way of compensation by the owner of a ship under this Act shall be paid in full notwithstanding anything in section five hundred and three of the Merchant Shipping Act, 1894 (which relates to the limitation of a shipowner's liability in certain cases of loss of life, injury, or damage), but the limitation on the owner's liability imposed by that section shall apply to the amount recoverable by way of indemnity under the section of this Act relating to remedies both against employer and stranger as if the indemnity were damages for loss of life or personal injury :

(*g*) Sub-sections (2) and (3) of section one hundred and seventy-four of the Merchant Shipping Act, 1894, which relates to the recovery of wages of seamen lost with their ship), shall apply as respects proceedings for the recovery of compensation by dependants of masters, seamen, and apprentices lost with their ship as they apply with respect to proceedings for the recovery of wages due to seamen and apprentices ; and proceedings for the recovery of compensation shall in such a case be maintainable if the claim is made within eighteen months of the date at which the ship is deemed to have been lost with all hands.

(2) This Act shall not apply to such members of the crew of a fishing vessel as are remunerated by shares in the profits or the gross earnings of the working of such vessel.

(3) This section shall extend to pilots to whom Part X. of the Merchant Shipping Act, 1894, applies, as if a pilot when employed on any such ship as aforesaid were a seaman and a member of the crew.

Application of Act to industrial diseases. 1 Edw. 7, c. 22.

8.—(1) Where

(i) the certifying surgeon appointed under the Factory and Workshop Act, 1901, for the district in which a workman is employed certifies that the

workman is suffering from a disease mentioned in the Third Schedule to this Act and is thereby disabled from earning full wages at the work at which he was employed ; or

(ii) a workman is, in pursuance of any special rules or regulations made under the Factory and Workshop Act, 1901, suspended from his usual employment on account of having contracted any such disease ; or

(iii) the death of a workman is caused by any such disease ;

and the disease is due to the nature of any employment in which the workman was employed at any time within the twelve months previous to the date of the disablement or suspension, whether under one or more employers, he or his dependants shall be entitled to compensation under this Act as if the disease or such suspension as aforesaid were a personal injury by accident arising out of and in the course of that employment, subject to the following modifications :—

(*a*) The disablement or suspension shall be treated as the happening of the accident ;

(*b*) If it is proved that the workman has at the time of entering the employment wilfully and falsely represented himself in writing as not having previously suffered from the disease, compensation shall not be payable ;

(*c*) The compensation shall be recoverable from the employer who last employed the workman during the said twelve months in the employment to the nature of which the disease was due :

Provided that—

(i) the workman or his dependants if so required shall furnish that employer with such information as to the names and addresses of all the other employers who employed him in the employment during the said twelve

months as he or they may possess, and, if such information is not furnished, or is not sufficient to enable that employer to take proceedings under the next following proviso, that employer upon proving that the disease was not contracted whilst the workman was in his employment shall not be liable to pay compensation ; and

(ii) if that employer alleges that the disease was in fact contracted whilst the workman was in the employment of some other employer, and not whilst in his employment, he may join such other employer as a party to the arbitration, and if the allegation is proved that other employer shall be the employer from whom the compensation is to be recoverable ; and

(iii) if the disease is of such a nature as to be contracted by a gradual process, any other employers who during the said twelve months employed the workman in the employment to the nature of which the disease was due shall be liable to make to the employer from whom compensation is recoverable such contributions as, in default of agreement, may be determined in the arbitration under this Act for settling the amount of the compensation ;

(*d*) The amount of the compensation shall be calculated with reference to the earnings of the workman under the employer from whom the compensation is recoverable ;

(*e*) The employer to whom notice of the death, disablement, or suspension is to be given shall be the employer who last employed the workman during the said twelve months in the employment to the nature of which the disease was due, and the notice may be given notwithstanding

that the workman has voluntarily left his employment ;

(*f*) If an employer or a workman is aggrieved by the action of a certifying or other surgeon in giving or refusing to give a certificate of disablement or in suspending or refusing to suspend a workman for the purposes of this section, the matter shall in accordance with regulations made by the Secretary of State be referred to a medical referee, whose decision shall be final.

(2) If the workman at or immediately before the date of the disablement or suspension was employed in any process mentioned in the second column of the Third Schedule to this Act, and the disease contracted is the disease in the first column of that Schedule set opposite the description of the process, the disease, except where the certifying surgeon certifies that in his opinion the disease was not due to the nature of the employment, shall be deemed to have been due to the nature of that employment unless the employer proves the contrary.

(3) The Secretary of State may make rules regulating the duties and fees of certifying and other surgeons (including dentists) under this section.

(4) For the purposes of this section the date of disablement shall be such date as the certifying surgeon certifies as the date on which the disablement commenced, or, if he is unable to certify such a date, the date on which the certificate is given. Provided that

(*a*) Where the medical referee allows an appeal against a refusal by a certifying surgeon to give a certificate of disablement, the date of disablement shall be such date as the medical referee may determine :

(*b*) Where a workman dies without having obtained a certificate of disablement, or is at the time of death not in receipt of a weekly payment on account of disablement, it shall be the date of death.

(5) In such cases, and subject to such conditions as the Secretary of State may direct, a medical practitioner appointed by the Secretary of State for the purpose shall have the powers and duties of a certifying surgeon under this section, and this section shall be construed accordingly.

(6) The Secretary of State may make orders for extending the provisions of this section to other diseases and other processes, and to injuries due to the nature of any employment specified in the order not being injuries by accident, either without modification or subject to such modifications as may be contained in the order.

(7) Where, after inquiry held on the application of any employers or workmen engaged in any industry to which this section applies, it appears that a mutual trade insurance company or society for insuring against the risks under this section has been established for the industry, and that a majority of the employers engaged in that industry are insured against such risks in the company or society and that the company or society consents, the Secretary of State may, by Provisional Order, require all employers in that industry to insure in the company or society upon such terms and under such conditions and subject to such exceptions as may be set forth in the Order. Where such a company or society has been established, but is confined to employers in any particular locality or of any particular class, the Secretary of State may for the purposes of this provision treat the industry as carried on by employers in that locality or of that class, as a separate industry.

(8) A Provisional Order made under this section shall be of no force whatever unless and until it is confirmed by Parliament, and if, while the Bill confirming any such Order is pending in either House of Parliament, a petition is presented against the Order, the Bill may be referred to a Select Committee, and the petitioner shall be allowed to appear and oppose as in the case of Private Bills, and any Act confirming any Provisional Order under this section

may be repealed, altered, or amended by a Provisional Order made and confirmed in like manner.

(9) Any expenses incurred by the Secretary of State in respect of any such Order, Provisional Order, or confirming Bill shall be defrayed out of moneys provided by Parliament.

(10) Nothing in this section shall affect the rights of a workman to recover compensation in respect of a disease to which this section does not apply, if the disease is a personal injury by accident within the meaning of this Act.

Application to workmen in employment of Crown.

9.—(1) This Act shall not apply to persons in the naval or military service of the Crown, but otherwise shall apply to workmen employed by or under the Crown to whom this Act would apply if the employer were a private person :

Provided that in the case of a person employed in the private service of the Crown, the head of that department of the Royal Household in which he was employed at the time of the accident shall be deemed to be his employer.

(2) The Treasury may, by warrant laid before Parliament, modify for the purposes of this Act their warrant made under section one of the Superannuation Act, 1887, and notwithstanding anything in that Act, or any such warrant, may frame schemes with a view to their being certified by the Registrar of Friendly Societies under the Act.

50 & 51 Vict. c. 67.

Appointment and remuneration of medical referees and arbitrators.

10.—(1) The Secretary of State may appoint such legally qualified medical practitioners to be medical referees for the purposes of this Act as he may, with the sanction of the Treasury, determine, and the remuneration of, and other expenses incurred by, medical referees under this Act shall, subject to regulations made by the Treasury, be paid out of moneys provided by Parliament.

Where a medical referee has been employed as a medical practitioner in connection with any case by or on behalf of an employer or workman or by any insurers interested, he shall not act as medical referee in that case.

(2) The remuneration of an arbitrator appointed by a judge of county courts under the Second Schedule to this

Act shall be paid out of moneys provided by Parliament, in accordance with regulations made by the Treasury.

Detention of ships.

11.—(1) If it is alleged that the owners of any ship are liable as such owners to pay compensation under this Act, and at any time that ship is found in any port or river of England or Ireland, or within three miles of the coast thereof, a judge of any court of record in England or Ireland may, upon its being shown to him by any person applying in accordance with the rules of the court that the owners are probably liable as such to pay such compensation, and that none of the owners reside in the United Kingdom, issue an order directed to any officer of customs or other officer named by the judge requiring him to detain the ship until such time as the owners, agent, master, or consignee thereof have paid such compensation, or have given security, to be approved by the judge, to abide the event of any proceedings that may be instituted to recover such compensation and to pay such compensation and costs as may be awarded thereon; and any officer of customs or other officer to whom the order is directed shall detain the ship accordingly.

(2) In any legal proceeding to recover such compensation, the person giving security shall be made defendant, and the production of the order of the Judge, made in relation to the security, shall be conclusive evidence of the liability of the defendant to the proceeding.

57 & 58 Vict. c. 60.

(3) Section six hundred and ninety-two of the Merchant Shipping Act, 1894, shall apply to the detention of a ship under this Act as it applies to the detention of a ship under that Act, and, if the owner of a ship is a corporation, it shall for the purposes of this section be deemed to reside in the United Kingdom as if it has an office in the United Kingdom at which service of writs can be effected.

Returns as to compensation.

12.—(1) Every employer in any industry to which the Secretary of State may direct that this section shall apply shall, on or before such day in every year as the Secretary of State may direct, send to the Secretary of State a correct

return specifying the number of injuries in respect of which compensation has been paid by him under this Act during the previous year, and the amount of such compensation, together with such other particulars as to the compensation as the Secretary of State may direct, and in default of complying with this section shall be liable on conviction under the Summary Jurisdiction Acts to a fine not exceeding five pounds.

(2) Any regulations made by the Secretary of State containing such directions as aforesaid shall be laid before both Houses of Parliament as soon as may be after they are made.

Definitions.

13. In this Act, unless the context otherwise requires,—

"Employer" includes any body of persons corporate or unincorporate and the legal personal representative of a deceased employer, and, where the services of a workman are temporarily lent or let on hire to another person by the person with whom the workman has entered into a contract of service or apprenticeship, the latter shall, for the purposes of this Act, be deemed to continue to be the employer of the workman whilst he is working for that other person;

"Workman" does not include any person employed otherwise than by way of manual labour whose remuneration exceeds two hundred and fifty pounds a year, or a person whose employment is of a casual nature and who is employed otherwise than for the purposes of the employer's trade or business, or a member of a police force, or an outworker, or a member of the employer's family dwelling in his house, but, save as aforesaid, means any person who has entered into or works under a contract of service or apprenticeship with an employer, whether by way of manual labour, clerical work, or otherwise, and whether the contract is expressed or implied, is oral or in writing;

Any reference to a workman who has been injured

shall, where the workman is dead, include a reference to his legal personal representative or to his dependants or other person to whom or for whose benefit compensation is payable ;

"Dependants" means such of the members of the workman's family as were wholly or in part dependent upon the earnings of the workman at the time of his death, or would but for the incapacity due to the accident have been so dependent, and where the workman, being the parent or grandparent of an illegitimate child, leaves such a child so dependent upon his earnings, or being an illegitimate child, leaves a parent or grandparent so dependent upon his earnings, shall include such an illegitimate child and parent or grandparent respectively ;

"Member of a family" means wife or husband, father, mother, grandfather, grandmother, step-father, step-mother, son, daughter, grandson, granddaughter, step-son, step-daughter, brother, sister, half-brother, half-sister.

"Ship," "vessel," seaman," and "port" have the same meanings as in the Merchant Shipping Act, 1894 ;

"Manager" in relation to a ship means the ship's husband or other person to whom the management of the ship is entrusted by or on behalf of the owner;

"Police force" means a police force to which the Police Act, 1890, or the Police (Scotland) Act, 1890, applies, the City of London Police Force, the Royal Irish Constabulary, and the Dublin Metropolitan Police Force ;

53 & 54 Vict. c. 45.
53 & 54 Vict. c. 67.

"Outworker" means a person to whom articles or materials are given out to be made up, cleaned, washed, altered, ornamented, finished, or repaired, or adapted for sale, in his own home or on other premises not under the control or management of the person who gave out the materials or articles ;

The exercise and performance of the powers and duties of a local or other public authority shall, for the purposes of this Act, be treated as the trade or business of the authority ;

" County court," " judge of the county court," " registrar of the county court," " plaintiff," and " rules of Court," as respects Scotland, mean respectively sheriff court, sheriff, sheriff clerk, pursuer, and act of sederunt.

Special provisions as to Scotland.

14. In Scotland, where a workman raises an action against his employer independently of this Act in respect of any injury caused by an accident arising out of and in the course of the employment, the action, if raised in the sheriff court and concluding for damages under the Employers' Liability Act, 1880, or alternatively at common law or under the Employers' Liability Act, 1880, shall, notwithstanding anything contained in that Act, not be removed under that Act or otherwise to the Court of Session, nor shall it be appealed to that Court otherwise than by appeal on a question of law ; and for the purposes of such appeal the provisions of the second Schedule to this Act in regard to an appeal from the decision of the sheriff on any question of law determined by him as arbitrator under this Act shall apply.

43 & 44 Vict. c. 42.

Provisions to existing contracts schemes.

15.—(1) Any contract (other than a contract substituting the provisions of a scheme certified under the Workmen's Compensation Act, 1897, for the provisions of that Act) existing at the commencement of this Act, whereby a workman relinquishes any right to compensation from the employer for personal injury arising out of and in the course of his employment shall not, for the purposes of this Act, be deemed to continue after the time at which the workman's contract of service would determine if notice of the determination thereof were given at the commencement of this Act.

60 & 61 Vict. c. 37.

(2) Every scheme under the Workmen's Compensation Act, 1897, in force at the commencement of this Act shall,

if re-certified by the Registrar of Friendly Societies, have effect as if it were a scheme under this Act.

(3) The Registrar shall re-certify any such scheme if it is proved to his satisfaction that the scheme conforms, or has been so modified as to conform with the provisions of this Act as to schemes.

(4) If any such scheme has not been so re-certified before the expiration of six months from the commencement of this Act, the certificate thereof shall be revoked.

Commencement and repeal.

16.—(1) This Act shall come into operation on the first day of July nineteen hundred and seven, but, except so far as it relates to references to medical referees, and proceedings consequential thereon, shall not apply in any case where the accident happened before the commencement of this Act.

60 & 61 Vict. c. 37. 63 & 64 Vict. c. 22.

(2) The Workmen's Compensation Acts, 1897 and 1900, are hereby repealed, but shall continue to apply to cases where the accident happened before the commencement of this Act, except to the extent to which this Act applies to those cases.

Short title.

17. This Act may be cited as the Workmen's Compensation Act, 1906.

SCHEDULES.

FIRST SCHEDULE.

Scale and Conditions of Compensation.

(1) The amount of compensation under this Act shall be—

(*a*) where death results from the injury—

(i) if the workman leaves any dependants wholly dependent upon his earnings, a sum equal to his earnings in the employment of the same employer during the three years next preceding the injury, or the sum of one hundred and fifty pounds, whichever of those sums is the larger, but not exceeding in any case three hundred pounds, provided that the amount of any weekly payments made under this Act, and any lump sum paid in redemption thereof, shall be deducted from such sum, and if the period of the workman's employment by the said employer has been less than the said three years, then the amount of his earnings during the said three years shall be deemed to be one hundred and fifty-six times his average weekly earnings during the period of his actual employment under the said employer ;

(ii) if the workman does not leave any such dependants, but leaves any dependants in part dependent upon his earnings, such sum, not exceeding in any case the amount payable under the foregoing provisions, as may be agreed upon, or in default of agreement, may be determined, on arbitration under this Act, to be reasonable and proportionate to the injury to the said dependants ; and

(iii) if he leaves no dependants, the reasonable expenses of his medical attendance and burial, not exceeding ten pounds ;

(*b*) where total or partial incapacity for work results from the injury, a weekly payment during the incapacity not exceeding fifty per cent. of his average weekly earnings during the previous twelve months, if he has been so long employed, but if not then for any less period during which he has been in the employment of the same employer, such weekly payment not to exceed one pound :

Provided that—

(*a*) if the incapacity lasts less than two weeks no compensation shall be payable in respect of the first week ; and

(*b*) as respects the weekly payments during total incapacity of a workman who is under twenty-one years of age at the date of the injury, and whose average weekly earnings are less than twenty shillings, one hundred per cent. shall be substituted for fifty per cent. of his average weekly earnings, but the weekly payment shall in no case exceed ten shillings.

(2) For the purposes of the provisions of this schedule relating to " earnings " and " average weekly earnings " of a workman, the following rules shall be observed :—

(*a*) average weekly earnings shall be computed in such manner as is best calculated to give the rate per week at which the workman was being remunerated. Provided that where by reason of the shortness of the time during which the workman has been in the employment of his employer, or the casual nature of the employment, or the terms of the employment, it is impracticable at the date of the accident to compute the rate of remuneration, regard may be had to the average weekly amount which, during the twelve months previous to the accident, was being earned by a person in the same grade employed at the same work by the same employer, or, if there is no person so employed, by a person in the same grade employed in the same class of employment and in the same district ;

(*b*) where the workman had entered into concurrent contracts of service with two or more employers under which he worked at one time for one such employer and at another time for another such employer, his

average weekly earnings shall be computed as if his earnings under all such contracts were earnings in the employment of the employer for whom he was working at the time of the accident ;

(*c*) employment by the same employer shall be taken to mean employment by the same employer in the grade in which the workman was employed at the time of the accident, uninterrupted by absence from work due to illness or any other unavoidable cause ;

(*d*) where the employer has been accustomed to pay to the workman a sum to cover any special expenses entailed on him by the nature of his employment, the sum so paid shall not be reckoned as part of the earnings.

(3) In fixing the amount of the weekly payment, regard shall be had to any payment, allowance, or benefit which the workman may receive from the employer during the period of his incapacity, and in the case of partial incapacity the weekly payment shall in no case exceed the difference between the amount of the average weekly earnings of the workman before the accident and the average weekly amount which he is earning or is able to earn in some suitable employment or business after the accident, but shall bear such relation to the amount of that difference as under the circumstances of the case may appear proper.

(4) Where a workman has given notice of an accident, he shall, if so required by the employer, submit himself for examination by a duly qualified medical practitioner provided and paid by the employer, and, if he refuses to submit himself to such examination, or in any way obstructs the same, his right to compensation and to take or prosecute any proceeding under this Act in relation to compensation shall be suspended until such examination has taken place.

(5) The payment in the case of death shall, unless otherwise ordered as hereinafter provided, be paid into the county court, and any sum so paid into court shall, subject to rules of court and the provisions of this schedule, be invested, applied, or otherwise dealt with by the court in such manner as the court in its discretion thinks fit for the benefit of the persons entitled thereto under this Act, and the receipt of the registrar of the court shall be a sufficient discharge in respect of the amount paid in :

Provided that, if so agreed, the payment in case of death shall, if the workman leaves no dependants, be made to his legal personal representative, or, if he has no such representative, to the person to whom the expenses of medical attendance and burial are due.

(6) Rules of court may provide for the transfer of money paid into court under this Act from one court to another, whether or not the court from which it is to be transferred is in the same part of the United Kingdom as the court to which it is to be transferred.

(7) Where a weekly payment is payable under this Act to a person under any legal disability, a county court may, on application being made in accordance with rules of court, order that the weekly payment be paid during the disability into court, and the provisions of this schedule with respect to sums required by this schedule to be paid into court shall apply to sums paid into court in pursuance of any such order.

(8) Any question as to who is a dependant shall, in default of agreement, be settled by arbitration under this Act, or if not so settled before payment into court under this schedule, shall be settled by the county court, and the amount payable to each dependant shall be settled by arbitration under this Act, or, if not so settled before payment into court under this schedule, by the county court. Where there are both total and partial dependants nothing in this schedule shall be construed as preventing the compensation being allotted partly to the total and partly to the partial dependants.

(9) Where, on application being made in accordance with rules of court, it appears to a county court that, on account of neglect of children on the part of a widow, or on account of the variation of the circumstances of the various dependants, or for any other sufficient cause, an order of the court or an award as to the apportionment amongst the several dependants of any sum paid as compensation, or as to the manner in which any sum payable to any such dependant is to be invested, applied, or otherwise dealt with, ought to be varied, the court may make such order for the variation of the former order or the award, as in the circumstances of the case the court may think just.

(10) Any sum which under this schedule is ordered to be invested may be invested in whole or in part in the Post Office

Savings Bank by the registrar of the county court in his name as registrar.

(11) Any sum to be so invested may be invested in the purchase of an annuity from the National Debt Commissioners through the Post Office Savings Bank, or to be accepted by the Postmaster-General as a deposit in the name of the registrar as such, and the provisions of any statute or regulations respecting the limits of deposits in savings banks, and the declaration to be made by a depositor, shall not apply to such sums.

(12) No part of any money invested in the name of the registrar of any county court in the Post Office Savings Bank under this Act shall be paid out, except upon authority addressed to the Postmaster-General by the Treasury or, subject to regulations of the Treasury, by the judge or registrar of the county court.

(13) Any person deriving any benefit from any moneys invested in a post office savings bank under the provisions of this Act, may, nevertheless, open an account in a post office savings bank or in any other savings bank in his own name without being liable to any penalties imposed by any statute or regulations in respect of the opening of accounts in two savings banks, or of two accounts in the same savings bank.

(14) Any workman receiving weekly payments under this Act shall, if so required by the employer, from time to time submit himself for examination by a duly qualified medical practitioner provided and paid by the employer. If the workman refuses to submit himself to such examination, or in any way obstructs the same, his right to such weekly payments shall be suspended until such examination has taken place.

(15) A workman shall not be required to submit himself for examination by a medical practitioner under paragraph (4) or paragraph (14) of this schedule otherwise than in accordance with regulations made by the Secretary of State, or at more frequent intervals than may be prescribed by these regulations.

Where a workman has so submitted himself for examination by a medical practitioner, or has been examined by a medical practitioner selected by himself, and the employer or the workman, as the case may be, has within six days after such examination furnished the other with a copy of the report of that practitioner as to the workman's condition, then, in the event of no agreement being come to between the employer and the

workman as to the workman's condition or fitness for employment, the registrar of a county court, on application being made to the court by both parties, may, on payment by the applicants of such fee, not exceeding one pound as may be prescribed, refer the matter to a medical referee.

The medical referee to whom the matter is so referred shall in accordance with regulations made by the Secretary of State, give a certificate as to the condition of the workman and his fitness for employment, specifying, where necessary, the kind of employment for which he is fit, and that certificate shall be conclusive evidence as to the matters so certified.

Where no agreement can be come to between the employer and the workman as to whether or to what extent the incapacity of the workman is due to the accident, the provisions of this paragraph shall, subject to any regulations made by the Secretary of State, apply as if the question were a question as to the condition of the workman.

If a workman, on being required so to do, refuses to submit himself for examination by a medical referee to whom the matter has been so referred as aforesaid, or in any way obstructs the same, his right to compensation or to take or prosecute any proceeding under this Act in relation to compensation, or, in the case of a workman in receipt of a weekly payment, his right to that weekly payment, shall be suspended until such examination has taken place.

Rules of court may be made for prescribing the manner in which documents are to be furnished or served and applications made under this paragraph and the forms to be used for those purposes and, subject to the consent of the Treasury, as to the fee to be paid under this paragraph.

(16) Any weekly payment may be reviewed either at the request of the employer or of the workman, and on such review may be ended, diminished, or increased, subject to the maximum above provided, and the amount of payment shall, in default of agreement, be settled by arbitration under this Act :

Provided that where the workman was at the date of the accident under twenty-one years of age and the review takes place more than twelve months after the accident, the amount of the weekly payment may be increased to any amount not exceeding fifty per cent. of the weekly sum which the workman would probably have been earning at the date

of the review if he had remained uninjured, but not in any case exceeding one pound.

(17) Where any weekly payment has been continued for not less than six months, the liability therefor may, on application by or on behalf of the employer, be redeemed by the payment of a lump sum of such an amount as, where the incapacity is permanent, would, if invested in the purchase of an immediate life annuity from the National Debt Commissioners through the Post Office Savings Bank, purchase an annuity for the workman equal to seventy-five per cent. of the annual value of the weekly payment, and as in any other case may be settled by arbitration under this Act, and such lump sum may be ordered by the committee or arbitrator or judge of the county court to be invested or otherwise applied for the benefit of the person entitled thereto : Provided that nothing in this paragraph shall be construed as preventing agreements being made for the redemption of a weekly payment by a lump sum.

(18) If a workman receiving a weekly payment ceases to reside in the United Kingdom, he shall thereupon cease to be entitled to receive any weekly payment, unless the medical referee certifies that the incapacity resulting from the injury is likely to be of a permanent nature. If the medical referee so certifies, the workman shall be entitled to receive quarterly the amount of the weekly payments accruing due during the preceding quarter so long as he proves, in such manner and at such intervals as may be prescribed by rules of court, his identity and the continuance of the incapacity in respect of which the weekly payment is payable.

(19) A weekly payment, or a sum paid by way of redemption thereof, shall not be capable of being assigned, charged, or attached, and shall not pass to any other person by operation of law, nor shall any claim be set off against the same.

(20) Where under this schedule a right to compensation is suspended no compensation shall be payable in respect of the period of suspension.

(21) Where a scheme certified under this Act provides for payment of compensation by a friendly society, the provisions of the proviso to the first sub-section of section eight, section sixteen, and section forty-one of the Friendly Societies Act, 1896, shall not apply to such society in respect of such scheme. 59 & 60 Vict. c. 25.

(22) In the application of this Act to Ireland the provisions of the County Officers and Courts (Ireland) Act, 1877, with 41 & 42 Vict. c. 56.

respect to money deposited in the Post Office Savings Bank under that Act shall apply to money invested in the Post Office Savings Bank under this Act.

Sections 1, 14.

SECOND SCHEDULE.

Arbitration, &c.

(1) For the purpose of settling any matter which under this Act is to be settled by arbitration, if any committee, representative of an employer and his workmen, exists with power to settle matters under this Act in the case of the employer and workmen, the matter shall, unless either party objects by notice in writing sent to the other party before the committee meet to consider the matter, be settled by the arbitration of such committee, or be referred by them in their discretion to arbitration as herein-after provided.

(2) If either party so objects, or there is no such committee, or the committee so refers the matter or fails to settle the matter within six months from the date of the claim, the matter shall be settled by a single arbitrator agreed on by the parties, or in the absence of agreement by the judge of the county court, according to the procedure prescribed by rules of court.

(3) In England the matter, instead of being settled by the judge of the county court, may, if the Lord Chancellor so authorises, be settled according to the like procedure, by a single arbitrator appointed by that judge, and the arbitrator so appointed shall, for the purposes of this Act, have all the powers of that judge.

52 & 53 Vict. c. 49.

(4) The Arbitration Act, 1889, shall not apply to any arbitration under this Act; but a committee or an arbitrator may, if they or he think fit, submit any question of law for the decision of the judge of the county court, and the decision of the judge on any question of law, either on such submission, or in any case where he himself settles the matter under this Act, or where he gives any decision or makes any order under this Act, shall be final, unless within the time and in accordance with the conditions prescribed by rules of the Supreme

Court either party appeals to the Court of Appeal; and the judge of the county court, or the arbitrator appointed by him shall, for the purpose of proceedings under this Act, have the same powers of procuring the attendance of witnesses and the production of documents as if the proceedings were an action in the county court.

(5) A judge of county courts may, if he thinks fit, summon a medical referee to sit with him as an assessor.

(6) Rules of court may make provision for the appearance in any arbitration under this Act of any party by some other person.

(7) The costs of and incidental to the arbitration and proceedings connected therewith shall be in the discretion of the committee, arbitrator, or judge of the county court, subject as respects such judge and an arbitrator appointed by him to rules of court. The costs, whether before a committee or an arbitrator or in the county court, shall not exceed the limit prescribed by rules of court, and shall be taxed in manner prescribed by those rules and such taxation may be reviewed by the judge of the county court.

(8) In the case of the death, or refusal or inability to act, of an arbitrator, the judge of the county court may, on the application of any party, appoint a new arbitrator.

(9) Where the amount of compensation under this Act has been ascertained, or any weekly payment varied, or any other matter decided under this Act, either by a committee or by an arbitrator or by agreement, a memorandum thereof shall be sent, in manner prescribed by rules of court, by the committee or arbitrator, or by any party interested, to the registrar of the county court who shall, subject to such rules, on being satisfied as to its genuineness, record such memorandum in a special register without fee, and thereupon the memorandum shall for all purposes be enforceable as a county court judgment.

Provided that—

(*a*) no such memorandum shall be recorded before seven days after the despatch by the registrar of notice to the parties interested; and

(*b*) where a workman seeks to record a memorandum of agreement between his employer and himself for the payment of compensation under this Act and the employer, in accordance with rules of court, proves

that the workman has in fact returned to work and is earning the same wages as he did before the accident, and objects to the recording of such memorandum, the memorandum shall only be recorded, if at all, on such terms as the judge of the county court, under the circumstances, may think just; and

(*c*) the judge of the county court may at any time rectify the register; and

(*d*) where it appears to the registrar of the county court, on any information which he considers sufficient, that an agreement as to the redemption of a weekly payment by a lump sum, or an agreement as to the amount of compensation payable to a person under any legal disability, or to dependants, ought not to be registered by reason of the inadequacy of the sum or amount, or by reason of the agreement having been obtained by fraud or undue influence, or other improper means, he may refuse to record the memorandum of the agreement sent to him for registration, and refer the matter to the judge, who shall, in accordance with rules of court, make such order (including an order as to any sum already paid under the agreement) as under the circumstances he may think just; and

(*e*) the judge may, within six months after a memorandum of an agreement as to the redemption of a weekly payment by a lump sum, or of an agreement as to the amount of compensation payable to a person under any legal disability, or to dependants, has been recorded in the register, order that the record be removed from the register on proof to his satisfaction that the agreement was obtained by fraud or undue influence or other improper means, and may make such order (including an order as to any sum already paid under the agreement) as under the circumstances he may think just.

(10) An agreement as to the redemption of a weekly payment by a lump sum if not registered in accordance with this Act shall not, nor shall the payment of the sum payable under the agreement, exempt the person by whom the weekly payment is payable from the liability to continue to make that weekly payment, and an agreement as to the amount of compensation

to be paid to a person under a legal disability or to dependants, if not so registered, shall not, nor shall the payment of the sum payable under the agreement, exempt the person by whom the compensation is payable from liability to pay compensation, unless, in either case, he proves that the failure to register was not due to any neglect or default on his part.

(11) Where any matter under this Act is to be done in a county court, or by, to, or before the judge or registrar of a county court, then, unless the contrary intention appear, the same shall, subject to rules of court, be done in, or by, to, or before the judge or registrar of the county court of the district in which all the parties concerned reside, or if they reside in different districts the district prescribed by rules of court, without prejudice to any transfer in manner provided by rules of court.

(12) The duty of a judge of county courts under this Act, or in England of an arbitrator appointed by him, shall, subject to rules of court, be part of the duties of the county court, and the officers of the court shall act accordingly, and rules of court may be made both for any purpose for which this Act authorises rules of court to be made, and also generally for carrying into effect this Act so far as it affects the county court, or an arbitrator appointed by the judge of the county court and proceedings in the county court, or before any such arbitrator, and such rules may, in England, be made by the five judges of county courts appointed for the making of rules under section one hundred and sixty-four of the County Courts Act, 1888, and when allowed by the Lord Chancellor, as provided by that section, shall have full effect without any further consent.

(13) No court fee, except such as may be prescribed under paragraph (15) of the First Schedule to this Act, shall be payable by any party in respect of any proceedings by or against a workman under this Act in the court prior to the award.

(14) Any sum awarded as compensation shall, unless paid into court under this Act, be paid on the receipt of the person to whom it is payable under any agreement or award, and the solicitor or agent of a person claiming compensation under this Act shall not be entitled to recover from him any costs in respect of any proceedings in an arbitration under this Act, or to claim a lien in respect of such costs on, or deduct such costs from, the sum awarded or agreed as compensation,

except such sum as may be awarded by the committee, the arbitrator, or the judge of the county court, on an application made either by the person claiming compensation, or by his solicitor or agent, to determine the amount of costs to be paid to the solicitor or agent, such sum to be awarded subject to taxation and to the scale of costs prescribed by rules of court.

(15) Any committee, arbitrator, or judge may, subject to regulations made by the Secretary of State and the Treasury, submit to a medical referee for report any matter which seems material to any question arising in the arbitration.

(16) The Secretary of State may, by order, either unconditionally or subject to such conditions or modifications as he may think fit, confer on any committee representative of an employer and his workmen, as respects any matter in which the committe act as arbitrators, or which is settled by agreement submitted to and approved by the committee, all or any of the powers conferred by this Act exclusively on county courts or judges of county courts, and may by the order provide how and to whom the compensation money is to be paid in cases where, but for the order, the money would be required to be paid into court, and the order may exclude from the operation of provisos (*d*) and (*e*) of paragraph (9) of this schedule agreements submitted to and approved by the committee, and may contain such incidental, consequential, or supplemental provisions as may appear to the Secretary of State to be necessary or proper for the purposes of the order.

(17) In the application of this schedule to Scotland—

(*a*) "County court judgment" as used in paragraph (9) of this schedule means a recorded decree arbitral:

(*b*) Any application to the sheriff as arbitrator shall be heard, tried, and determined summarily in the manner provided by section fifty-two of the Sheriff Courts (Scotland) Act, 1876, save only that parties may be represented by any person authorised in writing to appear for them and subject to the declaration that it shall be competent to either party within the time and in accordance with the conditions prescribed by act of sederunt to require the sheriff to state a case on any question of law determined by him, and his decision thereon in such case may be submitted to either division of the Court of Session, who may hear and determine the

39 & 40 Vict. c. 70.

same and remit to the sheriff with instruction as to the judgment to be pronounced, and an appeal shall lie from either of such divisions to the House of Lords :

(*c*) Paragraphs (3), (4), and (8) shall not apply.

(18) In the application of this schedule to Ireland the expression "judge of the county court" shall include the recorder of any city or town, and an appeal shall lie from the Court of Appeal to the House of Lords.

THIRD SCHEDULE.

Section 8.

Description of Disease.	Description of Process.
Anthrax	Handling of wool, hair, bristles, hides, and skins
Lead poisoning or its sequelæ .	Any process involving the use of lead or its preparations or compounds.
Mercury poisoning or its sequelæ	Any process involving the use of mercury or its preparations or compounds.
Phosphorus poisoning or its sequelæ	Any process involving the use of phosphorus or its preparations or compounds.
Arsenic poisoning or its sequelæ	Any process involving the use of arsenic or its preparations or compounds.
Ankylostomiasis . . .	Mining.

Where regulations or special rules made under any Act of Parliament for the protection of persons employed in any industry against the risk of contracting lead poisoning require some or all of the persons employed in certain processes specified in the regulations or special rules to be periodically examined by a certifying or other surgeon, then, in the application of this schedule to that industry, the expression "process" shall, unless the Secretary of State otherwise directs, include only the processes so specified.

ORDER OF THE SECRETARY OF STATE, DATED MAY 22 1907, EXTENDING THE PROVISIONS OF THE WORKMEN'S COMPENSATION ACT, 1906, TO CERTAIN INDUSTRIAL DISEASES.

Whereas by section 8 of the Workmen's Compensation Act, 1906, the provisions of that Act are applied, in certain cases and subject to certain modifications, to workmen disabled by, or suspended from their usual employment on account of their having contracted, a disease mentioned in the Third Schedule to the Act;

And whereas it is enacted by sub-section (2) of the said section that if the workman at or immediately before the date of his disablement or suspension was employed in a process mentioned in the second column of the Third Schedule to the Act, and the disease contracted is the disease in the first column of that Schedule set opposite the description of the process, then the disease shall be deemed, except as otherwise provided in the sub-section, to have been due to the nature of that employment unless the employer proves the contrary;

And whereas sub-section (6) of the same section empowers the Secretary of State to make Orders for extending the provisions of that section to other diseases and other processes, and to injuries due to the nature of any employment specified in the Order not being injuries by accident, either without modification or subject to such modifications as may be contained in the Order;

Now I, the Right Honourable Herbert John Gladstone, one of His Majesty's Principal Secretaries of State, by this Order made under sub-section (6) of the said section, do hereby direct that the provisions of section 8 of the Workmen's Compensation Act, 1906, shall extend and apply to the diseases, injuries and processes, specified in the first and second columns of the Schedule annexed to this Order, as if the said diseases and injuries were included in the first column of the Third Schedule to the Act and as if the said processes were set opposite in the second column of that Schedule to the diseases or injuries to which they are set opposite in the second column of the Schedule annexed hereto.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Whitehall,
May 22nd, 1907.

Schedule.

Description of Disease or Injury.	Description of Process.
1. Poisoning by nitro- and amido-derivatives of benzene (di-nitro-benzol, anilin, and others), or its sequelæ.	Any process involving the use of a nitro- or amido-derivative of benzene or its preparations or compounds.
2. Poisoning by carbon bisulphide or its sequelæ.	Any process involving the use of carbon bisulphide or its preparations or compounds.
3. Poisoning by nitrous fumes or its sequelæ.	Any process in which nitrous fumes are evolved.
4. Poisoning by nickel carbonyl or its sequelæ.	Any process in which nickel carbonyl gas is evolved.
5. Arsenic poisoning or its sequelæ.	Handling of arsenic or its preparations or compounds.
6. Lead poisoning or its sequelæ.	Handling of lead or its preparations or compounds.
7. Poisoning by *Gonioma Kamassi* (African boxwood) or its sequelæ.	Any process in the manufacture of articles from *Gonioma Kamassi* (African boxwood).
8. Chrome ulceration or its sequelæ.	Any process involving the use of chromic acid or bi-chromate of ammonium, potassium, or sodium, or their preparations.
9. Eczematous ulceration of the skin produced by dust or caustic or corrosive liquids, or ulceration of the mucous membrane of the nose or mouth produced by dust.	——
10. Epitheliomatous cancer or ulceration of the skin or of the corneal surface of the eye, due to pitch, tar, or tarry compounds.	Handling or use of pitch, tar, or tarry compounds.
11. Scrotal epithelioma (chimney-sweeps' cancer).	Chimney-sweeping.
12. Nystagmus.	Mining.
13. Glanders.	Care of any equine animal suffering from glanders; handling the carcase of such animal.
14. Compressed air illness or its sequelæ.	Any process carried on in compressed air.
15. Subcutaneous cellulitis of the hand (beat hand).	Mining.
16. Subcutaneous cellulitis over the patella (miners' beat knee).	Mining.
17. Acute bursitis over the elbow (miners' beat elbow).	Mining.
18. Inflammation of the synovial lining of the wrist joint and tendon sheaths.	Mining.

ORDER OF THE SECRETARY OF STATE, DATED DECEMBER 2, 1908, EXTENDING THE PROVISIONS OF THE WORKMEN'S COMPENSATION ACT, 1906, TO CERTAIN INDUSTRIAL DISEASES, AND AMENDING THE PREVIOUS ORDER OF MAY 22, 1907.

In pursuance of the power conferred on me by section 8, sub-section 6, of the Workmen's Compensation Act, 1906, I, the Right Honourable Herbert John Gladstone, one of His Majesty's Principal Secretaries of State, do hereby make the following Order :—

(1) Subject to the modifications hereinafter specified, the provisions of sect. 8 of the Workmen's Compensation Act, 1906, shall extend and apply to the diseases, injuries, and processes, specified in the first and second columns of the Schedule annexed to this Order, as if the said diseases and injuries were included in the first column of the Third Schedule to the Act, and as if the said processes were set opposite in the second column of that Schedule to the diseases or injuries to which they are set opposite in the second column of the Schedule annexed thereto.

(2) A glass worker suffering from cataract shall be entitled to compensation under the provisions of the said section, as applied by this Order, for a period not longer than six months in all, nor for more than four months unless he has undergone an operation for cataract.

(3) In the application of the provisions of section 8 to telegraphist's cramp, so far as regards a workman employed by the Postmaster-General, the Post Office Medical Officer under whose charge the workman is placed shall, if authorised to act for the purposes of the said section by the Postmaster-General, be substituted for the Certifying Surgeon.

(4) The Order of the 22nd May, 1907, so far as it applies to eczematous ulceration of the skin produced by dust or caustic or corrosive liquids, or ulceration of the mucous membrane of the nose or mouth produced by dust, is revoked, except as regards cases arising before the date of this Order.

H. J. Gladstone,
One of His Majesty's Principal
Secretaries of State.

Whitehall,
2nd December, 1908.

Schedule.

Description of Disease or Injury.	Description of Process.
Cataract in glassworkers . .	Processes in the manufacture of glass involving exposure to the glare of molten glass.
Telegraphist's cramp . .	Use of telegraphic instruments.
Eczematous ulceration of the skin produced by dust or liquids, or ulceration of the mucous membrane of the nose or mouth produced by dust.	

THE WORKMEN'S COMPENSATION RULES, 1907.

Industrial Diseases.

Application of Act and rules to cases of industrial diseases.

As Amended by Rule 2 of 1908.]

39.—(1) In the application of the Act and these Rules in the case of a workman disabled by or suspended on account of his having contracted any disease mentioned in section 8 of and the third schedule to the Act, or in any order of the Secretary of State made under sub-section 6 of the said section, or disabled by or suspended on account of his having sustained any injury due to the nature of any employment specified in any such order, not being an injury by accident, or in the case of a workman whose death has been caused by any such disease or injury as above mentioned, the following provisions shall have effect.

Notice of disablement.

(2) The notice required by section 2 of the Act shall state the date and cause of the disablement or suspension; and where a certificate of disablement or a certificate of or relating to suspension has been given, a copy thereof shall on demand be furnished to the employer.

Forms of request for arbitration. Forms 9, 10.

(3) A request for arbitration shall be according to such one of the forms in the Appendix as shall be applicable to the case, with such modifications as the nature of the case may require.

Adding respondent under Act, s. 8 (1) (*c*) (ii).

Forms 19, 20.

(4) (*a*) If the employer desires to add any other employer as a party to the arbitration, pursuant to proviso (ii) to paragraph (*c*) of sub-section (1) of section 8 of the Act, he shall file with the registrar in duplicate a notice according to the form in the Appendix: and thereupon the registrar shall make an order adding such other employer as a respondent, and may if necessary adjourn the hearing of the arbitration for such time as may be necessary to enable such other employer to be duly served.

Notice of order, and service on added respondent.

(*b*) Where a respondent is added under the last preceding paragraph, copies of the notice pursuant to which he is so added and of the order, shall be sent by post to the applicant and the original respondent; and the like copies, together with a copy of the applicant's request and particulars, and of the notice served on the original respondent under Rules 14 and 15, and a notice according to the form in the Appendix as to the place at which and the day and hour on and at which the arbitration will be proceeded with, shall be issued by the registrar for service on the added respondent; and such copies and notices shall be served on the added respondent in accordance with Rule 15, with the substitution of the original respondent for the applicant.

Forms 21, 22.

Application of rules to added respondent.

(*c*) The provisions of these Rules as to respondents shall apply to the added respondent from the date of service on him as if he had originally been made a respondent.

Procedure at arbitration.

(*d*) At the hearing of the arbitration the judge or arbitrator shall decide all questions as between the applicant and the original and added respondents, and may make such award as may be necessary effectively and complete to adjudicate upon and settle all the questions involved in the arbitration, and may make such order as to costs as between the applicant and the respondents, and as between the respondents themselves, as may be just.

Costs.

Claim to contribution under Act, s. 8 (1) (*c*) (iii).

Form 23.

(5) Where the employer claims under proviso (iii) to paragraph (*c*) of sub-section (1) of section 8 of the Act to be entitled to contribution from any other employer, he may bring in such other employer as a third party in accordance with Rules 19 to 23, 25 and 26; and the provisions of those rules shall with the necessary modifications apply to any such claim to contribution in like manner as they apply to claims to indemnity.

References to Medical Referees.

References to medical referees.

82.—(1) Where a medical referee is summoned as an assessor or any matter is referred to a medical referee, such referee shall be summoned or the matter shall be referred subject to and in accordance with any regulations made by the Secretary of State and the Treasury; and any such regulations shall so far as they affect the County Court or an arbitrator appointed by the judge of the County Court, and proceedings in the County Court or before any such arbitrator, be deemed to be Rules of Court, and shall have effect accordingly.

References under Act, s. 8 (1) (*f*).

(2) In particular, if such regulations as in the preceding paragraph mentioned provide that an employer or a workman who desires any matter to be referred to a medical referee under paragraph (*f*) of sub-section 1 of section 8 of the Act shall apply to the registrar of a county court for the matter to be so referred, it shall be the duty of the registrar to refer the same in accordance with such regulations.

Record and returns as to references.

(3) The registrar shall keep a record in the form prescribed by regulations made by the Secretary of State of all cases in which medical referees are summoned as assessors or matters are referred to medical referees, and shall forward a copy of the same to the Secretary of State at such times as may be prescribed by such regulations.

FORM 9.

Application for Arbitration by Workman disabled by or suspended on account of having contracted Industrial Disease coming within Section 8.

In the County Court of holden at

In the matter of the Workmen's Compensation Act, 1906.

No. of Matter.

In the matter of an Arbitration between

A.B.
of (*address*)
(*description*) Applicant,

and

C.D. & Co., Limited,
of (*address*)
(*description*) Respondent.

1. On the day of Mr. , the certifying surgeon appointed under the Factory and Workshop Act, 1901, for the district of [*or* Mr. , one of the medical referees appointed by the Secretary of State for the purposes of the Workmen's Compensation Act, 1906,] certified that A.B of was suffering from a disease coming within section 8 of the Workmen's Compensation Act, 1906, and was thereby disabled from earning full wages at the work at which he was employed.

[*Or* 1. On the day of A.B. of was in pursuance of special rules [*or* regulations] made under the Factory and Workshop Act, 1901, suspended from his usual employment on account of his having contracted , a disease coming within section 8 of the Workmen's Compensation Act, 1906.]

2. The said A.B. alleges that the above-mentioned disease is due to the nature of his employment in [*describe employment*], and that he was last employed in such employment within the twelve months previous to the date of disablement or suspension by C.D. & Co., Limited, of .

3. A question has [*or* Questions have] arisen [*here state the questions, specifying only those which have arisen, e.g.*]—

(*a*) as to whether the said A.B. is a workman to whom the Workmen's Compensation Act applies; *or*

(*b*) as to the liability of the said C.D. & Co., Limited, to pay compensation under the Workmen's Compensation Act, 1906, in respect of the said disease [*or* suspension]; *or*

(*c*) as to whether the said disease was in fact contracted whilst the said A.B. was in the employment of the said C.D. & Co., Limited, ; *or*

(*d*) as to whether the said disease is due to the nature of the employment of the said A.B. under the said C.D. & Co., Limited, ; *or*

(*e*) as to the amount [*or* duration] of the compensation payable by the said C.D. & Co., Limited, to the said A.B. under the Workmen's Compensation Act, 1906, in respect of the said disease.

[*or as the case may be.*]

4. An arbitration under the above-mentioned Act is hereby requested between the said A.B. and the said C.D. & Co., Limited, for the settlement of the said question [*or* questions].

5. Particulars are hereto appended [*or* annexed].

PARTICULARS.

1. Name and address of applicant.
2. Name, place of business, and nature of business of respondents.
3. Nature of employment of applicant under respondents to which the disease was due.
4. Nature of disease.
5. Date of disablement or suspension.
6. Names and addresses of all other employers by whom applicant was employed in the same employment during the 12 months previous to date of disablement or suspension.
7. Particulars of incapacity for work, whether total or partial and estimated duration of incapacity.
8. Average weekly earnings during the 12 months previous to date of disablement or suspension, if the applicant has been so long employed under respondents, or if not, during any less period during which he has been so employed.

PARTICULARS—*continued.*

9. Average weekly amount which the applicant is earning or is able to earn in some suitable employment or business.
10. Payment, allowance, or benefit received from employer during period of incapacity.
11. Amount claimed as compensation.
12. Date of service of statutory notice of disablement or suspension on respondents. [*A copy of the notice to be annexed.*]
13. If notice not served, reason for omission to serve same.

The names and addresses, &c. [*as in Form* 1.]

FORM 10.

Application for Arbitration by or on behalf of Dependants of Deceased Workman whose death has been caused by Industrial Disease.

In the County Court of holden at

In the matter of the Workmen's Compensation Act, 1906.

No. of Matter.

In the matter of an Arbitration between

E.F.
of (*address*)
(*description*) Applicant

and

C.D. & Co., Limited,
of (*address*)
(*description*)
and
G.H.
of (*address*)
(*description*) Respondents.
[*or as the case may be; see Rule* 4.]

1. On the day of Mr. , the certifying surgeon under the Factory and Workshop Act, 1901, for the district of [*or* Mr. , one of the medical referees appointed by the Secretary of State for the purposes of the Workmen's Compensation Act, 1906,] certified that A.B. of was suffering from , a disease coming within section 8 of the Workmen's Compensation Act, 1906, and was thereby disabled from earning full wages at the work at which he was employed; and on the day of the said A.B. died, his death being caused by the said disease.

[*Or* 1. On the day of A.B. of was in pursuance of special rules [*or* regulations] made under the Factory and Workshop Act, 1901, suspended from his

usual employment on account of his having contracted , a disease coming within section 8 of the Workmen's Compensation Act, 1906, and on the day of the said A.B. died, his death being caused by the said disease.]

[*Or* 1. On the day A.B. , late of , died, his death being caused by , a disease coming within section 8 of the Workmen's Compensation Act, 1906.]

2. The applicant alleges that the above-mentioned disease was due to the nature of the employment of the said A.B. in (*describe employment*), and that he was last employed in such employment within the twelve months previous to his disablement or suspension [*or, if the workman died without having obtained a certificate of disablement, or was not at the time of his death in receipt of a weekly payment on account of disablement,* within the twelve months previous to his death] by C.D. & Co., Limited, of .

3. A question has [*or* Questions have] arisen [*here state the questions, specifying only those which have arisen, e.g.*]—

(*a*) as to whether the said A.B. was a workman to whom the Workmen's Compensation Act, 1906, applied ; *or*

(*b*) as to the liability of the said C.D. & Co., Limited, to pay compensation under the Workmen's Compensation Act, 1906, to the dependants of the said A.B. in respect of the injury caused to them by the death of the said A.B. ; *or*

(*c*) as to whether the said disease was in fact contracted whilst the said A.B. was in the employment of the said C.D. & Co., Limited, ; *or*

(*d*) as to whether the said disease was due to the nature of the employment of the said A.B. under the said C.D. & Co., Limited, ; *or*

(*e*) as to whether the death of the said A.B. was in fact caused by the said disease ; *or*

(*f*) as to the amount of compensation payable by the said C.D. & Co., Limited, to the dependants of the said A.B. under the above-mentioned Act in respect of the injury caused to them by the death of the said A.B. ; *or*

(*g*) as to who are the dependants of the said A.B. within the meaning of the above-mentioned Act ; *or*

(*h*) as to the apportionment and application of the compensation payable by the said C.D. & Co., Limited, to the dependants of the said A.B. in respect of the caused injury to them by the death of the said A.B.

[*or as the case may be.*]

4. An arbitration under the above-mentioned Act is hereby requested between E.F. , the legal personal representative of the said A.B. , acting on behalf of the dependants of the said A.B. [*or* between E.F. , a dependant of the said A.B. ,] and the said C.D. & Co., Limited, and G.H. , who claims or may be entitled to claim to be a dependant of the said A.B.

[*or as the case may be ; see Rule* 4.]

for the settlement of the said question [*or* questions].

5. Particulars are hereto appended [*or* annexed].

PARTICULARS.

1. Name and late address of deceased workman.

2. Name, place of business, and nature of business of respondents from whom compensation is claimed.

3. Nature of employment of deceased under respondents to which the disease was due.

4. Nature of disease.

5. Date of disablement, and date of death.

6. Earnings of deceased during the 3 years next preceding disablement, if he had been so long in the employment of the respondents, or if the period of his employment had been less than the said 3 years, particulars of his average weekly earnings during the period of his actual employment under the respondents.

7. Names and addresses of all other employers by whom deceased was employed in the same employment during the twelve months previous to the date of disablement.

8. Amount of weekly payments (if any) made to deceased under the Act, and of any lump sum paid in redemption thereof.

9. Name and address of applicant for arbitration.

10. Character in which applicant applies for arbitration, *i.e.* whether as legal personal representative of deceased or as a dependant, and if as a dependant, particulars showing how he is so.

11. Particulars as to dependants of deceased by whom or on whose behalf the application is made, giving their names and addresses, and descriptions and occupations (if any), their relationship to the deceased, and if infants, their respective ages, and stating whether they were wholly or partially dependent

PARTICULARS—*continued.*

on the earnings of the deceased at the time of his death.

12. Particulars as to any persons claiming or who may be entitled to claim to be dependants, but as to whose claim a question arises, and who are therefore made respondents, with their names, addresses, and descriptions and occupations (if any).

13. Particulars of amount claimed as compensation, and of the manner in which the applicant claims to have such amount apportioned and applied.

14. Date of service of statutory notice of disablement. *A copy of the notice to be annexed.*]

15. If notice not served, reason for omission to serve same.

The names and addresses, &c. [*as in Form* 2.]

FORM 19.

Application for addition of Employer as Respondent under Section 8, *Sub-section* (1), *Paragraph* (c), *Proviso* (ii).

[*Not to be printed but to be used as a Precedent.*]

[*Heading as in request for arbitration.*]

TAKE NOTICE—

That the respondents, C.D. & Co., Limited, allege that the disease mentioned in the applicant's particulars filed in this matter was in fact contracted while the applicant [*or* the deceased workman] was in the employment of of , and not whilst in the employment of the said C.D. & Co., Limited.

And the said C.D. & Co., Limited, hereby apply for an order that the said be joined as respondents in the above arbitration, and if necessary for an adjournment of the hearing of the arbitration.

Dated this day of

(Signed) C.D. & Co., Limited

By

Secretary.

[*Or*

Solicitors for the Respondents,

To the Registrar of the Court. C.D. & Co., Limited.

FORM 20.

Order adding Respondents.

[*Heading as in request for Arbitration.*]

It is this day ordered on the application of the respondents, C.D. & Co., Limited, that of be added as respondents to this arbitration [and that the hearing of this arbitration be adjourned to the day of at o'clock in the noon.]

Dated this day of

Registrar.

FORM 21.

Notice to Applicant and Original Respondents of Addition of Respondents.

[*Heading as in request for Arbitration.*]

TAKE NOTICE—

That by order dated the day of it was ordered on the application of the respondents, C.D. & Co., Limited, (a copy whereof is hereto annexed), that of be added as respondents to this arbitration [and that the hearing of this arbitration be adjourned to the day of at o'clock in the noon.

Dated this day of .

Registrar.

To the Applicant
and
The Respondents,
C.D. & Co., Limited.

FORM 22.

Notice to Parties who are added as Respondents.

[*Heading as in request for Arbitration.*]

To Messrs. of
(*address and description.*)

TAKE NOTICE—

That by an order of this Court, dated the day of , a copy of which order is hereunto annexed, together with a copy of the request and particulars filed by the applicant in this matter, and a copy of the application on which the said order was made, you were ordered to be added as a respondent in the above arbitration.

And further take notice, that the hearing of the above arbitration has been appointed for the day of at o'clock in the noon, and that if you do not attend, either in person or by your solicitor, at the court-house at upon the day and the hour above mentioned, such order will be made and proceedings taken as the judge [*or* arbitrator] may think just and expedient.

And further take notice, that if you wish to disclaim any interest in the subject matter of this arbitration, or consider that the applicant's particulars are in any respect inaccurate or incomplete, or desire to bring any fact or document to the notice of the judge [*or* arbitrator], or intend to rely on any fact, or to deny (wholly or partially) your liability to pay compensation under the Act, you must file with me an answer, stating your name and address and the name and address of your solicitor (if any), and stating that you disclaim any interest in the subject matter of the arbitration, or stating in what respect the applicant's particulars are inaccurate or incomplete, or stating concisely any fact or document which you desire to bring to the notice of the judge [*or* arbitrator], or on which you intend to rely, or the grounds on and extent to which you deny liability to pay compensation.

Such answer, together with a copy thereof for the judge [*or* arbitrator], and a copy for the applicant and for each of the other respondents, must be filed with me ten clear days at least before the day of .

If no answer is filed, and subject to such answer, if any, the applicant's particulars and your liability to pay compensation will be taken to be admitted.

Dated this day of .

To

of

Registrar.

FORM 23.

Notice by Respondent to Third Parties.

[*Not to be printed, but to be used as a Precedent.*]

[*Heading as in request for Arbitration.*]

To Mr. , of (*address and description*)

TAKE NOTICE—That A.B. of, &c., , has filed a request for arbitration (a copy whereof is hereto annexed) as to the amount of compensation payable by the respondents, C.D. & Co., Limited, to the said A.B. in respect of personal injury caused to the said A.B. by accident arising out of and in the course of his employment.

[*Or* That E.F. of has filed a request for arbitration (a copy whereof is hereto annexed) with respect to the compensation payable to the dependants of A.B. deceased, in respect of the injury caused to the said dependants by the death of the said A.B. , which resulted from injury caused to the said A.B. by accident arising out of and in the course of his employment.]

[*or as the case may be ; see forms of request for arbitration.*]

The respondents, C.D. & Co., Limited, claim to be indemnified by you against their liability to pay such compensation, on the ground that at the time of the injury in respect of which compensation is claimed the said A.B. was not immediately employed by the said C.D. & Co., Limited, but was employed by you in the execution of work undertaken by the said C.D. & Co., Limited, in respect of which the said C.D. & Co., Limited, had contracted with you for the execution thereof by or under you.

[*Or* on the ground that the injury for which compensation is claimed was caused under circumstances creating a legal liability on your part [*add, if so,* as the persons who have given security in respect of the liability of the owners of the ship " "] to pay damages in respect thereof].

[*or as the case may be.*]

[*Or, in case of industrial disease,* The respondents C.D. & Co., Limited, claim to be entitled to contribution from you in respect of the compensation claimed from them, on the ground that the disease mentioned in the applicant's particulars was of such a nature as to be contracted by a gradual process, and that the said A.B. was employed by you during the twelve months previous to the date of disablement or suspension in the employment to the nature of which the disease was due.

And take notice that if you wish to dispute the applicant's claim as against the respondents, C.D. & Co., Limited, or your liability to the said respondents, you must appear before the judge [*or* arbitrator] at the time and place mentioned in the notice, a copy of which is hereunto annexed.

In default of your so appearing you will be deemed to admit the validity of any award made in the said arbitration as to any matter which the judge [*or* arbitrator] has jurisdiction to decide in such arbitration as between the applicants and the respondents, C.D. & Co., Limited, whether such award is made by consent or otherwise, and your own liability to indemnify the said C.D. & Co., Limited, [*or* to contribute as above mentioned].

Dated this day of .

(Signed) C.D. & Co., Limited,

To By

Secretary.

of [*Or*

Solicitors for the Respondents, C.D. & Co., Limited.]

REGULATIONS, DATED JUNE 21, 1907, MADE BY THE SECRETARY OF STATE AND THE TREASURY AS TO THE DUTIES AND FEES OF CERTIFYING AND OTHER SURGEONS, AND AS TO REFERENCES TO, AND REMUNERATION AND EXPENSES OF, MEDICAL REFEREES, IN ENGLAND AND WALES, UNDER SECTION 8 OF THE ACT.

I, the Right Honourable Herbert John Gladstone, one of His Majesty's Principal Secretaries of State, and We, the Lords Commissioners of His Majesty's Treasury, in pursuance of the powers respectively conferred on us by the Workmen's Compensation Act, 1906, section 8, sub-sections (1) (f) (3), and (5), and section 10, sub-section (1), hereby make the following regulations :—

Definitions.

1. In these regulations—

(i) "Act" means the Workmen's Compensation Act, 1906.

(ii) "Workman" means a workman as defined in section 13 of the Act.

(iii) "Certifying Surgeon" means either the certifying surgeon mentioned in sub-section (1) (i) of section 8 of the Act, or a medical practitioner appointed by the Secretary of State under sub-section (5) of section 8 to have the powers and duties of a certifying surgeon under the said section.

(iv) "Appointed Surgeon" means a surgeon having power, in pursuance of any special rules or regulations made under the Factory and Workshop Act, 1901, to suspend a workman from employment in the process or processes specified in such rules or regulations.

(v) "Medical Referee" means a medical practitioner appointed by the Secretary of State to act as medical referee for the purposes of section 8 of the Act.

(vi) The words "disease to which the Act applies" mean a disease mentioned in the third schedule to the Act or a disease or injury (not being an injury by accident) to which the provisions of section 8 of the Act have been extended by an Order made by the Secretary of State under sub-section (6) of that section.

2. Where a workman applies to a certifying surgeon for a certificate (hereinafter called "a certificate of disablement") that he is suffering from a disease to which the Act applies, and is thereby disabled from earning full wages at the work at which he was employed, the certifying surgeon, on payment of the prescribed fee, and after obtaining the particulars specified in the schedule to these regulations and such further information, if any, respecting the case as in the particular circumstances he may deem necessary, shall either proceed at once, if the application is made by the workman in person, to make a medical examination of the workman, or shall appoint forthwith a time and place for making such examination, and give notice thereof to the workman. Such notice, if given in

Form 1.

writing, shall follow, as closely as may be, the form prescribed in the schedule. Form 2.

3. After personally examining the workman, the certifying surgeon shall either give the workman a certificate of disablement or shall certify that he is not satisfied that the workman is entitled to such certificate, and shall in either case deliver his certificate to the workman. The certificate given shall be in the form prescribed in the schedule to these regulations. Forms 3 and 5.

4. Where, in pursuance of any special rules or regulations made under the Factory and Workshop Act, 1901, the certifying or appointed surgeon, after having personally examined a workman suspends him from his usual employment on account of his having contracted any disease to which the Act applies, or where in the case of a workman applying to be suspended on account of his having contracted any such disease the surgeon as aforesaid, after having personally examined such workman, refuses to order his suspension, he shall, on the application either of the employer or of the workman, and on payment of the prescribed fee, certify such suspension or refusal to suspend in accordance with the form prescribed in the schedule to these regulations, and shall deliver such certificate to the applicant. Forms 6 and 8.

5. Where a certificate of disablement is given or a workman is suspended, and the case is one in which, under the provisions of sub-section (2) of section 8 of the Act as extended by any Order of the Secretary of State made under sub-section (6) of the said section, the disease contracted by the workman will be deemed, unless the employer proves, or the certifying surgeon certifies, to the contrary, to have been due to the nature of the employment in the process in which at or immediately before the date of the disablement or suspension the workman was employed, the certifying surgeon, if he is of opinion that the disease contracted by the workman was not due to the nature of such employment, shall certify accordingly. Such certificate shall, where possible, be given simultaneously with, and included in, the certificate of disablement or the certificate (if any) of suspension, but may also be given separately on application by the employer and on payment of the prescribed fee; and in either case shall follow the form prescribed in the schedule to these regulations. *See* Forms 4 and 7.

For the purposes of this regulation an appointed surgeon shall have the same powers and duties as a certifying surgeon.

6. A copy of any certificate given by a certifying or appointed surgeon under the foregoing regulations shall, together with any other documents relating to the case, be retained and kept by the surgeon; and copies of any such certificate shall, on payment of the prescribed fee, be supplied by the surgeon to the employer and the workman.

7. The fees which the certifying and appointed surgeons shall be entitled to charge in respect of duties performed under section 8 of the Act shall be as follows :—

Fees payable by the Workman.

(i) For any certificate given under regulation 3—

(*a*) in cases where the medical examination of the workman is made by the surgeon in the performance of his duties under the Factory and Workshop Act, 1901, a fee of 1*s.*;

(*b*) in all other cases, a fee of 5*s.*, and where the workman is unable to present himself for examination at the residence of, or other nearer place fixed by, the certifying surgeon, for every mile or portion thereof which the certifying surgeon is required to travel therefrom for the purpose of examining the workman, an additional fee of 1*s.*

(ii) For any certificate of suspension or refusal to suspend, under regulation 4, when the medical examination of the workman is made in pursuance of any special rules or regulations under the Factory and Workshop Act, 1901, a fee of 1*s.*

(iii) For a copy of any certificate obtained under regulation 6, a fee of 1*s.*

Fees payable by the Employer.

(iv) For any certificate of suspension or refusal to suspend, obtained by the employer under regulation 4, a fee of 1*s.*

(v) Where the employer applies under regulation 5 for a certificate that the disease contracted is not due to the nature of the employment, in respect of every such application (to include the certificate, if given), a fee of 2*s.* 6*d.*

(vi) For a copy of any certificate obtained under regulation 6, a fee of 1*s.*

References to Medical Referees.

8. Where an employer or workman is aggrieved by the action of a certifying or appointed surgeon in giving or refusing to give a certificate of disablement or in suspending or refusing to suspend a workman, he may—

(*a*) if he is an employer, within seven days of the receipt of the notice of disablement or suspension required to be given under the Act, or, in a case of disablement, if the notice is not accompanied by the certificate of the surgeon, or a copy thereof, and the employer forthwith requires the workman to furnish him with a copy, within seven days of the receipt of such copy, or

(*b*) if he is a workman, within seven days of the date on which the surgeon has refused to give him a certificate of disablement or suspension,

apply to the registrar of the county court for the district in which the workman was employed at the time of his examination by the surgeon, for the matter to be referred to a medical referee; provided that it shall be within the discretion of the registrar, on good cause shown, to extend in any case by not more than seven days the period within which an application is required to be made.

9.—(*a*) Any application under the foregoing regulation shall be made in writing, and shall state the grounds on which the reference is asked for, in accordance with the form prescribed in the schedule to these regulations, or as near thereto as may be. Forms 9 and 10.

(*b*) The application shall be accompanied by the certificate or a copy of the certificate obtained from the surgeon by whose action the applicant is aggrieved, and by any available report or reports of any medical practitioner by whom the workman has been examined; and if the applicant is an employer, by the notice of disablement or suspension served on him by the workman, and by an undertaking to pay any reasonable travelling expenses incurred by the workman in attending for examination by the medical referee.

(*c*) The applicant shall also file with the registrar such copies of the application and other documents as aforesaid as may be necessary for the use of the medical referee and of the employer or workman, as the case may be, hereinafter referred to as the

respondent, who together with the applicant is directly interested in the application.

(*d*) In the event of any dispute as to the amount of the travelling expenses payable to the workman by the employer, the matter may be referred to the registrar, whose decision shall be final.

10. It shall be the duty of the registrar on receiving an application to satisfy himself that it is duly made in accordance with the foregoing regulations, and if it is not, to return it for amendment. If and when the application is in accordance with the regulations, he shall refer the matter forthwith to a medical referee, and shall forward to such medical referee by registered post one of the copies of the application and the other documents filed therewith, with an order of reference according to the form prescribed in the schedule.

Form 11.

Form 12.

11. The registrar shall also make an order directing the workman to submit himself for examination by the medical referee. Before making such order the registrar shall inquire whether the workman is in a fit condition to travel for the purpose of the examination, and if satisfied that he is in a fit condition shall by the order direct him to attend at such time and place as the referee may fix, and if satisfied that he is not in a fit condition to travel, shall so state in the order of reference ; and it shall be the duty of the workman, on being served with the order, to submit himself for examination accordingly.

12. The registrar shall deliver or send by registered post to both parties a copy of the order of reference, and shall also send to the respondent copies of the other documents forwarded to the medical referee, and shall send to the workman a copy of the order directing him to submit himself for examination.

13. In the case of a reference under these regulations, the medical referee shall be one of those appointed by the Secretary of State for the county court circuit which includes the district in which the case arises, and if the circuit has been sub-divided and medical referees have been appointed for the sub-divisions, shall be one appointed for the sub-division comprising the aforesaid district. Provided that if any medical referee is or has been specially appointed by the Secretary of State, either for the circuit or otherwise, for the purpose of deciding on any specified case or class of cases in which a reference may be made under these regulations, the reference in any such case

shall be made to the medical referee so appointed. Provided also that if the surgeon by whose action the applicant is aggrieved has been appointed a medical referee, the reference shall not be made to him, but to such other medical referee as may be authorised to act.

14. The medical referee shall, on receipt of an order of reference duly signed by the registrar of a county court, together with copies of the documents required to be sent therewith, fix a time and a place for a personal examination of the workman, and shall send notice to the employer and workman accordingly. It shall be the duty of the workman, and, if the employer is the applicant, of the employer or a person duly authorised by him, to attend at the time and place fixed by the medical referee, and in the event of failure on the part of the workman or employer or both to appear as required by this regulation, the medical referee shall decide on the matter referred to him forthwith upon such information as shall be available and with or without a personal examination. Provided that where the absence of the employer or his representative or of the workman is shown to the satisfaction of the medical referee to be unavoidable, or where the medical referee considers it necessary to apply for expert assistance as hereinafter provided, it shall be open to him to adjourn the inquiry on the reference and to resume it at such time and place as he may fix, after giving due notice to all parties concerned. Forms 13 and 14.

15. Except as otherwise provided by regulation 14, the medical referee shall, before deciding on the matter referred to him, make a personal examination of the workman, and shall consider any statements made or submitted by either party.

16. The medical referee shall, in the form prescribed in the schedule to these regulations (subject to such additions and modifications as the circumstances of the case may require) notify in writing his decision to the registrar of the county court, to the applicant, and to the respondent. Form 15.

17. The medical referee shall send to the Home Office at the end of each quarter a statement (accompanied by any vouchers necessary), in the form prescribed in the schedule to these regulations, of the fees due to him for the quarter under these regulations. Form 16.

18. The following fees and allowances are authorised to be paid to medical referees under these regulations :—

(i) For deciding the matter referred to him in any reference and for all duties performed in connection therewith, 2 guineas.

(ii) Where in order to examine the workman the medical referee is compelled to travel to a place distant more than two miles from his residence or such other centre as may be prescribed by the Secretary of State, in addition to the above fee, 5*s.* for each mile beyond two, and up to ten, miles distant from such residence or centre, and thereafter 1*s.* for each mile distant therefrom.

(iii) In cases involving special difficulty the medical referee may apply for special expert assistance which may be granted by the Secretary of State if he thinks fit, on such terms as to remuneration or otherwise, as he may with the sanction of the Treasury determine.

19. In cases where a claim is made under regulation 18 (ii) in respect of an examination of a workman, the medical referee in submitting his quarterly statement under regulation 17, shall certify the distance of the place where the examination was made from his residence or other prescribed centre.

Form 17. 20. The registrar of a county court shall keep a record, in the form prescribed in the schedule, of all references made by him under these regulations, and shall send the same to the Secretary of State at the end of each quarter.

21. These regulations shall come into force on the 1st day of July, 1907, and shall apply to England and Wales.

H. J. Gladstone,

One of His Majesty's Principal Secretaries of State.

Joseph A. Pease,

Cecil Norton,

Two of the Lords Commissioners of His Majesty's Treasury.

21st June, 1907.

Schedule.

(FORM 1.)

Particulars to be obtained by Certifying Surgeons upon application by Workman for Certificate of Disablement.

1. Name and address of workman . .
2. Disease in respect of which certificate is applied for. . . . .
3. Symptoms complained of . . .
4. Employment to the nature of which disease is attributed . . .
5. Name and place of business of employer who last employed workman in such employment . . .
6. (*Where application is not made by workman in person*) whether workman is able to travel for purposes of examination . . . .

(FORM 2.)

Notice to Workman of time and place appointed for his Examination by Surgeon.

Workmen's Compensation Act, 1906.

I hereby give you notice, with reference to your application for a certificate of disablement under section 8, sub-section (1), of the above-named Act, that I propose to examine you at on the day of at o'clock, and that you are required to submit yourself for examination accordingly.

To (*the Workman*).

(Signed)

(FORM 3.)

Certificate of Disablement.

Workmen's Compensation Act, 1906.

I, (*a*) as certifying surgeon appointed under the Factory and Workshop Act, 1901, for the district of (*or* as a medical practitioner appointed by the Secretary of State to have the powers and duties of a certifying surgeon for the purposes of section 8 of the Act), hereby certify that having personally examined (*b*) on the day of I am satisfied that (*c*) is suffering from (*d*) being one of the diseases to which the Workmen's Compensation Act applies, and is thereby disabled from earning full wages at the work at which (*c*) has been employed ; and I* certify that the disablement commenced on the day of .

1. Full name and address of workman
2. Process in which workman states he was employed at or immediately before the date of disablement . . . . .

(*a*) strike out portion of description inapplicable.

(*b*) name of workman.

(*c*) "he" or "she."

(*d*) name disease according to the terms in which it is described in the third schedule to the Act or Order of the Secretary of State, adding it to the schedule.

* If the surgeon is unable to certify a date on which the disablement commenced, he should strike out this part of the certificate. In that case the disablement will be deemed to have commenced on the date on which this certificate is given. *See* section 8 (4) of the Act.

3. Name and place of business of employer stated by workman to have last employed him in process above-mentioned. . . .
4. Leading symptoms of disease.

Dated this day of .

(Signed)

(FORM 4.)

Certificate (supplementary to a certificate of Disablement) to be given by Certifying Surgeon in circumstances mentioned in Regulation 5.

1. *When the certificate is included in the certificate of disablement, it should run as follows :—*

But whereas the said workman appears to have been employed at or immediately before the date of disablement in (*a*) being a process (*b*) the second column of the third schedule to the Act, and the disease contracted by him, viz. (*c*) is a disease which (*d*) is set opposite the above-mentioned process, I hereby certify that in my opinion the said disease is not due to the nature of such employment.

Dated this day of .

(Signed) .

(*a*) name process.
(*b*) "mentioned in" or "added by an Order of the Secretary of State to."
(*c*) name disease.
(*d*) "in the first column of that schedule" or "under the provisions of the said Order."

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2. *When the certificate is given separately on a subsequent application of the employer, it shall be in the following form :—*

Workmen's Compensation Act, 1906.

Whereas I, (*e*) the certifying surgeon appointed under the Factory and Workshop Act, 1901, for the district of (*or* as a medical practitioner appointed by the Secretary of State to have the powers and duties of a certifying surgeon, for the purposes of section 8 of the above-named Act), on the day of certified that (*f*) was suffering from (*g*) being a disease to which the Workmen's Compensation Act applies, and was thereby disabled from earning full wages at the work at which he was employed ; and whereas the said (*f*) appears to have been employed at or immediately before the date of disablement in (*h*) being a process (*i*) the second column of the third schedule to the Act, and the disease above named is a disease which (*k*) is set opposite the above-mentioned process, I hereby certify that, in my opinion, the said disease was not due to the nature of such employment.

Dated this day of .

(Signed) .

(*e*) strike out portion of description inapplicable.
(*f*) name of workman.
(*g*) name disease.
(*h*) name process.
(*i*) "mentioned in" or "added by an Order of the Secretary of State to."
(*k*) "in the first column of that schedule" or "under the provisions of the said Order."

(FORM 5.)

Certificate of Certifying Surgeon refusing to give Certificate of Disablement.

Workmen's Compensation Act, 1906.

I, (*a*) as certifying surgeon appointed under the Factory and Workshop Act, 1901, for the district of (*or* as a medical practitioner appointed by the Secretary of State to have the powers and duties of a certifying surgeon for the purposes of section 8 of the above Act), hereby certify that having personally examined (*b*) who has applied for a

(*a*) strike out portion of description inapplicable.
(*b*) name workman.

Certificate of Disablement in respect of (c) being a disease to which the Workmen's Compensation Act applies, I am not satisfied that (d) is suffering from the said disease so as to be disabled from earning full wages at the work at which (d) has been employed.

1. Full name and address of workman . . . . . .
2. Employment to nature of which disease complained of was attributed . . . . .
3. Name and place of business of employer stated by workman to have last employed him in such employment. . . .

Dated this day of .

(Signed) .

(c) describe disease.
(d) "he" or "she."

(Form 6.)

Certificate of Suspension by Certifying or Appointed Surgeon.

Workmen's Compensation Act, 1906.

I the (a) surgeon for (b) hereby certify that after personally examining (c) , I have on the day of in pursuance of the (d) made under the Factory and Workshop Act, 1901, suspended the said (c) from (e) usual employment on account of (e) having contracted (f) being a disease to which the Workmen's Compensation Act applied.

1. Full name and address of workman . . . . . .
2. Employment from which workman is suspended . . .
3. Name and place of business of employer . . . . .
4. Leading symptoms of disease .

Dated this day of .

(Signed) .

(a) "certifying" or "appointed."
(b) name works at which workman is employed.
(c) name workman.
(d) name the special rules or regulations governing the employment.
(e) "his" or "her."
(f) describe disease.

(Form 7.)

Certificate to be given by Surgeon in cases of suspension in circumstances mentioned in Regulation 5.

1. *When the certificate is included in a certificate of suspension, it should run as follows :—*

But whereas the said workman appears to have been employed at or immediately before the date of suspension in (a) being a process (b) the second column of the third schedule to the Act, and the disease contracted by him, viz. (c) is a disease which (d) is set opposite the above-mentioned process, I hereby certify that in my opinion the said disease is not due to the nature of such employment.

Dated this day of .

(Signed) .

(a) name process.
(b) "mentioned in" or "added by an Order of the Secretary of State to."
(c) name disease.
(d) "in the first column of that schedule" or "under the provisions of the said Order."

2. *When the certificate is given separately on an application by the employer, it should be in the following form :—*

Workmen's Compensation Act, 1906.

Whereas I, the (*a*) surgeon for (*b*) on the day of in pursuance of the (*c*) made under the Factory and Workshop Act, 1901, suspended (*d*) from (*e*) usual employment on account of (*e*) having contracted (*f*) being a disease to which the Workmen's Compensation Act applies, and whereas the said (*d*) appears to have been employed at or immediately before the date of suspension in (*g*) being a process (*h*) the second column of the third schedule to the Act, and the disease above named is a disease which (*i*) is set opposite the above-mentioned process, I hereby certify that in my opinion the said disease was not due to the nature of such employment.

Dated this day of .

(Signed) .

(*a*) "certifying" or "appointed."
(*b*) name works at which workman was employed.
(*c*) name special rules or regulations governing the employment.
(*d*) name of workman.
(*e*) "his" or "her."
(*f*) describe disease.
(*g*) name process.
(*h*) "mentioned in" or "added by an Order of the Secretary of State to."
(*i*) "in the first column of that schedule" or "under the provisions of the said Order."

(Form 8.)

Certificate by Certifying or Appointed Surgeon of Refusal to Suspend.

Workmen's Compensation Act, 1906.

I, the (*a*) surgeon for (*b*) hereby certify that (*c*) having applied to me to be suspended from his usual employment in pursuance of (*d*) made under the Factory and Workshop Act, 1901, on account of (*e*) having contracted (*f*) being a disease to which the Workmen's Compensation Act applies, I have after personally examining the said (*c*) refused to suspend (*g*) .

1. Full name and address of workman . . . . . .
2. Name and place of business of employer . . . . .
3. Grounds for refusal to suspend .

Dated this day of .

(Signed) .

(*a*) "certifying" or "appointed."
(*b*) name works at which workman is employed.
(*c*) name workman.
(*d*) name the code of special rules or regulations governing the employment.
(*e*) "his" or "her."
(*f*) describe disease.
(*g*) "him" or "her."

(Form 9.)

Application by Employer for Reference to Medical Referee.

In the County Court of holden at

In the matter of the Workmen's Compensation Act, 1906,

and

In the matter of a Certificate of Disablement (*or* Suspension) granted in the case of (*name and address of workman*) in pursuance of the provisions of section 8 of the above-mentioned Act and the regulations made thereunder by the Secretary of State.

Application for a reference in the above-mentioned matter to a medical referee, pursuant to section 8, sub-section (1) (f), of the Act and to the above-mentioned regulations, is hereby made on behalf of (*name and place of business of applicant*) who states :—

1. That on the day of notice of disablement (*or* suspension) was given to the applicant by the above-mentioned under the provisions of the said Act.

2. That the said notice was consequent on a certificate of disablement given (*or* order of suspension made), on the day of , in pursuance of the said Act and regulations, by Mr. residing at (*full address*), the certifying surgeon under the Factory and Workshop Act, 1901, for the district of (*or* a medical practitioner appointed by the Secretary of State to have the powers and duties of a certifying surgeon under section 8 of the said Act, *or* a surgeon appointed in pursuance of (*describe special rules or regulations under the Factory Act*) at (*name of factory or other place of employment*)).

3. That the applicant is aggrieved by the action of the above-mentioned Mr. in giving the said certificate (*or* in making the said order of suspension) and claims that the said had not contracted the disease in respect of which the said certificate was given (*or* in respect of which the said order was made) (*or, in the case of a certificate of disablement,* was not suffering from the disease therein specified so as to be disabled from earning full wages at the work at which he was employed), in support of which claim he mentions the following circumstances :—*

*State grounds for claim, *e.g.* report of any doctor employed by applicant.

And the applicant hereby undertakes, if the matter is referred to a medical referee, to repay to the said (*workman*) any reasonable travelling expenses he may incur in attending for examination by such referee.

Two copies of this application are annexed hereto, together with a copy of the notice and certificate of disablement (*or* suspension). (The above-mentioned report of the medical practitioner employed by me, and two copies thereof, are also annexed).

Dated this day of .

(Signed) .

Applicant.

To the Registrar.

(Form 10.)

Application by Workman for Reference to Medical Referee.

In the County Court of holden at .

In the matter of the Workmen's Compensation Act, 1906,

and

In the matter of a Refusal of a certifying (*or* appointed) surgeon to give a certificate of disablement to (*or* to suspend) (*name and address of applicant*) in pursuance of the provisions of section 8 of the above-mentioned Act and the regulations made thereunder by the Secretary of State.

Application for a reference in the above-mentioned matter to a medical referee, pursuant to section 8, sub-section (1) (f) of the said Act and to the above-mentioned regulations, is hereby made on behalf of the said who states :—

1. That on the day of applicant applied to Mr. residing at (*full address*) the certifying surgeon under the Factory and Workshop Act, 1901, for the district of (*or* a medical practitioner appointed by the Secretary of State to have the powers and duties of a certifying surgeon for the purposes of section 8 of the said Act, *or* a surgeon appointed in pursuance of (*describe special rules or regulations under Factory Act*) at (*name of*

factory, or other place of employment), for a certificate of disablement (*or* to be suspended in respect of a disease to which the provisions of section 8 of the Workmen's Compensation Act apply.

2. That the said Mr. refused to give the applicant a certificate of disablement (*or* to suspend the applicant) and certified to such refusal by a certificate, dated the day of , which is annexed to this application.

3. That the applicant is aggrieved by the action of the said Mr. in refusing to give him a certificate of disablement (*or* to suspend him) and claims that he was suffering from the said disease, and was thereby disabled from earning full wages at the work at which he was employed (*or, in the case of a refusal to suspend*, that he had contracted the said disease and was therefore entitled, in accordance with the special rules (*or* regulations) made under the Factory and Workshop Act, 1901, for the process in which he was employed, to be suspended), in support of which claim he mentions the following circumstances :—(*)

*State grounds of claim, *e.g.* report, if any, of doctor employed by applicant.

4. That the employer on whom the applicant, if the matter is referred to a medical referee and decided in favour of the applicant, would serve the statutory notice of disablement (*or* suspension) is (*name and place of business of employer*).

Two copies of this application and the certificate of the surgeon (together with the above-mentioned report of the medical practitioner employed by applicant and two copies thereof) are annexed hereto.

Dated this day of .

(Signed) .

Applicant.

To the Registrar.

(Form 11.)

Order of Reference to Medical Referee.

In the County Court of holden at .

(*Heading as in application.*)

On the application of (a copy of which is hereto annexed), I hereby appoint Mr. of , one of the medical referees appointed by the Secretary of State for the purposes of the Workmen's Compensation Act, 1906, to decide on the matter arising on the said application.

Copies of the notice and certificate of disablement (*or* suspension), (and of a report of a medical practitioner by whom the workman referred to in the application has been examined), are hereto annexed.

Or, if the workman is the applicant,

A copy of the certificate of the surgeon referred to in the application (together with a copy of a report of a medical practitioner by whom applicant has been examined), is hereto annexed.

The said , who is now at , has been directed to submit himself for examination by the referee.

I am satisfied that the said is in a fit condition to travel for the purpose of being examined, and he has been directed to attend on the referee for examination at such time and place as may be fixed by the referee.

(*Or* the said does not appear to be in a fit condition to travel for the purpose of being examined.)

Dated this day of

Registrar.

(FORM 12.)

Order on Workman to submit himself for Examination by Medical Referee.

In the County Court of holden at .

(*Heading as in application.*)

To A.B. , of (*address and description*).

TAKE NOTICE, that I have appointed Mr. , of , one of the medical referees appointed by the Secretary of State for the purposes of the Workmen's Compensation Act, 1906, to decide on the matter arising on the above application.

You are hereby required to submit yourself for examination by the referee (*add, where workman is in a fit condition to travel*, and to attend for that purpose at such time and place as may be fixed by him.)

Dated this day of .

Registrar.

(FORM 13.)

Notice by Medical Referee to Workman.

Workmen's Compensation Act, 1906.

I hereby give you notice that I have received from the Registrar of the County Court at , an order of reference appointing me to decide on your appeal against the action of Mr. (*name of surgeon*) in refusing to give you a certificate of disablement (*or* to suspend you).

Or, if the employer is the appellant,

on the appeal made by (*name of employer*) against the action of Mr. (*name of surgeon*) in giving you a certificate of disablement (*or* in suspending you);

And that you are required to attend (*or, if the workman has been ascertained not to be in a fit condition to travel*, to submit yourself) for examination at on the day at o'clock.

Any statement made or submitted by you shall be considered.

(Signed)

Medical Referee.

To

(FORM 14.)

Notice by Medical Referee to Employer.

Workmen's Compensation Act, 1906.

I hereby give you notice that I have received from the Registrar of the County Court at , an order of reference appointing me to decide on your appeal against the action of Mr. (*name of surgeon*) in giving a certificate of disablement to (*or* in suspending) (*name of workman*).

Or, if the workman is the appellant,

on the appeal made by (*name of workman*) against the action of Mr. (*name of surgeon*) in refusing to give him a certificate of disablement (*or* to suspend him);

And that I propose to examine (*name of workman*) at on the day of at o'clock.

Any statement made or submitted by you shall be considered.

Add, if the employer is the appellant,

You, or some person duly authorised by you, are hereby required to attend at the above time and place.

Dated this day of .

(Signed) .

Medical Referee.

To

(Form 15.)

Decision of Medical Referee.

(*Heading as in application.*)

I hereby give you notice that having duly inquired into the above-mentioned matter in accordance with the regulations of the Secretary of State, I decide as follows :—

I dismiss (*or* allow) the appeal of (*name of employer*) against the certificate of disablement given to (*name of workman*) on the day of

or

I dismiss (*or* allow) the appeal of (*name of employer*) against the suspension of (*name of workman*) on the day of

or

I dismiss the appeal of (*name of workman*) against the refusal of Mr. (*name of surgeon*) to give him a certificate of suspension in respect of (*name of disease*).

or

I allow the appeal of (*name of workman*) against the refusal of Mr. (*name of surgeon*) to give him a certificate of disablement in respect of (*name of disease*), and I fix the day of as the date on which the disablement commenced.

or

I dismiss (*or* allow) the appeal of (*name of workman*) against the refusal of Mr. (*name of surgeon*) to suspend him on the day of

Dated this day of .

(Signed)

Medical Referee.

To (*the Registrar*),

and to (*the Employer*),

and to (*the Workman*).

(FORM 16.)

Medical Referee's Statement of Fees in respect of References under Section 8 of the Workmen's Compensation Act, 1906.

Number.	Names of Parties.	Date on which Reference received.	Registrar from whom received.	Date and Place of Examination.	Date and Terms of Decision.	Amount of Fees under each of the headings in Regulation 18. (i)	(ii)	(iii)
1.						£ s. d.	£ s. d.	£ s. d.
2.								
					£			
					Total £	s.	d.	

I hereby certify that I examined the workman on , at , which is distant miles from my residence or prescribed centre.

(Signed)

Medical Referee.

(FORM 17.)

Record of References to be kept by Registrar.

For quarter ended .

Number of Reference.	Names of Parties.	Action of Surgeon by which applicant is aggrieved.	Name of Surgeon.	Nature of Disease.	Date on which reference made.	Whether workman directed to attend on Medical Referee or not.	Name of Medical Referee.

Regulations, dated June 24, 1907, made by the Secretary of State and the Treasury as to the Duties and Remuneration of Medical Referees in England and Wales under the provisions of the First and Second Schedules to the Workmen's Compensation Act, 1906.

I, the Right Honourable Herbert John Gladstone, one of His Majesty's Principal Secretaries of State, and We, the Lords Commissioners of His Majesty's Treasury, in pursuance of the powers respectively conferred on us by the Workmen's Compensation Act, 1906, hereby make the following regulations :–

Part I.—Definitions and General Regulations.

1. In these regulations—

(i) "Medical referee" means a medical practitioner appointed by the Secretary of State to act as medical referee for the purposes of the Workmen's Compensation Act, 1906.

(ii) "Reference" means—

(*a*) in regulations in Part II., the appointment of a medical referee by the registrar of a county court, to give a certificate, in accordance with the provisions of paragraph (15) of the first schedule to the Workmen's Compensation Act, 1906, as to the condition of the workman and his fitness for employment or as to whether or to what extent the incapacity of the workman is due to the accident.

(*b*) in regulations in Part III., the appointment of a medical referee by the registrar of a county court to give a certificate, in accordance with the provisions of paragraph (18) of the first schedule to the Workmen's Compensation Act, 1906, as to whether the incapacity resulting from the injury is likely to be of a permanent nature.

(*c*) in regulations in Part V., the appointment of a medical referee by a committee, arbitrator or judge to report on any matter material to any question arising in an arbitration under the Workmen's Compensation Act, 1906.

(iii) "Committee" means a committee representative

of an employer and his workmen, with power to settle matters under the Workmen's Compensation Act, 1906, in the case of the employer and workmen.

(iv) "Agreed Arbitrator" means a single arbitrator agreed on by the parties to settle any matter which under the Workmen's Compensation Act, 1906, is to be settled by arbitration.

(v) "Appointed Arbitrator" means a single arbitrator appointed by the judge.

(vi) "Judge" means County Court Judge.

(vii) The words "district in which the case arises" mean the county court district in which all the parties concerned reside, or, if they reside in different districts, the district prescribed by rules of court, subject to any transfer made under those rules.

2. In the case of any reference under these regulations, the medical referee, in the absence of special circumstances, shall be one of those appointed by the Secretary of State for the county court circuit which includes the district in which the case arises, and shall, if the circuit has been sub-divided, and medical referees have been appointed for the sub-divisions, be one appointed for the sub-division which comprises the aforesaid district. Provided that, where there has been a previous reference in any case, any subsequent reference in the same case shall, if possible, be made to the same referee and be accompanied by the previous report or certificate, or copy thereof, of the medical referee.

3. The medical referee shall not accept any reference under these regulations unless signed or countersigned by the registrar of a county court and sealed with the seal of the county court.

4. The medical referee shall send to the Home Office at the end of each quarter statements, in the forms prescribed in the schedule to these regulations, of the fees due to him for the quarter under these regulations. Forms I, J, K, and L.

5. In cases where a claim is made under the regulations in respect of travelling expenses, the medical referee, in submitting his quarterly statements under Regulation 4, shall certify the distance of the place to which he was required to travel from his residence or other prescribed centre.

6. In cases involving special difficulty the medical referee may apply to the Secretary of State for special expert

assistance which may be granted by the Secretary of State, if he thinks fit, on such terms as to remuneration or otherwise as he may with the sanction of the Treasury determine.

Form M.

7. The registrar of every county court shall keep a record, in the form prescribed in the schedule, of all references made under these regulations, and of all cases in which a medical referee is summoned to sit as assessor, and shall send a copy thereof to the Secretary of State at the end of each quarter.

8. These regulations shall come into force on the 1st day of July, 1907, and shall apply to England and Wales.

Part II.—Regulations as to References under Schedule I., paragraph (15).

9. The medical referee shall, on receipt of a reference duly signed and sealed, fix a time and place for the examination of the workman, and shall send notice accordingly to both the parties signing the application on which the reference is made.

Forms A and B.

10. Before giving the certificate required by the reference, the medical referee shall personally examine the workman and shall consider any statements that may be made or submitted by either party.

Form C.

11. The certificate given by the medical referee shall be according to the form prescribed in the schedule to these regulations.

12. The medical referee shall forward his certificate to the registrar from whom he received the reference.

13. The following shall be the scale of fees to be paid to medical referees in respect of references under this part of the regulations :—

(i) For a first reference (to include all the duties performed in connection therewith) . . . . . 2 guineas.

(ii) For a second or subsequent reference to the same medical referee in the same case . . . . . 1 guinea.

(iii) Where in order to examine the injured workman the medical referee is compelled to travel to a place distant more than two miles from his residence or such other centre as may be prescribed by the Secretary of State, in addition to the above fees—5*s*. for each mile beyond two, and up to ten, miles

distant from such residence or centre, and thereafter 1*s.* for each mile distant therefrom.

Part III.—Regulations as to references under Schedule I., paragraph (18).

14. The medical referee shall, on receipt of a reference duly signed and sealed, fix a time and place for the examination of the workman, and shall send notice accordingly to the workman. Form D.

15. Before giving the certificate required by the reference the medical referee shall make a personal examination of the workman.

16. The certificate given by the medical referee shall be according to the form prescribed in the schedule to these regulations. Form E.

17. The medical referee shall forward his certificate to the registrar from whom he has received the reference.

18. The fee to be paid to a medical referee in respect of a reference (to include all the duties performed in connection therewith) under this part of these regulations shall be one guinea.

Part IV.—Regulation as to Remuneration of Medical Referee for sitting as Assessor under Schedule II., paragraph (5).

19. Where a medical referee attends on the summons of the judge, for the purpose of sitting with the judge as an assessor, as provided for in paragraph (5) of the second schedule to the Workmen's Compensation Act, 1906, he shall be entitled for such attendance (to include his services as assessor) to a fee of 3 guineas, and where in order so to attend on the judge, he is compelled to travel to a place distant more than two miles from his residence or such other centre as may be prescribed by the Secretary of State, he shall be entitled, in addition to the above fee, to 5*s.* for each mile beyond two, and up to ten, miles distant from such residence or centre, and thereafter to 1*s.* for each mile distant therefrom.

Part V.—Regulations as to References under Schedule II., paragraph (15).

Conditions of Reference.

20. Before making any reference, the committee, arbitrator, or judge shall be satisfied, after hearing all medical evidence

tendered by either side, that such evidence is either conflicting or insufficient on some matter which seems material to a question arising in the arbitration, and that it is desirable to obtain a report from the medical referee on such matter.

Form and Mode of Reference.

21. Every reference shall be made in writing and shall state the matter on which the report of the medical referee is required, and the question arising in the arbitration to which such matter seems to be material. Such reference shall be in accordance with the form prescribed in the schedule to these regulations, or as near thereto as may be.

Form F.

The reference shall be accompanied by a general statement of the medical evidence given on behalf of the parties; and if such evidence has been given before a committee or an agreed arbitrator, each medical witness shall sign the statement of his evidence, and may add any necessary explanation or correction.

22. On making the reference to the medical referee, the committee, arbitrator or judge shall make an order in the form prescribed in the schedule, directing the injured workman to submit himself for examination by the medical referee. Before making such order they shall inquire whether he is in a fit condition to travel for the purpose of examination, and if satisfied that he is in a fit condition, they shall by the same order direct him to attend at such time and place as the referee may fix.

Form G.

It shall be the duty of the injured workman to obey any such order.

If the committee, arbitrator or judge is satisfied that the workman is not in a fit condition to travel, they shall so state in the reference.

23. The reference shall be signed, if made by a committee, by the chairman and secretary of the committee; if made by an agreed arbitrator, by the arbitrator; if made by a judge or an appointed arbitrator, by the judge or arbitrator, or by the registrar of the county court in which the arbitration is pending.

24. A committee or an agreed arbitrator, making a reference, shall, without naming a medical referee, address the reference in general terms to "one of the medical referees appointed by the Secretary of State for the purposes of the Workmen's

Compensation Act, 1906," and shall forward it to the registrar of the county court of the district in which the case arises.

Duties of Registrar.

25. (1) In the case of a reference by a committee or agreed arbitrator, the registrar on receiving the reference—

(*a*) Shall see that the reference is in accordance with these regulations, and if it is not, shall return it for amendment;

(*b*) Shall insert the name of the medical referee proper to be appointed;

(*c*) Shall, when the reference is in accordance with these regulations, countersign and seal it, and forward it forthwith to the medical referee.

(2) In the case of a reference by a judge or an appointed arbitrator, the registrar of the court in which the arbitration is pending shall sign (or countersign) and seal it, and forward it forthwith to the medical referee.

26. The registrar, on receiving a report from a medical referee under Regulation 28, shall forthwith file a copy at the court and transmit the report to the committee, arbitrator or judge by whom the reference was made.

If the committee, arbitrator or judge shall direct that the parties be at liberty to inspect the report, the registrar shall on receiving notice of such direction permit such inspection to be made during office hours, and shall on the application and at the cost of any party furnish him with a copy of the report or allow him to take a copy thereof.

Report of Medical Referee.

27. The medical referee shall, on receipt of a reference duly signed and sealed, appoint a time and a place for the examination of the workman, and shall send him notice accordingly. Form H.

28. The medical referee shall give his report in writing, and shall forward it to the registrar from whom he received the reference.

29. The committee, arbitrator or judge may, by request signed and forwarded in the same manner as the reference, remit the report to the medical referee for a further statement on any matter not covered by the original reference.

Fees.

30. The following shall be the scale of fees to be paid to the medical referees in respect of references under this part of the regulations :—

(i) For a first reference, to include examination of the injured workman and written report . . . . 2 guineas.

(ii) For a further statement under Regulation 29 on any matter not covered by the original reference . . 1 guinea.

(iii) For a second or subsequent reference to the same referee in a further arbitration on the same case, to include examination, if necessary, and written report . . . . 1 guinea.

(iv) Where in order to examine the injured workman the medical referee is compelled to travel to a place distant more than two miles from his residence or such other centre as may be prescribed by the Secretary of State, in addition to the above fees—5*s.* for each mile beyond two, and up to ten, miles distant from such residence or centre, and thereafter 1*s.* for each mile distant therefrom.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Joseph A. Pease,
J. H. Whitley,
Two of the Lords Commissioners of His Majesty's Treasury.

24th June, 1907.

Schedule.

(Form A.)

Notice by Medical Referee to Employer or Solicitor signing the application on employer's behalf (*Schedule I.* (15)).

Workmen's Compensation Act, 1906.

To

I hereby give you notice that in accordance with the Reference made to me by the Registrar of the County Court of holden at ,

under Schedule I., paragraph (15), of the above-named Act, in the case of (*name and address of workman*) I propose to examine the said at on the day of at o'clock.

Any statements made or submitted by you (*or, if notice is addressed to the solicitor*, by the employer), will be considered.

Dated this day of .

(Signed)

Medical Referee.

(Form B.)

Notice by Medical Referee to Workman or Solicitor signing the application on Workman's behalf (*Schedule I.* (15)).

Workmen's Compensation Act, 1906.

To

I hereby give you notice that in accordance with the Reference made to me in your case (*or, if notice is addressed to the solicitor*), in the case of (*name and address of workman*), by the Registrar of the County Court of holden at , under Schedule I., paragraph (15), of the above-named Act, I propose to examine you (*or* the said) at on the day of at o'clock.

And you are required to submit yourself (*or* the said is required to submit himself) for examination accordingly.

Any statements made or submitted by you (*or, if notice is addressed to the solicitor*, by the workman) will be considered.

Dated this day of

(Signed)

Medical Referee.

(Form C.)

Certificate of Medical Referee as to condition of Workman and fitness for employment, or as to whether or to what extent incapacity of Workman is due to the accident (*Schedule I.* (15)).

Workmen's Compensation Act, 1906.

In accordance with the Reference made to me by the Registrar of the County Court of holden at upon the application of (*name and addresses of parties*) I have on the day of examined the said (*name of workman*) and I hereby certify as follows :—

1. The said is*

and his condition is such that he is†

*Describe state of health.

†State whether workman is fit for his ordinary or other work, specifying where necessary the kind of work, or whether he is unfit for work of any kind.

2. The incapacity of the said is‡

‡State whether or to what extent the incapacity is due to the accident (*or, in cases coming within section* 8 *of the Act*, to the disease.).

NOTE.—*Either paragraph* 1 *or paragraph* 2 *to be filled up, or both to be filled up, according to the terms of the Reference.*

Dated this day of .

(Signed)

Medical Referee.

(FORM D.)

Notice by Medical Referee to Workman (*Schedule I.* (18)).

Workmen's Compensation Act, 1906.

To

I hereby give you notice that in accordance with the Reference made to me in your case by the Registrar of the County Court of holden at under Schedule I., paragraph (18), of the above-named Act, I propose to examine you at on the day of at o'clock, and you are required to submit yourself for examination accordingly.

Dated this day of .

(Signed)

Medical Referee.

(FORM E.)

Certificate of Medical Referee (*Schedule I.* (18)).

Workmen's Compensation Act, 1906.

In accordance with the Reference made to me by the Registrar of the County Court of holden at under Schedule I., paragraph (18), of the above-named Act, I have on the day of examined of (*name and address of workman*) and I hereby certify that his incapacity is [*or* is not] likely to be of a permanent nature.

Dated this day of .

(Signed)

Medical Referee.

(Form F.)

Reference to a Medical Referee (*Schedule II.* (15)).

In the matter of the Workmen's Compensation Act, 1906,
and
In the matter of an Arbitration between—
A.B.
Address
Description Applicant,
and
C.D.
Address
Description Respondent.

As the case may be
(*a*) We, a committee representative of and his workmen, and empowered to arbitrate in the matter arising under the Workmen's Compensation Act, between *A.B.* and *C.D.* ;
(*b*) I, , an arbitrator agreed upon by *A.B.* and *C.D.* to arbitrate in the matter arising between them under the Workmen's Compensation Act, 1906 ;
(*c*) I, , Judge of County Courts
(*d*) I, , arbitrator appointed by a Judge of County Courts,

having heard the evidence tendered by both parties, hereby certify that in our (*or* my) opinion the medical evidence given before us (*or* me) is conflicting (*or* insufficient) on a matter which seems to us (*or* me) to be material to a question arising in the above-mentioned arbitration, and that it is desirable to obtain a report from a medical referee on such matter, as follows :—

(A) On the day of personal injury was (*or* is alleged to have been) caused to*
by accident arising out of and in the course of his employment, under the following circumstances :—
†

Or, in a case of industrial disease to which the Act applies—

(A) On the day of the said* was, under section 8 of the above-named Act, certified to be disabled by, or suspended from his usual employment on account of his having contracted, a disease to which the said section applies, namely,‡

(B) The matter on which we are (*or* I am) satisfied that it is desirable to obtain a report is—

(C) Such matter seems to be material to the following question arising in the arbitration, viz. :—

We (*or* I) therefore appoint§
one of the medical referees appointed by the Secretary of State for the purposes of the Workmen's Compensation Act, 1906, to examine the said
on the matter specified above, and to report to us (*or* me).

A statement of the medical evidence given before us (*or* me) is appended.

We are (*or* I am) satisfied that the said
who is now at , is in a fit condition to travel for the purpose of being examined, and he has been directed to attend on

* Insert name of injured workman.

†Here state the facts of the accident as ascertained from the evidence.

‡Name disease.

§ The name must, if the reference is made by a committee or agreed arbitrator, be left in blank to be inserted by the Registrar.

the referee for examination at such time and place as shall be fixed by the referee ; *or* does not appear to be in a fit condition to travel for the purpose of being examined.

The referee is requested to forward his report to—

The Registrar,
County Court Office,

on or before the day of .

Dated this day of .

(Signed)
*

or On behalf of the Committee

Chairman / Secretary } *of Committee.*

Signature of Registrar and Seal of Court.

*For signature of judge or arbitrator.

A previous reference was made to a medical referee in this case on the , 19 , and a copy of the report then given is attached.

(Form G.)

Order on injured Workman to submit himself for examination by Medical Referee.

(*Title as in Reference.*)

To *Address.*

of *Description.*

Take Notice—

That the Committee (*or* arbitrator, *or* judge) have (*or* has) appointed one of the medical referees under the Workmen's Compensation Act, 1906, to examine you for the purposes of the above-mentioned arbitration, and to report to them (*or* him).

You are hereby required to submit yourself for examination by such referee,† and to attend for that purpose at such time and place as may be fixed by him.

† Strike out from "and to attend" when injured workman does not appear to be in a fit condition to travel.

Dated this day of .

(*To be signed in the same manner as Reference.*)

(Form H.)

Notice by Medical Referee to injured Workman (*Schedule II.* (15)).

Workmen's Compensation Act, 1906.

To

I hereby give you notice that I have been appointed to examine and report on your case under Schedule II., paragraph (15), of the above-named Act, and that I propose to make such examination at on the day of at o'clock.

(Signed)

Medical Referee.

(FORM I.)

Medical Referee's Statement of Fees in respect of References under Schedule I. (15).

Number.	Names of Parties.	Date on which Reference received.	Registrar from whom received.	Date and Place of Examination.	Date on which Certificate sent to Registrar.	Whether Certificate as to condition of workman or as to cause of incapacity or both.	Amount of the fees under each of the headings in Regulation 13			Payments under Regulation 6.
							(i)	(ii)	(iii)	
							£ *s. d.*	£ *s. d.*	£ *s. d.*	£ *s. d.*
						£				

Total .. £ *s. d.*

I hereby certify that I examined the above-mentioned (*name of workman*) on at which is distant miles from my residence or prescribed centre.

(Signed)

Endorsement to be made on back of statement.

(FORM J.)

Medical Referee's Statement of Fees in respect of References under Schedule I. (18).

Number.	Name of Workman.	Date on which Reference received.	Registrar from whom received.	Date of examination.	Date on which Certificate sent to Registrar.	Whether incapacity certified to be permanent or not.	Fees under Regulation 18.	Payments under Regulation 6.
							£ *s. d.*	£ *s. d.*

Total .. £ *s. d.*

(FORM K.)

Medical Referee's Statement of Fees for attendances as Assessor under Schedule II. (5).

Number.	Date on which Summons received.	Registrar from whom Summons received.	Date and Place of Attendance.	Fees under Regulation 19.	
				For attendance.	For miles travelled.
				£ s. d.	£ s. d.

(FORM L.)

Medical Referee's Statement of Fees in respect of References under Schedule II. (15).

Number.	Names of Parties.	Date on which Reference received.	Registrar from whom received.	Date and place of Examination.	Date on which report sent.	Amount of Fees under each of the headings in Regulation 30.				Payments under Regulation 6.
						(i)	(ii)	(iii)	(iv)	
						£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
						Total .. £ s. d.				

* Endorsement to be made on back of statement.

* I hereby certify that I examined the above-mentioned (*name of workman*) on , at , which is distant miles from my residence or prescribed centre.

(Signed)

(Form M.)

Record of References, &c., to be kept by Registrar.

County Court Circuit . District . Name of Registrar

For quarter ended .

Number of Reference. (1)	Names of Parties. (2)	Workman's Employment. (3)	Date on which Reference forwarded to Medical Referee. (4)	Provision in the Act under which Reference is made, and if under Sched. II. (15), by whom made.* (5)	Whether workman directed to attend on Medical Referee or not. (6)	Medical Referee appointed. (7)	Date and number of previous reference in same case, if any. (8)

* Here say whether committee, agreed arbitrator, county court judge, or appointed arbitrator.

Note.—In cases where there is no Reference, but the Medical Referee is summoned to sit as assessor, the Registrar should write a note to that effect across columns 4, 5, and 6.

Regulations of the Secretary of State, dated June 28, 1907, as to examinations of a Workman by a Medical Practitioner provided and paid by the employer under the provisions of the First Schedule to the Workmen's Compensation Act, 1906.

In pursuance of the powers vested in me by paragraph (15) of the First Schedule to the Workmen's Compensation Act, 1906, I, the Right Honourable Herbert John Gladstone, one of His Majesty's Principal Secretaries of State, do hereby make the following regulations :—

1. Where a workman has given notice of an accident or is in receipt of weekly payments under the Act, he shall not be required to submit himself, against his will, for examination by a medical practitioner provided by the employer except at reasonable hours.

2. A workman in receipt of weekly payments shall not be required, after a period of one month has elapsed from the date on which the first payment of compensation was made, or if the first payment is made in obedience to the award of a committee or arbitrator, from the date of the award, to submit himself, against his will, for examination by a medical practitioner provided by the employer except at the following intervals :—Once a week during the second, and once a month during the third, fourth, fifth, and sixth months, after the date of the first payment or the award, as the case may be, and thereafter once in every two months.

Provided that where after the second month an application has been made to the county (in Scotland, the sheriff) court or to a committee for a review of the weekly payment, the workman may be required, pending and for the purposes of the settlement of the application, to submit himself to one additional examination.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Whitehall,
28th June, 1907.

PART II.

The Diseases contained in the Third Schedule to the Act, and the Home Secretary's Orders of May 22, 1907 and December 2, 1908.

Statistics as to Notifiable Diseases.

The following table showing the number of reported cases of diseases notifiable under sect. 73 of the Factory and Workshop Act, 1901, all of which are included in the Third Schedule of the Workmen's Compensation Act, is taken from the Factories and Workshops Annual Report for 1907, and will be useful for reference as to the incidence of such diseases in various industries. It contains the cases reported for the nine years 1899–1907 inclusive.

Disease and Industry.	Reported Cases.[1]								
	1907	1906	1905	1904	1903	1902	1901	1900	1899
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lead poisoning	578[26]	632	592	597	614	629	863	1,058	1,258
Smelting of metals	28[2]	38	24	33	37	28	54	34	61
Printing	26[3]	16	19	15	13	19	23	18	26
File cutting	10	15	12	20	24	27	46	40	41
Tinning and enamelling	25	18	16	13	18	14	19	16	24
White lead	71	108	90	116	109	143	189	[358	399
China and earthenware	103[9]	107	84	106	97	87	106	200	249
Litho-transfers	10	5	5	3	3	2	7	10	11
Glass	4	4	3	—	4	8	11	7	8
Electric accumulators	21	26	27	33	28	16	49	33	32
Paints and colours	35[1]	37	57	32	39	46	56	56	75
Coach making	70[3]	85	56	49	74	63	65	70	65
Ship building	22[1]	26	32	48	24	15	28	32	30
Paint used in other industries	49[2]	37	49	27	46	44	61	50	54
Other industries	104[5]	100	118	102	98	117	149	134	183
Phosphorus poisoning	1[1]	—	3	1	—	1	4	3	8
Arsenic poisoning	9[2]	5	1	5	5	5	12	22	—
Mercurial poisoning	7	4	8	3	8	8	18	9	10
Anthrax	58[11]	67	59	50	47	38	39	37	55
Wool	23[3]	24	34	12	20	12	6	9	18
Horsehair	17[4]	10	7	12	7	10	9	12	17
Hides and skins	12[2]	19	17	18	12	11	20	9	16
Other industries	6[2]	14	1	8	8		4	7	4

[1] The principal figures in col. 2 are those of all cases, fatal and non-fatal; the small figures relate to fatal cases only.

See next page for the figures for 1908.

The figures of cases of industrial poisoning for the year 1908 have become available since the table on the previous page was printed, and are here added in order to bring the subject up to date.

Lead Poisoning	646^{32}	Coach making	70^{3}
Smelting of metals	70^{2}	Ship building	15^{0}
Brassworks	6^{0}	Paint in other industries	47^{1}
Sheet lead and piping	14^{0}	Other processes	78^{5}
Plumbing and soldering	27^{0}	**Phosphorus Poisoning**	1^{0}
Printing	30^{2}	**Arsenic Poisoning**	23^{1}
File cutting	9^{2}	**Mercurial Poisoning**	10^{0}
Tinning of metals	10^{0}	Barometers and thermometers	2^{0}
Enamelling iron plates	7^{0}	Furriers	5^{0}
White lead	79^{3}	Other industries	3^{0}
Red and yellow lead	12^{0}	**Anthrax**	47^{7}
China and earthenware	117^{12}	Wool	18^{3}
Litho-transfers	2^{0}	Horsehair	11^{1}
Glass works	3^{1}	Hides and skins	13^{1}
Electric accumulators	25^{1}	Other industries	5^{2}
Paints and colours	25^{0}		

In the above table it will be noticed that the trades are more subdivided than in the table on the previous page. It contains the number of attacks (fatal or otherwise) reported during the year and not reported during the twelve months preceding. The small figures are the deaths ascertained during the year, whether included (as attacks) in previous years or not.

The only figure which shows a striking increase is the Smelting of Metals. This may be due to the workmen being more willing to report their own cases and thus seek compensation, since the Workmen's Compensation Act was passed.

House Painters and Plumbers.

In addition to the number of cases of lead poisoning included in the list under "Plumbing and Soldering" and "Paint in other industries,' there were 239^{14} cases reported among house painters and plumbers who were not employed under the Factory and Workshop Act.

DISEASES IN THE THIRD SCHEDULE.

Anthrax.

Description of Process.—Handling of wool, hair, bristles, hides and skins.

Anthrax is the modern name given to a definite disease, caused by the *bacillus anthracis* formerly known as " malignant pustule " and " splenic fever." It readily attacks all wool-bearing animals, especially sheep, cattle, horses, mules, asses, goats and swine, and is very infectious. In man it is much less common, as the human tissues offer a considerable natural resistance to the bacillus, though it is always a serious and often fatal disease.

It was gradually realised in England that there was a " wool sorters' disease," which was very rapid and fatal, but it was not until 1879 that the *bacillus anthracis* was recognised.

The spores are very resisting ; they remain in wool and hair indifferent to time or ordinary changes of temperature but can only multiply in circulating blood. Recent investigation points to the fact that congealed and dried blood is the germ " carrier " (see p. 167, infra).

The occurrence of the disease in England among human beings is due to the importation of infected wool, hides, hair and bristles from abroad. From home grown products there is little or no danger, owing to the precautions taken immediately there is an outbreak of anthrax. The same may be said of Colonial and South American imports, which are generally free from infection.

Certain parts of the world,[1] and certain conditions of temperature, climate, and soil favour the development and multiplication of the bacillus,[2] and it is from such places

[1] These are Central Asia, Asia Minor (the home of the Angora goat), Lake Van, Mesopotamia, Bagdad, Persia, Thibet, Kurdistan, Mongolia, and Northern China.

[2] The greatest development takes place at 35° C. Cooling below freezing point does not kill it. The capacity for sporulation ceases above 42° C. Land rich in organic matter, peaty moorland, and soil containing alkaline salts favour the development in animals.

that the infection is imported. The chief danger lies in Persian wool, camel hair, alpaca and mohair, Chinese horsehair and hides, Bombay and East Indian wool and hides, and Russian and Siberian horsehair.

In man, infection may occur in three ways :—

(1) by direct inoculation : the bacillus invading the skin by means of an abrasion or wound, when it usually remains local, but may spread and cause general infection :

(2) by breathing the bacillus into the lungs : and

(3) by taking it into the stomach with food.

Anthrax is divided into two kinds, external and internal, which depend upon the method of inoculation, and are different in their symptoms and treatment.

The external form is more common in human beings : the internal is more serious. In either form penetration into the blood stream may occur at any time, and it is then very fatal.

External or cutaneous anthrax.—This takes the form of "malignant pustule" already mentioned, and "malignant anthrax œdema."

Symptoms. The symptoms begin with a burning sensation, after which in two or three days a pimple forms, which becomes surrounded by vesicles of a clear, blood-stained brownish fluid containing *bacilli anthracis*. There is inflammation and swelling, and the whole soon forms a malignant pustule. Fever and prostration supervene in serious cases.

Treatment. The most common treatment of external anthrax is by *excision* or *cauterisation* of the pustule, and so removing the danger. This is based on the belief that the process is first local, the bacilli developing at the seat of infection, and only after a lapse of time gaining access to the blood stream and causing general infection.

There is no doubt that in early cases—up to the fourth day—and often in advanced cases, as soon as the local centre of infection is destroyed there is a rapid fall in temperature, the œdema diminishes, though several days may elapse

before all glandular swelling has subsided. The chief objection urged against excision is that in some situations, especially on the eyelids, operative treatment is impracticable or must lead to disfigurement.

A recent and successful method of treatment is with the anti-anthrax serum introduced by Professor Sclavo of Siena. The evidence points to rapid healing after the administration of the serum. By the third day there is generally a marked improvement, not only in the general symptoms, but in arrest of the further development of the pustule and in diminution of the œdema. The average duration of treatment is about eight days.

The serum is injected subcutaneously as a rule, but also intravenously, in doses that vary, but which may be stated to average about 30 to 50 cubic centimeters a day.

Internal Anthrax is of two kinds :

(*a*) pulmonary anthrax (wool sorters' disease) ; and

(*b*) intestinal anthrax.

Symptoms.

The symptoms are very difficult to diagnose, owing to the absence of anything characteristic : indeed, during the first two days, in ordinary cases, diagnosis is impossible, as the symptoms are the same as in many common complaints, so that by the time the patient is under treatment the disease is in an advanced state. Even when dying he is said not to feel very ill. There is often no rigour, pain or coughing, but a feeling of tightness about the chest, accompanied with rapid breathing, headache, rapid or irregular pulse, high temperature, shivering and nausea. In later stages, vomiting is common, and, if persistent, indicates extension of the disease to the stomach : there often ensues fever, delirium, and sudden collapse.

Post-mortem examination of internal anthrax reveals malignant pustules in the stomach and intestines.

Treatment.

Internal anthrax is very fatal, and Dr. Sclavo's serum is the only remedy which holds out any hope of benefit. During the year 1905, when administered subcutaneously,

it did not prevent fatality in any case in which it was used, but in the year 1906 one severe case in which the symptoms pointed to pulmonary anthrax recovered after the injection of the large amount of 200 c.c.

Verification.

Owing to most of the cases being treated in large hospitals complete verification of the bacillus can usually be made by culture and microscopical examination. Experience shows that microscopical examination of the serum or of the blood is alone insufficient. Nor is failure to find the bacillus by bacteriological examination equivalent to saying that the case is not anthrax. Where material has to be forwarded to a laboratory at a distance, failure may be due either to the material not being fresh enough, or to insufficiency of the amount sent, or to putrefactive changes during transit.

Statistics and fatality.

The table on p. 161 shows the number of cases that have occurred during the last nine years. Before 1899 the returns are not considered reliable: the lowest figures were reached in 1900 to 1902; there has been an increase during the last three or four years, possibly due to a severe outbreak of anthrax amongst sheep and goats in Asia.

In 1905, out of 59 cases, 18 (30·5 per cent.) were fatal. Seven were internal, and all fatal.

In 1906, out of 67 cases, 22 (32·8 per cent.) were fatal. Seven were internal, and 6 of these were fatal.

In 1907, out of 58 cases, 11 (19 per cent.) were fatal, one case only being internal, which accounts for the low percentage.

The accident of situation is of importance in determining the severity of external anthrax. A large proportion of cases occur on the neck, chin, and forearm. The eye is a danger spot, but the hands and fingers are curiously immune.

On an average of five years it has been found that the percentage of fatal cases on the upper eyelid is 41·6, neck 30·9, cheek 22·5, forehead 14·3, wrist and forearm 4·3.

The high fatality of cases on the upper eyelid is due to the inability to venture an operation.

An analysis of the 281 reported cases during the five years 1903 to 1907 shows that 113 occurred in the wool trade, 78 in hides, 53 in horsehair and bristles, and 37 in other industries. The risk in both horsehair and hides is very much greater when the material comes from China: it is said that it is not safe to assume that a single Chinese bale is free from infection. Some cases in the hide trade have been traced to tanned hides.

Means of prevention.

The best means of preventing the spread of anthrax is by strict attention to the regulations and special rules in force in the various wool and horsehair industries, especially with regard to the prevention of dust, and immediate attention to any cut or wound. Every worker who is absent from any cause should at once be seen by a doctor.

Regulations.

Disinfection.

Disinfection either by a germicide or by steam of the raw material before use has lately been adopted with success.

The result of the experiments of Dr. F. W. Eurich on behalf of the Bradford and District Anthrax Investigation Board is that there are three disinfectants in which the material may be steeped with success before being washed, if in a loose state so as to allow thorough penetration. These are cyllin, formic-aldehyde, and Leach's fluid.

Germicides.

Steam.

Disinfection by steam has been found efficacious in horsehair factories in Germany. At a pressure of 2¼ lbs. it is found the material does not suffer, and bales may be disinfected in bulk if not hydraulically packed. See the recent regulations as to the use of horsehair where steam disinfection is allowed (p. 176).

Blood-stained material.

There is no doubt that dust becoming detached from infected material is the chief source of anthrax as an industrial disease. But the theory of dust must now be remodelled. It has been thought for some years that dust from the infected soil is the " carrier " of the germ, but the recent experiments and investigations of Dr. Eurich point

to the fact that it is blood-stained material that is dangerous. The germ is in the blood, which when dry may take the form of dust. Moreover, ordinary washing does not always remove it: or it may be caught up again as the wool leaves the wash-bowl, and when dried is again fixed in the material. So that those who handle the material after it is washed, the corders and combers, are exposed to the risk.

It seems also that the germicides do not kill the bacilli and spores in the congealed blood, so that the remedy appears to be the careful elimination of all blood-stained material, which should be destroyed.

(See the Third Annual Report of the Bradford and District Anthrax Investigation Board, Oct. 31, 1908.)

Three sets of Regulations and one set of Special Rules are in force in the wool and horsehair industries.

REGULATIONS [1] FOR THE PROCESSES OF SORTING, WILLEYING, WASHING, COMBING, AND CARDING WOOL, GOAT HAIR, AND CAMEL HAIR, AND PROCESSES INCIDENTAL THERETO.

1905. No. 1,293.

Whereas the processes of sorting, willeying, washing, and combing and carding wool, goat-hair, and camel-hair and processes incidental thereto have been certified, in pursuance of Section 79 of the Factory and Workshop Act, 1901,[2] to be dangerous:

I hereby in pursuance of the powers conferred on me by that Act make the following Regulations, and direct that they shall apply to all factories and workshops in which the said processes are carried on, and in which the materials named in the Schedules are used.

[1] These Regulations were gazetted December 19, 1905.

[2] 1 Edw. 7, c. 22.

It shall be the duty of the occupier to comply with Regulations 1 to 16. It shall be the duty of all persons employed to comply with Regulations 17 to 23.

These Regulations shall come into force on the 1st of January 1906, except that Regulations 2 and 8 shall not come into force until the 1st of April 1906.

Definition.

For the purpose of Regulations 2, 3 and 18, opening of wool or hair means the opening of the fleece, including the untying or cutting of the knots, or, if the material is not in the fleece, the opening out for looking over or classifying purposes.

Duties of Occupiers.

1. No bale of wool or hair of the kinds named in the Schedules shall be opened for the purpose of being sorted or manufactured, except by men skilled in judging the condition of the material.

No bale of wool or hair of the kinds named in Schedule A shall be opened except after thorough steeping in water.

2. No wool or hair of the kind named in Schedule B shall be opened except (*a*) after steeping in water, or (*b*) over an efficient opening screen, with mechanical exhaust draught, in a room set apart for the purpose, in which no other work than opening is carried on.

For the purpose of this Regulation, no opening screen shall be deemed to be efficient unless it complies with the following conditions :—

(*a*) The area of the screen shall, in the case of existing screens, be not less than 11 square feet, and in the case of screens hereafter erected be not less than 12 square feet, nor shall its length or breadth be less than 3¼ feet.

(*b*) At no point of the screen within 18 inches from the centre shall the velocity of the exhaust draught be less than 100 linear feet per minute.

3. All damaged wool or hair or fallen fleeces or skin wool or hair, if of the kinds named in the Schedules, shall, when opened, be damped with a disinfectant and washed without being willowed.

4. No wool or hair of the kinds named in Schedules B or

C shall be sorted except over an efficient sorting board, with mechanical exhaust draught, and in a room set apart for the purpose, in which no work is carried on other than sorting and the packing of the wool or hair sorted therein.

No wool or hair of the kinds numbered (1) and (2) in Schedule A shall be sorted except in the damp state and after being washed.

No damaged wool or hair of the kinds named in the Schedules shall be sorted except after being washed.

For the purpose of this Regulation, no sorting board shall be deemed to be efficient unless it complies with the following conditions :—

The sorting board shall comprise a screen of open wire-work, and beneath it at all parts a clear space not less than 3 inches in depth. Below the centre of the screen there shall be a funnel, measuring not less than 10 inches across the top, leading to an extraction shaft, and the arrangements shall be such that all dust falling through the screen and not carried away by the exhaust can be swept directly into the funnel. The draught shall be maintained in constant efficiency whilst the sorters are at work, and shall be such that not less than 75 cubic feet of air per minute are drawn by the fan from beneath each sorting board.

5. No wool or hair of the kinds named in the Schedules shall be willowed except in an efficient willowing machine, in a room set apart for the purpose, in which no work other than willowing is carried on.

For the purpose of this Regulation, no willowing machine shall be deemed to be efficient unless it is provided with mechanical exhaust draught so arranged as to draw the dust away from the workmen and prevent it from entering the air of the room.

6. No bale of wool or hair shall be stored in a sorting-room ; nor any wool or hair except in a space effectually screened off from the sorting room.

No wool or hair shall be stored in a willowing room.

7. In each sorting room, and exclusive of any portion screened off, there shall be allowed an air space of at least 1,000 cubic feet for each person employed therein.

8. In each room in which sorting, willowing, or combing

is carried on, suitable inlets from the open air, or other suitable source, shall be provided and arranged in such a way that no person employed shall be exposed to a direct draught from any air inlet or to any draught at a temperature of less than 50° F.

The temperature of the room shall not, during working hours, fall below 50° F.

9. All bags in which wool or hair of the kinds named in the Schedules has been imported shall be picked clean, and not brushed.

10. All pieces of skin, scab, and clippings or shearlings shall be removed daily from the sorting room, and shall be disinfected or destroyed.

11. The dust carried by the exhaust draught from opening screens, sorting boards, willowing or other dust extracting machines and shafts shall be discharged into properly constructed receptacles, and not into the open air.

Each extracting shaft and the space beneath the sorting boards and opening screens shall be cleaned out at least once in every week.

The dust collected as above, together with the sweepings from the opening, sorting, and willowing rooms, shall be removed at least twice a week and burned.

The occupier shall provide and maintain suitable overalls and respirators, to be worn by the persons engaged in collecting and removing the dust.

Such overalls shall not be taken out of the works or warehouse, either for washing, repairs, or any other purpose, unless they have been steeped over-night in boiling water or a disinfectant.

12. The floor of every room in which opening, sorting, or willowing is carried on shall be thoroughly sprinkled daily with a disinfectant solution after work has ceased for the day, and shall be swept immediately after the sprinkling.

13. The walls and ceilings of every room in which opening, sorting, or willowing is carried on shall be limewashed at least once a year, and cleansed at least once within every six months, to date from the time when they were last cleansed.

14. The following requirements shall apply to every room in which unwashed wool or hair of the kinds named in the Schedules after being opened for sorting, manufacturing or washing purposes is handled or stored :—

(*a*) Sufficient and suitable washing accommodation shall be provided outside the rooms and maintained for the use of all persons employed in such rooms. The washing conveniences shall comprise soap, nail brushes, towels, and at least one basin for every five persons employed as above, each basin being fitted with a waste pipe and having a constant supply of water laid on.

(*b*) Suitable places shall be provided outside the rooms in which persons employed in such rooms can deposit food and clothing put off during working hours.

(*c*) No person shall be allowed to prepare or partake of food in any such room. Suitable and sufficient room accommodation shall be provided for workers employed in such rooms.

(*d*) No person having any open cut or sore shall be employed in any such room.

The requirements in paragraph (*c*) shall apply also to every room in which any wool or hair of the kinds named in the Schedules is carded or stored.

15. Requisites for treating scratches and slight wounds shall be kept at hand.

16. The occupier shall allow any of H.M. Inspectors of Factories to take at any time, for the purpose of examination, sufficient samples of any wool or hair used on the premises.

Duties of Persons Employed.

17. No bale of wool or hair of the kinds named in the Schedules shall be opened otherwise than as permitted by paragraph 1 of Regulation 1, and no bale of wool or hair of the kinds named in Schedule A shall be opened except after thorough steeping in water.

If on opening a bale any damaged wool or hair of the kinds named in the Schedules is discovered, the person opening the bale shall immediately report the discovery to the foreman.

18. No wool or hair of the kinds named in Schedule B shall be opened otherwise than as permitted by Regulation 2.

19. No wool or hair of the kinds named in the Schedules shall be sorted otherwise than as permitted by Regulation 4.

20. No wool or hair of the kinds named in the Schedules shall be willowed except as permitted by Regulation 5.

21. Every person employed in a room in which unwashed wool or hair of the kinds named in the Schedules is stored or handled shall observe the following requirements :—

(*a*) He shall wash his hands before partaking of food, or leaving the premises.

(*b*) He shall not deposit in any such room any article of clothing put off during working hours.

He shall wear suitable overalls while at work, and shall remove them before partaking of food or leaving the premises.

(*c*) If he has any open cut or sore, he shall report the fact at once to the foreman, and shall not work in such a room.

No person employed in any such room or in any room in which wool or hair of the kinds named in the Schedule is either carded or stored shall prepare or partake of any food therein, or bring any food therein.

22. Persons engaged in collecting or removing dust shall wear the overalls as required by Regulation 11.

Such overalls shall not be taken out of the works or warehouse either for washing, repairs, or any other purpose, unless they have been steeped over-night in boiling water or a disinfectant.

23. If any fan, or any other appliance for the carrying out of these Regulations, is out of order, any workman becoming aware of the defect shall immediately report the fact to the foreman.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Home Office, Whitehall,
12th December, 1905.

Schedule A.

(Wool or hair required to be steeped in the bale before being opened.)

1. Van Mohair.
2. Persian Locks.
3. Persian or so-called Persian (including Karadi and Bagdad) if not subjected to the process of sorting or willowing.

Schedule B.

(Wool or hair required to be opened either after steeping or over an efficient opening screen.)

Alpaca.
Pelitan.
East Indian Cashmere.
Russian Camel Hair.
Pekin Camel Hair.
Persian or so-called Persian (including Karadi and Bagdad) if subjected to the process of sorting or willowing.

Schedule C.

(Wool or hair not needing to be opened over an opening screen but required to be sorted over a board provided with downward draught.)

All Mohair other than Van Mohair.

REGULATIONS, DATED DECEMBER 18, 1908, MADE BY THE SECRETARY OF STATE, FOR THE USE OF EAST INDIAN WOOL.

In pursuance of Section 79 of the Factory and Workshop Act, 1901, I hereby make the following Regulations, and direct that they shall apply to all factories in which East Indian Wool is used.

These Regulations shall come into force on the 1st January, 1909.

1. It shall be the duty of the occupier to observe Part I. of these Regulations. It shall be the duty of all persons employed to observe Part II. of these Regulations.

PART I.

Duties of Occupiers.

2. No East Indian wool or hair shall be treated in any dust-extracting machine unless such machine is covered over and the cover connected with an exhaust fan so arranged as to discharge the dust into a furnace or into an intercepting chamber.

3. The occupier shall provide and maintain suitable overalls and respirators to be worn by the persons engaged in collecting and removing the dust.

PART II.

Duties of Persons Employed.

4. No person employed shall treat East Indian wool in any dust-extracting machine otherwise than as permitted in Regulation 2.

5. Every person engaged in collecting or removing dust shall wear the overall and respirator provided in accordance with Regulation 3.

6. If any fan, or any other appliance for the carrying out of these Regulations, is out of order, any workman becoming aware of the defect shall immediately report the fact to the foreman.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Home Office, Whitehall,
18th December, 1908.

REGULATIONS, DATED DECEMBER 20, 1907, MADE BY THE SECRETARY OF STATE, IN RESPECT OF PROCESSES INVOLVING THE USE OF HORSEHAIR FROM CHINA, SIBERIA OR RUSSIA.

Whereas processes involving the use of horsehair from China, Siberia, or Russia, have been certified in pursuance of Section 79 of the Factory and Workshop Act, 1901, to be dangerous:

I hereby in pursuance of the powers conferred on me by that Act make the following Regulations and direct that they shall apply to all factories and workshops in which the said processes are carried on.

These Regulations shall come into force on 1 April, 1908.

Definitions.

"Material" means tail or mane horsehair from China, Siberia, or Russia, whether in the raw state or partially or

wholly prepared, notwithstanding that such preparation may have taken place in some country other than those named.

"Disinfection" means—

(*a*) exposure to steam at a temperature not less than 212° F. for at least half an hour, of material so loosened, spread out or exposed as to allow the steam to penetrate throughout; *or*

(*b*) exposure of material to such disinfectant under such conditions of concentration and temperature of the disinfectant, and duration and manner of exposure of the material to it, and otherwise, as are certified to secure the destruction of anthrax spores in all parts of all horsehair subjected to the process. Provided that such a certificate shall have no force unless and until (1) a copy of it has been submitted to the Secretary of State, and (2) a copy of it is kept in the Register required under Regulation 1. Provided further, that any such certificate may at any time be disallowed by the Secretary of State, either generally or with regard to a factory or workshop in which anthrax has occurred.

"Certified" means certified by the director of a bacteriological laboratory recognised by a corporation in the United Kingdom having power to grant diplomas registrable under the Medical Acts, 1858 to 1905.

It shall be the duty of the occupier to observe Part I. of these Regulations.

It shall be the duty of all persons employed to observe Part II. of these Regulations.

PART I.

Duties of Employers.

1. A Register shall be kept containing the prescribed particulars of the disinfection of all material.

2. Material which has not undergone disinfection shall not be stored except in a room set aside for the purpose, in which no other horsehair shall be placed.

3. Material which has not undergone disinfection shall not be opened from the bale or sorted except in a room set aside for the purpose, in which no other horsehair shall be placed; nor shall any such material be opened from the bale, except over or by the side of an efficient screen, or sorted except over an efficient screen.

For the purposes of this regulation no screen shall be deemed to be efficient unless it is provided with an exhaust draught so arranged that at every point of the screen within 18 inches of the centre the velocity of the exhaust draught shall be at least 300 linear feet per minute.

4. No material shall be subjected to any manipulation other than opening or sorting until it has undergone disinfection.

5. Every willowing and dust-extracting machine shall be covered over and provided with efficient exhaust draught so arranged as to carry the dust away from the worker.

6. The dust from the opening and sorting screens, and from the willow or other dust-extracting machines, shall be discharged into furnaces or into chambers so constructed as to intercept the dust.

7. Each extracting shaft and the space beneath the opening and sorting screen shall be cleaned out at least once in every week.

8. All dust collected from the opening and sorting screens shall be burned.

9. There shall be provided and maintained for the use of persons employed on material which has not undergone disinfection—

(*a*) suitable overalls and head coverings, which shall be collected at the end of every day's work, and washed or renewed at least once every week, and shall not be taken out of the works for any purpose whatever unless they have previously been boiled for ten minutes or have undergone disinfection after being last used; and

(*b*) a suitable meal-room, separate from any work-room, unless the works are closed during meal hours; and

(*c*) a suitable cloakroom for clothing put off during working hours; and a suitable place, separate from the cloakroom and meal-room, for the storage of the overalls; and

(*d*) requisites for treating scratches and slight wounds.

10. There shall be provided suitable respirators for the use of persons employed in work necessitated by regulations 6, 7, and 8. Each respirator shall bear the distinguishing mark of the worker to whom it is supplied, and the filtering material shall be renewed after each day on which it is used.

11. There shall be provided and maintained in a cleanly state and in good repair for the use of all persons employed on material which has not undergone disinfection, a lavatory, under cover, with a sufficient supply of clean towels, renewed daily, and of soap and nail brushes, and with either—

(*a*) a trough with a smooth impervious surface, fitted with a waste pipe without plug, and of such length as to allow at least two feet for every five such persons, and having a constant supply of warm water from taps or jets above the trough at intervals of not more than two feet; or

(*b*) at least one lavatory basin for every five such persons, fitted with a waste pipe and plug or placed in a trough having a waste pipe, and having either a constant supply of hot and cold water or warm water laid on, or (if a constant supply of hot water be not reasonably practicable) a constant supply of cold water laid on and a supply of hot water always at hand when required for use by persons employed.

12. No person under 18 years of age shall be employed on material which has not undergone disinfection.

13. No person employed on material which has not undergone disinfection shall be allowed—

(*a*) to work having any open cut or sore; or

(*b*) to introduce, keep, prepare, or partake of any food or drink, or tobacco, in any room in which such material is stored or manipulated.

14. A cautionary notice as to anthrax, in the prescribed form, shall be affixed with these regulations.

PART II.

Duties of Persons Employed.

15. No person employed shall—

(*a*) open, sort, or willow or otherwise manipulate any material except in accordance with the foregoing regulations;

(*b*) introduce, keep, prepare, or partake of any food or drink, or tobacco, contrary to regulation 13 (*b*).

16. Every person employed on material which has not undergone disinfection shall—

(*a*) wear the overall and head covering provided in pursuance of regulation 9 (*a*) while at work, and shall remove them before partaking of food or leaving the premises, and shall deposit in the cloakroom provided in pursuance of regulation 9 (*c*) all clothing put off during working hours ; and

(*b*) wash the hands and clean the nails before partaking of food or leaving the premises ; and

(*c*) report any cut or sore to the foreman, and until it has been treated abstain from work on any such material.

17. Every person employed shall wear the respirator provided in pursuance of regulation 10 while engaged in work necessitated by regulations 6, 7, and 8.

18. If the arrangement for disinfection, or any fan, or any other appliance for the carrying out of these regulations, appears to any workman to be out of order or defective, he shall immediately report it to the foreman.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Home Office, Whitehall,
20th December, 1907.

SPECIAL RULES FOR HANDLING OF DRY AND DRYSALTED HIDES AND SKINS IMPORTED FROM CHINA OR FROM THE WEST COAST OF INDIA.

Duties of Occupier.

1. Proper provision to the reasonable satisfaction of the Inspector in charge of the District shall be made for the keeping of the workmen's food and clothing outside any room or shed in which any of the above-described hides or skins are unpacked, sorted, packed, or stored.

2. Proper and sufficient appliances for washing, comprising soap, basins, with water laid on, nail-brushes and towels, shall be provided and maintained for the use of the workmen, to

the reasonable satisfaction of the Inspector in charge of the District.

3. Sticking plaster and other requisites for treating scratches and slight wounds shall be kept at hand, available for the use of the persons employed.

4. A copy of the appended notes shall be kept affixed with the Rules.

Duties of Persons Employed.

5. No workman shall keep any food, or any articles of clothing other than those he is wearing, in any room or shed in which any of the above-described hides or skins are handled.

He shall not take any food in any such room or shed.

6. Every workman having any open cut or scratch or raw surface, however trifling, upon his face, head, neck, arm, or hand shall immediately report the fact to the foreman, and shall not work on the premises until the wound is healed or is completely covered by a proper dressing after being thoroughly washed.

LEAD POISONING OR ITS SEQUELÆ.

Description of Process.—Any process involving the use of lead or its preparations or compounds.

Further Description of Process in the Order of May 22, 1907.—Handling of lead or its preparations or compounds.

Lead and its compounds (especially the oxide and carbonate, on account of their solubility) are extremely poisonous to the human system, and being used in many industries, lead poisoning is a widespread complaint.

It is used in many articles of daily use, and may be present in our food and drink so that we are all more or less exposed to the risk of plumbism.

It may enter the system either through—

(1) the intestinal tract, or

(2) the lungs, or possibly

(3) the skin, by absorption—though this is doubtful and does not occur industrially.

The more soluble the compound, the greater is the danger: on reaching the stomach it is acted on by the hydrochloric acid of the gastric juice and is absorbed into the system.

Lead poisoning is divided into *acute* and *chronic*, according to the time the symptoms take to develop, which depends upon the amount and frequency of the doses.

Symptoms.

Lead is an insidious poison: the salts and compounds are mostly tasteless, so that the patient becomes seriously ill without any warning. There are many symptoms which, though occasionally obscure, are usually easily recognised.

The most prominent early symptoms are pallor and colic.

Pallor or *Saturnine cachexia* is due to anæmia, which gradually increases until the features become quite expressionless. In time a healthy person becomes pallid, complains of a metallic or sweet taste in the mouth, especially early in the morning, and has in consequence a distaste for food. This pallor occurs more or less in all cases of lead poisoning, and may be very serious.

Colic is a common symptom which varies very much in severity. It consists of pains in the abdomen, accompanied by vomiting and constipation. Sometimes the pain is not very great: more often the patient is in agony. Colic provides 75 per cent. of the notifications of plumbism.

Blue Line.

Another characteristic of lead absorption is a *blue line* along the edge of the gums, close to the teeth, which is caused by a deposit of sulphide of lead in the tissue cells. It is very persistent, and lasts for months in spite of mouth washes.

The mere presence of blue line must not be taken as conclusive evidence of lead poisoning: it may be present for a long time without any symptom of lead poisoning, but with the other symptoms described is a most valuable aid to diagnosis: so valuable an indication is it that the discovery of blue line amongst persons employed points to imminent risk and the necessity for precautionary measures.

The most serious results of lead poisoning are seen in its

effects upon the nervous system, and include two characteristic symptoms : *Paralysis* and *Encephalopathy*.

Paralysis.

After one or more attacks of colic or headache, and sometimes without any warning, a lead worker loses the power of his muscles—especially of the arms, and more rarely of the legs. This symptom is usually described as "wrist-drop." The hands hang powerless : both are usually affected, though not in equal degrees, the amount of exercise to which a muscle is exposed often determining the extent of the paralysis. Thus in the case of file-cutters it is the small muscles of the thumbs and fingers which are affected first, in consequence of the manner in which the mallet and chisel are gripped. In severe cases other muscles also become paralysed, and the patient is helpless and his condition dangerous.

Recovery cannot be expected in less than three months, and incapacity often continues for more than a year, but there is a larger percentage of recoveries in paralysis due to lead than in ordinary paralysis : most of the reported cases are described as "partial."

Encephalopathy.

The greatest danger to life in lead poisoning arises from cerebral symptoms known as encephalopathy, a term which includes insanity (mania and delirium), optic neuritis (partial or complete blindness), coma, convulsions, and nervous depression. Women are more prone to it than men : they may be suddenly taken with convulsions and die within a day or two, or be left with blindness, paralysis, or mania. In such cases hysteria is sometimes a warning symptom.

Men suffer to a less extent, but there are in our asylums some who owe their condition to the effects of lead poison.

Chronic lead poisoning.

Chronic lead poisoning, which is due to long exposure and the accumulation of small doses, is no less serious and deadly than the acute form.

Granular kidney.

There follows as a result of continued lead absorption a thickening of the arteries (*arterio sclerosis*), which gradually affects the action of the heart, and a form of kidney disease known as "granular kidney" (known also as chronic

Bright's disease and chronic interstitial nephritis), which is a fibroid change causing contraction and hardening of the kidney due to the action of the poison. As mentioned above (p. 12), granular kidney is not a distinctive sequela of lead, but is also found as a result of other complaints.

Other symptoms.

The symptoms of anæmia, colic, headache, wrist-drop, or failure of sight (albuminuric retinitis) are usually present, and death often ensues as a result of the kidney disease or consequent apoplexy (cerebral hæmorrhage).

Predisposition.

Predisposition varies greatly in different individuals.

Prior attack.

One attack is found to predispose to another. A worker in lead should not return to his work too soon after recovery from an attack of any kind. Better could he find other employment.

Alcohol.

Alcohol predisposes : it stops elimination of lead from the system, and increases the risk of its taking effect. Many cases are found amongst alcoholic subjects, and it is not easy to determine how much is due to lead and how much to alcoholic poisoning. It is important to ascertain the alcoholic history of every case.

Age and sex.

Young persons suffer more than adults : they seem to have less power of resistance. Women are more susceptible than men, and the number of cases amongst young women aged eighteen and under has been very marked.

Lead has a well-known tendency to produce miscarriage. In a lesser degree it is said to affect the reproductive powers of men.

For these reasons the employment of women is forbidden in most of the lead processes to which the codes of regulations and special rules apply.

Prevention.

Strict compliance with these rules and the provisions therein for localised exhaust ventilation, cleanliness, washing of hands before taking food, and periodic medical examination, accompanied with temperance and change of employment from time to time, are the only effective methods of preventing cases of poison.

Industries which Cause Lead Poisoning.

Smelting of Metals.

Lead smelters, especially the furnace-men, are liable to lead poisoning from inhaling fumes containing oxide of lead. The lead fume is generally conducted into a large flue, which allows the deposit of the oxide and sulphate, which can be recovered and used. The cleaning of these flues caused so much plumbism amongst the men engaged that the special rules now in force prohibit more than two hours' work in a flue without a rest of half an hour before re-entering the flue.

There is a percentage of silver in lead ore which can be extracted profitably, and desilvering works are included in the term "lead-smelting."

About two-thirds of the cases reported under the head of "smelting of metals" occur in lead smelting works: and most of the remainder in spelter works for the refining of zinc. The danger from fumes is much greater where old scrap lead, such as old lead piping, tea lead, old cisterns, &c., is smelted, than where pure pig lead is used.

Special Rules for Lead Smelting.

Duties of Occupiers.

They shall provide respirators and overall suits for the use of all persons employed in cleaning the flues, and take means to see that the same are used.

They shall arrange that no person be allowed to remain at work more than two hours at a time in a flue. (A rest of half an hour before re-entering will be deemed sufficient.)

They shall provide sufficient bath accommodation for all persons employed in cleaning the flues, and every one so employed shall take a bath before leaving the works.

They shall provide washing conveniences, with a sufficient supply of hot and cold water, soap, nail-brushes and towels.

Duties of Persons Employed.

In cases where the co-operation of the workers is required for carrying out the foregoing rules, and where such co-operation is not given, the workers shall be held liable in accordance with the Factory and Workshop Act, 1891, Section 9, which runs as follows:—

> "If any person who is bound to observe any special rules established for any factory or workshop under this Act, acts in contravention of, or fails to comply with, any such special rule, he shall be liable on summary conviction to a fine not exceeding two pounds."

Printing (including type-casting).

Owing to the increase of machine printing in newspaper and periodical work, cases of lead poisoning in the printing trade are not now very numerous. About sixteen cases are reported annually amongst (it is said) something like a quarter of a million persons engaged in the trade.

Type metal contains about 70 per cent. of lead, the remaining constituents being tin, copper and antimony. In type founding machines pure lead is used.

It is not easy to assign the precise origin of the poison: it may result from fumes given off from the melting pot, and consequent oxidation of the metal, or from dust in the compositor's box, or from type being held in the mouth.

It is somewhat rare to find the blue line which is characteristic of fumes or dust, and it has often been remarked that compositors suffer from the chronic form of the complaint, and that acute plumbism does not usually occur.

The symptoms are generally colic, anæmia, fatigue, and metallic taste leading gradually to motor and sensory troubles and paralysis.

Pulmonary disease, such as tuberculosis, tends to complicate the case in printers, due, no doubt, to badly ventilated and lighted workshops. Exhaust ventilation should

be applied to linotype pots. No food should be eaten in the workshops, and washing the hands before eating is important.

File-cutting.

Machine-made files are gradually supplanting files made by hand. In America, for instance, file-cutting is entirely done by machinery, and lead poisoning is unknown amongst the operatives there. This is reflected in the number of reported cases of lead poisoning in this industry, which, it will be seen on referring to the table on page 161, show a decrease during the last few years.

File-cutting by machinery is not here dealt with, as there is no danger of lead poisoning, the "bed" being made of spelter instead of lead, and the workshops being modern and well ventilated.

Even if decreasing, file-cutting by hand is still a large industry in this country; the centre of the trade is at Sheffield, though it is carried on also in London, Glasgow, and Birmingham. It has long been regarded as a dangerous industry, and has been so certified by the Home Secretary.

The worker is seated at what is known in the trade as a "stock," which is a stone block in the centre of which a smaller steel block, or "stiddy," is inserted, slightly raised above the stock. Upon the stiddy the file to be cut is placed, and each individual tooth is formed by the stroke of a heavy hammer on a chisel. In order to support the file a substance between the file and the stiddy is necessary which will give resistance without being so hard as to cause recoil. For this purpose a piece of lead, known as the lead "bed" is used, and is prevented by chalk from slipping from the stock.

When one face of the file is cut, charcoal is rubbed on it, and when both faces are finished, it is thoroughly brushed.

This lead bed is the origin of the danger. Many substitutes for lead have been tried, but without great success, as they do not afford the right degree of resistance. The

mischief is aggravated by the conditions under which the work is usually carried on : bad ventilation, crowding, dirt, the licking of the fingers to hold the chisel, the constant brushing of the file, and other insanitary conditions all produce low vitality. The workmen may be inhaling a dust containing lead, chalk, charcoal and other ingredients : they are naturally careless, rarely washing their hands, and eating their meals in the shops.

The symptoms in this trade are the usual symptoms of chronic lead poisoning, and can be very severe ; when wrist-drop develops, the workman must, of course, give up his trade. As to this, see p. 182, supra.

The cure for the disease in this trade would be a substitute for the lead bed, but proper attention to cleanliness and general sanitation would make great improvement.

The regulations of 1903 recognise this by regulating the air space, the distance between the stocks, ventilation, lavatory appliances, lime-washing of the walls and ceilings, and the washing of floors and benches. The recommendation of the Departmental Committee in 1898 that no food or meal should be taken into or eaten in a file-cutting shop was not adopted in the special rules, owing to the hardship it would inflict on many workers, but there is a rule that where the workshop is situated in a dwelling-house file-cutting shall not be carried on in any room which is used as a sleeping-place or for cooking or eating meals.

Regulations [1] for the Process of File-Cutting by Hand.

1903. No. 507.

Whereas the process of file-cutting by hand has been certified in pursuance of section 79 of the Factory and Workshop Act, 1902,[2] to be dangerous :

I hereby, in pursuance of the powers conferred on me by that Act, make the following regulations, and direct that they

[1] These Regulations were gazetted June 23, 1903.
[2] 1 Edw. 7, c. 22.

shall apply to all factories and workshops (including tenement factories and tenement workshops) or parts thereof in which the process of file-cutting by hand is carried on: Provided that the Chief Inspector of Factories may by certificate in writing exempt from all or any of these regulations any factory or workshop in which he is satisfied that the beds used are of such composition as not to entail danger to the health of the persons employed.

1. The number of stocks in any room shall not be more than one stock for every 350 cubic feet of air space in the room; and in calculating air space for the purpose of this regulation any space more than 10 feet above the floor of the room shall not be reckoned.

2. After the 1st of January, 1904, the distance between the stocks measured from the centre of one stock to the centre of the next shall not be less than 2 feet 6 inches, and after the 1st day of January, 1905, the said distance shall not be less than 3 feet.

3. Every room shall have a substantial floor, the whole of which shall be covered with a washable material, save that it shall be optional to leave a space not exceeding 6 inches in width round the base of each stock.

The floor of every room shall be kept in good repair.

4. Efficient inlet and outlet ventilators shall be provided in every room. The inlet ventilators shall be so arranged and placed as not to cause a direct draught of incoming air to fall on the workmen employed at the stocks.

The ventilators shall be kept in good repair and in working order.

5. No person shall interfere with or impede the working of the ventilators.

6. Sufficient and suitable washing conveniences shall be provided and maintained for the use of the file-cutters. The washing conveniences shall be under cover and shall comprise at least one fixed basin for every ten or less stocks. Every basin shall be fitted with a waste pipe discharging over a drain or into some receptacle of a capacity at least equal to one gallon for every file-cutter using the basin. Water shall be laid on to every basin either from the main or from a tank of a capacity of not less than 1½ gallons to every worker supplied from such tank. A supply of clean water shall be kept in the said tank while work is going on at least sufficient to enable every worker supplied from such tank to wash.

7. The walls and ceiling of every room, except such parts as are painted or varnished or made of glazed brick, shall be limewashed once in every six months ending the 30th of June and once in every six months ending the 31st of December.

8. The floor and such parts of the walls and ceiling as are not limewashed and the benches shall be cleansed once a week.

9. If the factory or workshop is situated in a dwelling-house the work of file-cutting shall not be carried on in any room which is used as a sleeping place or for cooking or eating meals.

10. Every file-cutter shall when at work wear a long apron reaching from the shoulders and neck to below the knees. The apron shall be kept in a cleanly state.

11. A copy of these regulations and an abstract of the provisions of the Factory and Workshop Act, 1901, shall be kept affixed in the factory or workshop in a conspicuous place.

12. It shall be the duty of the occupier to carry out Regulations 1, 2, 3, 4, 6, 7, and 11 : except that, in any room in a tenement factory or tenement workshop which is let to more than one occupier, it shall be the duty of the owner to carry out these regulations, except the last clause of Regulation 6, which shall be carried out by the occupiers.

It shall be the duty of the occupier or occupiers to carry out Regulation 8.

It shall be the duty of the occupier or occupiers and of every workman to observe Regulations 5, 9, and 10.

These regulations shall come into force on the 1st day of September, 1903

A. Akers-Douglas,
One of His Majesty's Principal
Secretaries of State.

Home Office, Whitehall.
19th June, 1903.

Vitreous Enamelling of Metal and Glass.

The whole of the enamelling trade has recently been put under regulations. There are three principal industries connected with enamelling :—

(i) *Enamelling of metal hollow-ware.*—Metal articles for household and cooking purposes are now enamelled with

leadless glaze, so that no danger arises any longer in this industry, and no cases of lead-poisoning are reported.

(ii) *Enamelling of iron plates.*—This industry consists of making enamelled signs and advertisements. The iron plate is smeared with gum and water, and then a fine powder is sifted on to it. This powder may or may not contain lead : if it does it is usually in the proportion of about 25 per cent. The plate is then burnt in the furnace, and the powder melts. The next process is that known as "swilling." The colour, which usually contains lead, is put on with a broad brush, and is gone over with a finer brush, and finally smoothed with a dry camel's hair brush. This coating of colour is dried at a moderate temperature. Up to this point there is not much danger. It is the succeeding process—the stencilling—which causes the risk. The workers (mostly women) place the stencil which forms the letters or pattern on the plate and rub off the enamel colour with a nail brush. This comes off in a thick dust which hangs in the atmosphere, and is consequently inhaled and may result in severe plumbism. The work is now required to be done on grids or perforated tables with a down draught, which intercepts the dust and prevents its rising into the atmosphere.

The colours are chiefly made with red lead or other compounds of lead. As much as 33 per cent. of lead is used, while 25 per cent. is usual, though the manufacturers are now reducing the quantity.

If more than one colour is used the process is repeated.

(iii) *Porcelain enamelling of baths and iron plates for stoves, cisterns and pipes.*—This is an industry largely carried on in the Glasgow district. The lead is invariably fritted, or the number of reported cases would be higher than it is. An analysis of a fritt by Dr. Thorpe showed 28·66 per cent. of lead oxide in a loose state of combination with silica, and therefore highly soluble.

Annual Report, 1902, p. 311.

The iron bath or other article is made red hot in a furnace, and then powdered all over with the fritt ground to a

fine powder from a sieve held by a long handle. It is turned mechanically so as to allow of an equal distribution of the powder. The sieving operation lasts only two or three minutes, during which time the fine particles of glaze rise and are deposited about the rooms as soon as they reach a colder layer of air. When powdered the article is again put into the furnace. Danger arises in the mixing of the fritt, and in the whole industry, which is a very dusty one. A certain number of cases are reported every year. Some firms dispense with lead in the enamels used, but this is very rare in the case of black enamels.

REGULATIONS, DATED DECEMBER 18, 1908, MADE BY THE SECRETARY OF STATE FOR VITREOUS ENAMELLING METAL OR GLASS.

Whereas the process of vitreous enamelling of metal or glass has been certified in pursuance of section 79 of the Factory and Workshop Act, 1901, to be dangerous;

I hereby, in pursuance of the powers conferred on me by that Act, make the following Regulations, and direct that they shall apply to all factories and workshops in which vitreous enamelling of metal or glass is carried on.

Provided that nothing in these Regulations shall apply to—

(*a*) the enamelling of jewellery or watches; or

(*b*) the manufacture of stained glass; or

(*c*) enamelling by means of glazes or colours containing less than one per cent. of lead.

These Regulations shall come into force on 1st April, 1909.

Definitions.

In these Regulations—

"Enamelling" means crushing, grinding, sieving, dusting, or laying on, brushing or woolling off, spraying, or any other process for the purpose of vitreous covering and decoration of metal or glass;

"Employed" means employed in enamelling;

"Surgeon" means the Certifying Factory Surgeon of the district or a duly qualified medical practitioner appointed by written certificate of the Chief Inspector of Factories, which

appointment shall be subject to such conditions as may be specified in that certificate ;

" Suspension " means suspension by written certificate in the Health Register, signed by the surgeon, from employment in any enamelling process.

Duties.

It shall be the duty of the occupier to observe Part I. of these Regulations.

It shall be the duty of all persons employed to observe Part II. of these Regulations.

PART I.

Duties of Employers.

1. Every room in which any enamelling process is carried on—

(*a*) shall contain at least 500 cubic feet of air space for each person employed therein, and in computing this air space no height above 14 feet shall be taken into account ;

(*b*) shall be efficiently lighted, and shall for this purpose have efficient means of lighting both natural and artificial.

2. In every room in which any enamelling process is carried on—

(*a*) the floors shall be well and closely laid, and be maintained in good condition ;

(*b*) the floors and benches shall be cleansed daily and kept free of collections of dust.

3. No enamelling process giving rise to dust or spray shall be done save either—

(*a*) under conditions which secure the absence of dust and spray ; or

(*b*) with an efficient exhaust so arranged as to intercept the dust or spray and prevent it from diffusing into the air of the room.

4. Except in cases where glaze is applied to a heated metallic surface, dusting or laying on, and brushing or woolling off, shall not be done except over a grid with a receptacle beneath to intercept the dust falling through.

5. If firing is done in a room not specially set apart for the

purpose, no person shall be employed in any other process within 20 feet from the furnace.

6. Such arrangements shall be made as shall effectually prevent gases generated in the muffle furnaces from entering the workrooms.

7. No child or young person under 16 years of age shall be employed in any enamelling process.

8. A Health Register, containing the names of all persons employed, shall be kept in a form approved by the Chief Inspector of Factories.

9. Every person employed shall be examined by the Surgeon once in every three months (or at such other intervals as may be prescribed in writing by the Chief Inspector of Factories) on a date of which due notice shall be given to all concerned.

10. The Surgeon shall have power of suspension as regards all persons employed, and no person after suspension shall be employed without written sanction from the Surgeon entered in the Health Register.

11. There shall be provided and maintained for the use of all persons employed—

(*a*) suitable overalls and head-coverings which shall be collected at the end of every day's work, and be cleaned or renewed at least once every week ;

(*b*) a suitable place, separate from the cloakroom and meal-room, for the storage of the overalls and head-coverings ;

(*c*) a suitable cloakroom for clothing put off during working hours ;

(*d*) a suitable meal-room separate from any room in which enamelling processes are carried on, unless the works are closed during meal hours.

12. There shall be provided and maintained in a cleanly state and in good repair, for the use of all persons employed, a lavatory under cover, with a sufficient supply of clean towels, renewed daily, and of soap and nail brushes, and with either—

(*a*) a trough with a smooth, impervious surface, fitted with a waste pipe without plug, and of such length as to allow at least two feet for every five such persons, and having a constant supply of warm water from taps or jets above the trough at intervals of not more than two feet ; or

(*b*) at least one lavatory basin for every five such persons

fitted with a waste pipe and plug or placed in a trough having a waste pipe, and having either a constant supply of hot and cold water or warm water laid on, or (if a constant supply of heated water be not reasonably practicable) a constant supply of cold water laid on and a supply of hot water always at hand when required for use by the persons employed.

13. The occupier shall allow any of H.M. Inspectors of Factories to take at any time sufficient samples for analysis of any enamelling material in use or mixed for use.

Provided that the occupier may at the time when the sample is taken, and on providing the necessary appliances, require the Inspector to take, seal and deliver to him a duplicate sample.

No results of any analysis shall be published without the consent of the occupier, except such as may be necessary to prove the presence of lead when there has been infraction of the Regulations.

PART II.

Duties of Persons Employed.

14. Every person employed shall—

(*a*) present himself at the appointed time for examination by the Surgeon as provided in Regulation 9 ;

(*b*) wear the overall and head-covering provided under Regulation 11 (*a*), and deposit them and clothing put off during working hours, in the places provided under Regulation 11 (*b*) and (*c*) ;

(*c*) carefully clean the hands before partaking of any food or leaving the premises ;

(*d*) so arrange the hair that it shall be effectually protected from dust by the head-covering.

15. No person employed shall—

(*a*) after suspension, work in any enamelling process without written sanction from the Surgeon entered in the Health Register ;

(*b*) introduce, keep, prepare, or partake of any food, drink, or tobacco, in any room in which any enamelling process is carried on ;

(*c*) interfere in any way, without the concurrence of the occupier or manager, with the means and appliances provided for the removal of dust or fumes, and for the carrying out of these regulations.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Home Office, Whitehall,
18th December, 1908.

Tinning of Metals.

The coating of metals with lead, or more usually with a mixture of lead and tin, known as "common tinning," has been the cause of many cases of lead poisoning. Pure tinning is also done, but as no lead is used in this process, which differs from common tinning, it is not discussed here.

The mixture of tin and lead used in common tinning varies from 15 to 90 per cent. of lead according to the quality required: pure lead is sometimes used, but the usual mixture contains about 45 to 55 per cent. of lead.

The object of tinning is twofold. In the case of iron kettles, frying-pans, and hollow-ware for cooking purposes it produces a bright and clean surface that does not oxidise: it is also used as a solder, so that other metals may be fused on to it, or to make the joints good.

The metal to be tinned—whether a sheet of brass or an iron utensil—is put into a solution of hydrochloric acid to cleanse it: thence into a solution of zinc chloride containing free hydrochloric acid. It is then "dipped" into the bath of molten lead and tin. It is at this point the danger begins: certain chlorides of lead are formed, and probably vaporised by the heat of the bath, fumes are evolved which contain acid and lead chloride, and there is also some spraying of metal into the workshop. The tinned article is then taken out of the bath, and, while the metal is still liquid, is wiped in order to remove the surplus quantity.

Lead chloride is no doubt given off in the form of vapour from the article being wiped until the molten metal is set.

The dipping and wiping are undoubtedly the most dangerous processes, and where possible should be done under good localised ventilation. The chloride is one of the most soluble of the salts of lead.

Another source of danger arises from the dross or skimmings, which are removed from the dipping bath from time to time to clear the surface of the molten metal. These skimmings are small in quantity, but they too, when hot, evolve lead chloride, and should be kept under the exhaust. When cold they become very dusty, and should be removed from under the exhaust with care, to prevent the dust, which is largely lead oxide, from rising into the air of the workshop.

The presence of lead chloride in the fumes is undoubtedly the chief source of danger in common tinning. Its discovery is due to the careful experiments of Mr. G. E. Duckering, who is a factory inspector and an expert chemist. His work is important, because to have found the origin of the danger is a practical step towards its remedy.[1] Lead dust must not be forgotten as a serious, if secondary, cause. Exhaust ventilation will help to remedy both.

The symptoms of lead poisoning in this trade are chronic: anæmia and colic (accompanied by blue line), and paresis (especially wrist-drop), are common: a large proportion of cases are classed as severe: brain symptoms and fatal cases are rare.

An inquiry has lately been held as to the regulations to be enforced in this trade, but they are not yet published, and cannot therefore be included in this book.

The three principal industries in tinning which it is proposed to bring under regulations are:—

[1] See Tinning of Metals: Special Report by Dr. Legge (Medical Inspector of Factories) and Miss Anderson (Principal Lady Inspector), 1907. This report gives the details of Mr. Duckering's experiments.

(i) *Tinning of Metal Hollow-ware.*

The dipping bath should be under a hood or chimney with a good up-draught, and so arranged that when the article—generally a kettle or frying-pan—is taken out of the bath, it can be wiped without being brought into the air of the work-shop. In other words, the exhaust should extend over the wiping stand.

Women are sometimes employed in this industry, but cases of lead poisoning have been proportionately so numerous amongst them that they will probably be prohibited from dipping and wiping.

The Home Office reports 91 cases during ten years in the hollow-ware industry, of which 54 were women. The percentage that these figures represent is difficult to ascertain, as the number of persons employed in the dangerous processes is uncertain. One person can tin and wipe work which takes about twelve men to make. All but four of the 91 cases occurred amongst dippers and wipers.

Dr. Collis (now assistant medical inspector) examined 27 workers in seven years: found 20 of them showing signs of lead absorption and reported 17 cases, of which 12 were women (one fatal). Second attacks are included in these figures.

(ii) *Tinning of Iron Drums.*

Drums are made from terne plates, which are purchased already tinned by a harmless process. They have to be quite air-tight, as they are intended to hold wet paints and oils. After they are made, their joints and seams are soldered by being dipped in a broad, shallow bath (often containing pure lead), and then wiped. The bath should have good localised ventilation, and the wiping should also be done under its influence.

The iron kegs made in this trade are intended for dry substances, and are not soldered, or tinned.

The reported cases were 46 in ten years, but here again

the percentage is difficult to ascertain. Women are not employed.

(iii) *Tinning of Harness Furniture.*

The iron hame, bit or spur is dipped in a bath as in other tinning. If there is a chimney over the bath there should not be much danger, as the articles are not usually wiped : the object being to produce a fusible surface upon which the brass, nickel, or silver plating can be welded. The thin brass or nickel sheet is also tinned for the same purpose, and this is more dangerous, as it is often too large to dip and wipe effectually under the exhaust. The plating is done with a soldering iron, and does not seem to be dangerous : possibly the iron is not made hot enough to create lead vapour. In close silver plating the silver sheet is not tinned : there seems no risk in this part of the trade, which, owing to the increase of electro-plating, is a small one.

The number of cases reported to the Home Office for the ten years is 23, which probably does not give a high percentage. The tinning is done intermittently : the men who do the plating do their own tinning.

The Manufacture of White Lead.

White lead (carbonate of lead) is the most dangerous of all the soluble compounds of lead. It is a fine white powder, and is in great demand for making paint, for plumbing, and for making the glaze for pottery. Sulphate of lead (which is made by oxidising lead sulphide) and oxide of zinc have both been introduced as substitutes for white lead, but white lead is superior as a pigment both in colour and durability, and maintains its supremacy in the market. It may be taken into the body in many ways, of which its inhalation in the form of dust is the most frequent. From a reference to the table on p. 161, it will be seen that white lead and pottery works supply the largest number of reported cases of lead poisoning.

White lead is usually manufactured by the old Dutch process, which is the only method necessary to describe: variations are sometimes used, but the object of them all is to carbonate metallic lead by means of carbonic acid.

Metallic or blue lead is melted, and cast into thin sheets, called "wickets," or "crates," which are put into "stacks" or "blue beds" for corrosion. The stack is a brick building: the floor is covered with tan, on which are placed stoneware pots filled with dilute acetic acid, and these are covered with four or five layers of wickets. The whole is then covered over with boards forming a second floor upon which fresh layers of tan, pots, and wickets are again arranged. These layers are continued till the stack is full, when it is closed for some ten to fifteen weeks, during which corrosion takes place owing to the tan heating and evolving carbonic acid and volatilising the acetic acid. The action, which is not quite understood, continues till all the lead is corroded, or all the acetic acid is volatilised.

Before being removed the corroded wickets must be wetted to prevent the dust they would create in their dry state. They are then crushed between rollers and washed to separate the white lead from any remaining blue lead. The white lead is then passed with a current of water to a mill where it is ground up and run into a series of tanks or "washbecks," where the water is drawn off and the white lead put into pans and placed in drying ovens or "stoves." The stoves are emptied after some three or four days, when the material is dry, and it is packed in casks. The emptying and packing is a very dusty operation, and has caused more severe and fatal cases than any other process.

When white lead has to be made into paint in the same factory in which it is manufactured, a method is sometimes used which does away with the necessity of stoving. Instead of the washing, drying and packing processes, the white lead is ground and washed in water at once, and put through rollers into oil, till the water is displaced by the oil, and the white lead is converted into paint. This method

gets rid of the most serious dusty processes, and also is a saving of labour.

The danger of this industry chiefly occurs in the stripping of the stacks or white beds, in the stoves and packing, and at the rollers and washbecks. Much of the work was formerly done by women, but since the special rules of 1899 no woman may be employed in these processes or in any work exposing her to white lead dust. It will be noticed that the special rules provide for supplying pipes to the stacks and the watering of the white beds : for ventilation of the stoves and in the packing process : and persons employed for more than a week must be examined by an appointed surgeon who has power to order suspension.

SPECIAL RULES FOR THE MANUFACTURE OF WHITE LEAD.

In these Rules " person employed in a lead proceess " means a person who is employed in any work or process involving exposure to white lead, or to lead or lead compounds used in its manufacture, or who is admitted to any room or part of the factory where such process is carried on.

Any approval given by the Chief Inspector of Factories in pursuance of Rules 2, 4, 6, 9, or 12 shall be given in writing, and may at any time be revoked by notice in writing signed by him.

Duties of Occupiers.

1. On and after July 1st, 1899, no part of a white lead factory shall be constructed, structurally altered, or newly used, for any process in which white lead is manufactured, or prepared for sale, unless the plans have previously been submitted to and approved in writing by the Chief Inspector of Factories.

2.—(*a*) Every stack shall be provided with a standpipe and movable hose, and an adequate supply of water distributed by a rose.

(*b*) Every white bed shall, on the removal of the covering boards, be effectually damped by the means mentioned above.

Where it is shown to the satisfaction of the Chief Inspector of Factories that there is no available public water service in

the district, it shall be a sufficient compliance with this Rule if each white bed is, on the removal of the covering boards, effectually damped by means of a watering can.

3. Where white lead is made by the Chamber Process, the chamber shall be kept moist while the process is in operation, and the corrosions shall be effectually moistened before the chamber is emptied.

4.—(*a*) Corrosions shall not be carried except in trays of impervious material.

(*b*) No person shall be allowed to carry on his head or shoulder a tray of corrosions which has been allowed to rest directly upon the corrosions, or upon any surface where there is white lead.

(*c*) All corrosions before being put into the rollers or wash-becks, shall be effectually damped, either by dipping the tray containing them in a trough of water or by some other method approved by the Chief Inspector of Factories.

5. The flooring round the rollers shall either be of smooth cement or be covered with sheet lead, and shall be kept constantly moist.

6. On and after January 1st, 1901, except as hereinafter provided—

(*a*) Every stove shall have a window or windows, with a total area of not less than 8 square feet, made to open, and so placed as to admit of effectual through ventilation.

(*b*) In no stove shall bowls be placed on a rack which is more than 10 feet from the floor.

(*c*) Each bowl shall rest upon the rack and not upon another bowl.

(*d*) No stove shall be entered for the purpose of drawing until the temperature at a height of 5 feet from the floor has fallen either to 70° F., or to a point not more than 10° F. above the temperature of the air outside.

(*e*) In drawing any stove or part of a stove there shall not be more than one stage or standing place above the level of the floor.

Provided that if the Chief Inspector approves of any other means of ventilating a stove, as allowing of effectual through ventilation, such means may be adopted, notwithstanding paragraph (*a*) of this Rule; and if he approves of any other

method of setting and drawing the stoves, as effectually preventing white lead from falling upon any worker, such method may be followed, notwithstanding paragraphs (*b*) and (*c*) of this Rule.

7. No person shall be employed in drawing Dutch stoves on more than two days in any week.

8. No dry white lead shall be deposited in any place that is not provided either with a cover or with a fan effectually removing the dust from the worker.

9. On and after January 1st, 1900, the packing of dry white lead shall be done only under conditions which secure the effectual removal of dust, either by exhaust fans or by other efficient means approved in each case by the Chief Inspector of Factories.

This rule shall not apply where the packing is effected by mechanical means entirely closed in.

10. The floor of any place where packing of dry white lead is carried on shall be of cement, or of stone set in cement.

11. No woman shall be employed or allowed in the white beds, rollers, washbecks, or stoves, or in any place where dry white lead is packed, or in other work exposing her to white lead dust.

12.—(*a*) A duly qualified medical practitioner (in these Rules referred to as the "Appointed Surgeon") shall be appointed by the occupier for each factory, such appointment to be subject to the approval of the Chief Inspector.

(*b*) No person shall be employed in a lead process for more than a week without a certificate of fitness granted after examination by the Appointed Surgeon.

(*c*) Every person employed in a lead process shall be examined once a week by the Appointed Surgeon, who shall have power to order suspension from employment in any place or process.

(*d*) No person after such suspension shall be employed in a lead process without the written sanction of the Appointed Surgeon.

(*e*) A register in a form approved by the Chief Inspector of Factories shall be kept, and shall contain a list of all persons employed in lead processes. The Appointed Surgeon will enter in the register the dates and results of his examinations of the persons employed, and particulars of any directions given by him. The register shall be produced at any time

when required by H.M. Inspectors of Factories or by the Certifying Surgeon or by the Appointed Surgeon.

13. Upon any person employed in a lead process complaining of being unwell, the occupier shall, with the least possible delay, give an order upon a duly qualified medical practitioner.

14. The occupier shall provide and maintain sufficient and suitable respirators, overalls and head-coverings, and shall cause them to be worn as directed in Rule 29.

At the end of every day's work they shall be collected and kept in proper custody in a suitable place set apart for the purpose.

They shall be thoroughly washed or renewed every week; and those which have been used in the stoves, and all respirators, shall be washed or renewed daily.

15. The occupier shall provide and maintain a dining-room and a cloak-room in which workers can deposit clothing put off during working hours.

16. No person employed in a lead process shall be allowed to prepare or partake of any food or drink except in the dining-room or kitchen.

17. A supply of a suitable sanitary drink, to be approved by the Appointed Surgeon, shall be kept for the use of the workers.

18. The occupier shall provide and maintain a lavatory for the use of the workers, with soap, nail brushes, and at least one lavatory basin for every five persons employed. Each such basin shall be fitted with a waste pipe. There shall be a constant supply of hot and cold water laid on, except where there is no available public water service, in which case the provision of hot and cold water shall be such as shall satisfy the Inspector in charge of the district.

The lavatory shall be thoroughly cleaned and supplied with clean towels after every meal.

There shall, in addition, be means of washing in close proximity to the workers of each department, if required by notice in writing from the Inspector in charge of the district.

There shall be facilities, to the satisfaction of the Inspector in charge of the district, for the workers to wash out their mouths.

19. Before each meal, and before the end of the day's work,

at least ten minutes in addition to the regular meal times, shall be allowed to each worker for washing.

A notice to this effect shall be affixed in each department.

20. The occupier shall provide and maintain sufficient baths and dressing rooms for all persons employed in lead processes, with hot and cold water, soap, and towels, and shall cause each such person to take a bath once a week at the factory.

A bath register shall be kept, containing a list of all persons employed in lead processes, and an entry of the date when each person takes a bath.

This register shall be produced at any time when required by H. M. Inspectors of Factories or by the Certifying Surgeon or by the Appointed Surgeon.

21. The dressing-rooms, baths, and w.c.'s shall be cleaned daily.

22. The floor of each workroom shall be cleaned daily, after being thoroughly damped.

Duties of Persons Employed.

23. No person shall strip a white bed or empty a chamber without previously effectually damping as directed in Rules 2 and 3.

24. No person shall carry corrosions, or put them into the rollers or washbecks, otherwise than as permitted by Rule 4.

25. No person shall set or draw a stove otherwise than as permitted by Rules 6 and 7.

26. No person shall deposit or pack dry white lead otherwise than as permitted by Rules 8 and 9.

27. Every person employed in a lead process shall present himself at the appointed times for examination by the Appointed Surgeon, as provided in Rule 12.

28. No person, after suspension by the Appointed Surgeon, shall work in a lead process without his written sanction.

29. Every person engaged in—

White beds,
Emptying chambers,
Rollers, washbecks, or grinding,
Setting or drawing stoves,
Packing,
Paint mixing,
Handling dry white lead,

or in any work involving exposure to white lead dust, shall, while so occupied, wear an overall suit and head-covering.

Every person engaged in stripping white beds, or in emptying chambers, or in drawing stoves, or in packing, shall in addition wear a respirator while so occupied.

30. Every person engaged in any place or process named in Rule 29 shall, before partaking of meals or leaving the premises, deposit the overalls, head-coverings, and respirators in the place appointed by the occupier for the purpose, and shall thoroughly wash face and hands in the lavatory.

31. Every person employed in a lead process shall take a bath at the factory at least once a week, and wash in the lavatory before bathing; having done so, he shall at once sign his name in the bath register, with the date.

32. No person employed in a lead process shall smoke or use tobacco in any form, or partake of food or drink, elsewhere than in the dining-room or kitchen.

33. No person shall in any way interfere, without the knowledge and concurrence of the occupier or manager, with the means and appliances provided for the removal of dust.

34. The foreman shall report to the manager, and the manager shall report to the occupier, any instance coming under his notice of a worker neglecting to observe these Rules.

35. No person shall obtain employment under an assumed name or under any false pretence.

The Manufacture of China and Earthenware.

The use of lead in the glaze of pottery has been a fruitful source of lead poisoning. About nine-tenths of the pottery made in the United Kingdom is made in Staffordshire. The clay is mostly imported from the south coast of Devon, Dorset and Cornwall. The clays used are blue or ball clay, and kaolin, which is a fine white Cornish clay. China and porcelain differ from earthenware in being made from the finer clay, and in containing calcined bones.

When the ware is made it is dried in the air and then placed in "saggers," or large pots, and fired in ovens slowly, so as to prevent any cracking. It is then known as "biscuit." The biscuit is dipped in the glaze and then

decorated (either by transfers or by hand), before a second firing, which is necessary to fix the glaze and give the whole a denser texture.

The glaze is made from a "fritt," which is composed of a hard material, usually silica or felspar vitrified at a high temperature with oxide or carbonate of lead and other compounds, according to ideas of each manufacturer. The fritt is a silicate of lead, and is safer than raw lead, as it is much less soluble. A common fritt, with about 70 per cent. of lead oxide, is not much less soluble than carbonate of lead, but many fritts have been prepared with more silica and other ingredients, and less lead, which stand the solubility tests better.

The fritt is ground, and mixed with water, and forms the liquid glaze in which the biscuit is dipped. The ware absorbs the water, and leaves the solid part of the mixture on the surface, and the whole is then carefully fired a second time.

Very frequently the glaze is made from raw lead (carbonate of lead) without being fritted, which is more dangerous.

After being dipped and dried, the ware is cleaned or scraped, which is a dusty process, and is now usually done over a water trough with an exhaust draught, so that the dust is either exhausted or falls into the water.

Those who chiefly come into contact with lead in this industry are the dippers and dippers' assistants, ware cleaners, glost placers, majolica paintresses, ground layers and colour dusters.

Great controversy has arisen with respect to lead glaze. In May, 1898, Professors Thorpe and Oliver were requested by the Home Secretary to inquire into the use of lead in potteries. They presented their report in 1899, and recommended :—

1. That by far the greater amount of white and cream coloured ware can be glazed without the use of lead in any form.

2. That in certain branches of the pottery industry in which it would be more difficult to dispense with the use of lead compounds, the lead so employed should be in the form of a fritted double silicate which would be but slightly attacked by strong hydrochloric, acetic or lactic acid.

3. The prohibition of raw lead in both glazes and colours.

4. The exclusion of women and young persons from the dangerous processes, and the systematic medical inspection of adult male workers in dangerous processes.

This report must by no means be accepted as conclusive, as it raised a great deal of opposition among the manufacturers, and led to an arbitration at Stoke-upon-Trent before Lord James of Hereford as umpire as to the special rules which the Home Office should enforce. The existing special rules, dated December 30, 1901, and November 28, 1903, are the outcome of that inquiry.

The question of a leadless glaze is not easy. No doubt much of the commoner ware, as, for example, electric insulator fittings, door furniture, and so forth, can be perfectly well made without lead. But for all the better ware and china lead is an almost necessary ingredient. The glaze is most important for making the surface, and its merit depends on getting the right amount of viscosity or running power both before and after the colour is put on. Especially for colours is this essential, or they will not stay. It is quite possible to produce an article that in its new state will deceive all but the expert as being of first-rate quality, but it will not answer the two tests of time and colour painting. The ware contracts faster than the glaze, and in a few years the surface is covered with tiny cracks. This is only to be obviated by producing a substance that will anneal properly with the ware, and no substitute for this purpose equal to lead has been found.

The main controversy, however, was as to the solubility of the fritt. The importance of this is that a non-soluble fritt is much less dangerous than a soluble one, as the lead,

if absorbed into the system, passes away and is not dissolved by the gastric juices. The difficulty is to produce a non-soluble fritt that is practicable for the manufacturers to carry on their industry.

The existing Special Rules impose a 5 per cent. solubility test, which is explained in Rule 2. They also provide that any occupier, by adopting the scheme of compensation in Schedule B, may use a glaze that does not conform to the 5 per cent. test. Supplementary Rules also afford other relaxations of the rules in certain cases.

Schedule B is now superseded by the Workmen's Compensation Act, which applies to all cases, so this matter is in some confusion. Regulations are now to be drafted, but in the meantime the whole question of the use of lead in pottery is referred to a committee, so there may be some delay.

Special Rules[1] for the Manufacture and Decoration of Earthenware and China.

Amended Special Rules established, after Arbitration, by the Awards of the Umpire, Lord James of Hereford, dated December 30, 1901, *and November* 28, 1903.

Duties of Occupiers.

1. Deleted.

2. After the first day of February 1904, no glaze shall be used which yields to a dilute solution of hydrochloric acid more than five per cent. of its dry weight of a soluble lead compound calculated as lead monoxide when determined in the manner described below.

A weighed quantity of dried material is to be continuously shaken for one hour, at the common temperature, with 1,000 times its weight of an aqueous solution of hydrochloric acid containing 0·25 per cent. of HCl. This solution is thereafter to be allowed to stand for one hour and to be passed through a filter. The lead salt contained

[1] This code superseded those of 1894, 1898, and 1901, which, however, are still in force in a few works.

in an aliquot portion of the clear filtrate is then to be precipitated as lead sulphide and weighed as lead sulphate.

If any occupier shall give notice in writing to the Inspector for the district that he desires to use a glaze which does not conform to the above mentioned conditions, and to adopt in his factory the scheme of compensation prescribed in Schedule B and shall affix and keep the same affixed in his factory, the above provisions shall not apply to his factory, but instead thereof the following provisions shall apply.

All persons employed in any process included in Schedule A other than china scouring shall be examined before the commencement of their employment or at the first subsequent visit of the Certifying Surgeon, and once in each calendar month by the Certifying Surgeon of the district.

The Certifying Surgeon may at any time order by signed certificate the suspension of any such person from employment in any process included in Schedule A other than china scouring if such Certifying Surgeon is of opinion that such person by continuous work in lead will incur special danger from the effects of plumbism, and no person after such suspension shall be allowed to work in any process included in Schedule A other than china scouring without a certificate of fitness from the Certifying Surgeon entered in the register.

Any workman who, by reason of his employment being intermittent or casual, or of his being in regular employment for more than one employer, is unable to present himself regularly for examination by the Certifying Surgeon, may procure himself at his own expense to be examined once a month by a Certifying Surgeon, and such examination shall be a sufficient compliance with this rule. The result of such examination shall be entered by the Certifying Surgeon in a book to be kept in the possession of the workman. He shall produce and show the said book to a Factory Inspector or to any employer on demand, and he shall not make any entry or erasure therein.

If the occupier of any factory to which this Rule applies fails duly to observe the conditions of the said scheme, or if any such factory shall by reason of the occurrence of cases of lead poisoning appear to the Secretary of State to be in an unsatisfactory condition, he may, after an enquiry, at which the occupier shall have an opportunity of being heard, prohibit the

use of lead for such time and subject to such conditions as he may prescribe.

All persons employed in the processes included in Schedule A other than china scouring shall present themselves at the appointed time for examination by the Certifying Surgeon, as prescribed in this Rule.

In addition to the examinations at the appointed times, any person so employed may at any time present himself to the Certifying Surgeon for examination, and shall be examined on paying the prescribed fee.

All persons shall obey any directions given by the Certifying Surgeon.

No person after suspension by the Certifying Surgeon shall work in any process included in Schedule A other than china scouring without a certificate of fitness from the Certifying Surgeon entered in the Register. Any operative who fails without reasonable cause to attend any monthly examination shall procure himself, at his own expense, to be examined within 14 days thereafter by the Certifying Surgeon, and shall himself pay the prescribed fee.

A register in the form which has been prescribed by the Secretary of State for use in earthenware and china works shall be kept, and in it the Certifying Surgeon shall enter the dates and results of his visits, the number of persons examined, and particulars of any directions given by him. This register shall contain a list of all persons employed in the processes included in Schedule A, or in emptying china biscuit ware, and shall be produced at any time when required by His Majesty's Inspector of Factories or by the Certifying Surgeon.

3. The occupier shall allow any of His Majesty's Inspectors of Factories to take at any time sufficient samples for analysis of any material in use or mixed for use.

Provided that the occupier may at the time when the sample is taken, and on providing the necessary appliances, require the Inspector to take, seal, and deliver to him a duplicate sample.

But no analytical result shall be disclosed or published in any way except such as shall be necessary to establish a breach of these rules.

4. No woman, young person, or child shall be employed in the mixing of unfritted lead compounds in the preparation or manufacture of fritts, glazes, or colours.

5. No person under 15 years of age shall be employed in any process included in Schedule A, or in emptying china biscuit ware.

Thimble-picking, or threading-up, or looking-over biscuit ware shall not be carried on except in a place sufficiently separated from any process included in Schedule A.

6. All women and young persons employed in any process included in Schedule A shall be examined once in each calendar month by the Certifying Surgeon for the district.

The Certifying Surgeon may order by signed certificate in the register the suspension of any such woman or young person from employment in any process included in Schedule A, and no person after such suspension shall be allowed to work in any process included in Schedule A without a certificate of fitness from the Certifying Surgeon entered in the register.

7. A register, in the form which has been prescribed by the Secretary of State for use in earthenware and china works, shall be kept, and in it the Certifying Surgeon shall enter the dates and results of his visits, the number of persons examined in pursuance of Rule 6 as amended, and particulars of any directions given by him. This register shall contain a list of all persons employed in the processes included in Schedule A, or in emptying china biscuit ware, and shall be produced at any time when required by H.M. Inspector of Factories or by the Certifying Surgeon.

8. The occupier shall provide and maintain suitable overalls and head coverings for all women and young persons employed in the processes included in the Schedule A, or in emptying china biscuit ware.

No person shall be allowed to work in any process included in the Schedule, or in emptying china biscuit ware, without wearing suitable overalls and head coverings, provided that nothing in this rule shall render it obligatory on any person engaged in drawing glost ovens to wear overalls and head coverings.

All overalls, head coverings and respirators, when not in use or being washed or repaired, shall be kept by the occupier in proper custody. They shall be washed or renewed at least once a week, and suitable arrangements shall be made by the occupier for carrying out these requirements.

A suitable place other than that provided for the keeping of overalls, head coverings, and respirators, in which all the

above workers can deposit clothing put off during working hours, shall be provided by the occupier.

Each respirator shall bear the distinguishing mark of the worker to whom it is supplied.

9. No person shall be allowed to keep, or prepare, or partake of any food, or drink, or tobacco, or to remain during meal times in a place in which is carried on any process included in Schedule A.

The occupier shall make suitable provision to the reasonable satisfaction of the Inspector in charge of the district for the accommodation during meal times of persons employed in such places or processes, with a right of appeal to the Chief Inspector of Factories. Such accommodation shall not be provided in any room or rooms in which any process included in Schedule A is carried on, and no washing conveniences mentioned hereafter in Rule 13 shall be maintained in any room or rooms provided for such accommodation.

Suitable provision shall be made for the deposit of food brought by the workers.

10. The processes of—

The towing of earthenware,
China scouring,
Ground laying,
Ware cleaning after the dipper,
Colour dusting, whether on-glaze or under-glaze,
Colour blowing, whether on-glaze or under-glaze,
Glaze blowing, or
Transfer making,

shall not be carried on without the use of exhaust fans, or other efficient means for the effectual removal of dust, to be approved in each particular case by the Secretary of State, and under such conditions as he may from time to time prescribe.

In the process of ware cleaning after the dipper, sufficient arrangements shall be made for any glaze scraped off which is not removed by the fan, or the other efficient means, to fall into water.

In the process of ware cleaning of earthenware after the dipper, damp sponges or other damp material shall be provided in addition to the knife or other instrument, and shall be used wherever practicable.

Flat-knocking and fired-flint-sifting shall be carried on only in enclosed receptacles, which shall be connected with an

efficient fan or other efficient draught unless so contrived as to prevent effectually the escape of injurious dust.

In all processes the occupier shall, as far as practicable, adopt efficient measures for the removal of dust and for the prevention of any injurious effects arising therefrom.

11. No person shall be employed in the mixing of unfritted lead compounds, in the preparation or manufacture of fritts, glazes or colours containing lead without wearing a suitable and efficient respirator provided and maintained by the employer; unless the mixing is performed in a closed machine or the materials are in such a condition that no dust is produced.

Each respirator shall bear the distinguishing mark of the worker to whom it is supplied.

12. All drying stoves as well as all workshops and all parts of factories shall be effectually ventilated to the reasonable satisfaction of the Inspector in charge of the district.

13. The occupier shall provide and continually maintain sufficient and suitable washing conveniences for all persons employed in the processes included in Schedule A, as near as practicable to the places in which such persons are employed.

The washing conveniences shall comprise soap, nail-brushes and towels, and at least one wash-hand basin for every five persons employed as above, with a constant supply of water laid on, with one tap at least for every two basins, and conveniences for emptying the same and running off the waste water on the spot down a waste pipe.

There shall be in front of each washing basin, or convenience, a space for standing room which shall not be less in any direction than 21 inches.

14. The occupier shall see that the floors of workshops and of such stoves as are entered by the workpeople are sprinkled and swept daily; that all dust, scraps, ashes, and dirt are removed daily, and that the mangles, work benches, and stairs leading to workshops are cleansed weekly.

When so required by the Inspector in charge of the district, by notice in writing, any such floors, mangles, work benches and stairs shall be cleansed in such manner and at such times as may be directed in such notice.

As regards every potters' shop and stove, and every place in which any process included in Schedule A is carried on, the occupier shall cause the sufficient cleansing of floors to be done at the time when no other work is being carried on in such

room, and in the case of potters' shops, stoves, dipping houses, and majolica painting rooms, by an adult male.

Provided that in the case of rooms in which ground laying or glost placing is carried on, or in the china dippers' drying room, the cleansing prescribed by this rule may be done before work commences for the day, but in no case shall any work be carried on in the room within one hour after any such cleansing as aforesaid has ceased.

15. The occupier shall cause the boards used in the dipping house, dippers' drying room, or glost placing shop to be cleansed every week, and shall not allow them to be used in any other department, except after being cleansed.

When so required by the Inspector in charge of the district, by notice in writing, any such boards shall be washed at such times as may be directed in such notice.

Duties of Persons Employed.

16. All women and young persons employed in the processes included in Schedule A shall present themselves at the appointed time for examination by the Certifying Surgeon as provided in Rule 6 as amended.

No person after suspension by the Certifying Surgeon shall work in any process included in the Schedule without a certificate of fitness from the Certifying Surgeon entered in the register.

17. Every person employed in any process included in Schedule A, or in emptying china biscuit ware, shall, when at work, wear a suitable overall and head covering, and also a respirator when so required by Rule 11 as amended, which shall not be worn outside the factory or workshop, and which shall not be removed therefrom except for the purpose of being washed or repaired. Such overall and head covering shall be in proper repair and duly washed.

The hair must be so arranged as to be fully protected from dust by the head covering.

The overalls, head coverings and respirators when not being worn, and clothing put off during working hours, shall be deposited in the respective places provided by the occupier for such purposes under Rule 8 as amended.

18. No person shall remain during meal times in any place in which is carried on any process included in Schedule A, or

introduce, keep, prepare, or partake of any food or drink, or tobacco therein at any time.

19. No person shall in any way interfere, without the knowledge and concurrence of the occupier or manager, with the means and appliances provided by the employers for the ventilation of the workshops and stoves, and for the removal of dust.

20. No person employed in any process included in Schedule A shall leave the works or partake of meals without previously and carefully cleaning and washing his or her hands.

No person employed shall remove or damage the washing basins or conveniences provided under Rule 13.

20A. The persons appointed by the occupier shall cleanse the several parts of the factory regularly as prescribed in Rule 14.

Every worker shall so conduct his or her work as to avoid, as far as practicable, making or scattering dust, dirt, or refuse, or causing accumulation of such.

21. The boards used in the dipping house, dippers' drying room, or glost placing shop shall not be used in any other department, except after being cleansed, as directed in Rule 15.

22. If the occupier of a factory to which these Rules apply gives with reference to any process included in Schedule A, other than china scouring, an undertaking that no lead or lead compound or other poisonous material shall be used, the Chief Inspector may approve in writing of the suspension of the operation of Rules 4, 5, 6, 7, 8, 15, 16, 17, and 21, or any of them in such process; and thereupon such rules shall be suspended as regards the process named in the Chief Inspector's approval, and in lieu thereof the following rule shall take effect, viz. no lead or lead compound or other poisonous material shall be used in any process so named.

For the purpose of this rule materials that contain no more than one per cent. of lead shall be regarded as free from lead.

[SUPPLEMENTARY SPECIAL RULES FOR THE MANUFACTURE OF EARTHENWARE AND CHINA.]

23. If the occupier of any factory to which these Rules apply gives an undertaking in writing either to the effect that

(*a*) no glaze shall be used which yields to a dilute solution of hydrochloric acid more than 5 per cent. of its

dry weight of a soluble lead compound calculated as lead monoxide when determined in the manner described in Rule 2, paragraph 2;

or to the effect that

(*b*) no ware shall be cleaned after the application of glaze by dipping or other process except in the moist condition;

the Chief Inspector of Factories may, if satisfied that the other conditions are sufficient for the safety of the persons employed, approve in writing of the suspension in the factory or part of the factory of so much of Rule 10 as requires the provision of a fan or other efficient means, to be approved by the Secretary of State for the removal of dust in the process of ware-cleaning; and thereupon the said part of Rule 10 shall be suspended accordingly, and the said undertaking shall be deemed to be a special rule established in the factory.

24. If the occupier of any factory to which these Rules apply gives an undertaking in writing to the effect that no glaze shall be used which yields to a dilute solution of hydrochloric acid more than two per cent. of its dry weight of a soluble lead compound calculated as lead monoxide when determined in the manner described in Rule 2, paragraph 2, the Chief Inspector of Factories may, if satisfied that the other conditions are sufficient for the safety of the persons employed, approve in writing of the modification of Rule 5 in so far as it applies to the processes of dipping, drying after dipping, and ware cleaning, in the factory or part of the factory by the substitution of 14 years for 15 years of age, and thereupon Rule 5 shall be modified accordingly, and the said undertaking shall be deemed to be a special rule established in the factory.

Any approval granted under Rules 23 and 24 is liable to revocation in case it shall appear to the Secretary of State that, owing to the occurrence of lead poisoning in any factory, such revocation is desirable.

25. No ware shall be cleaned after the application of glaze by dipping or other process, except in the moist state, or with damp sponge or other similar damp material, or with the use of an efficient exhaust draught.

So much of Rule 10 as requires the provision of a fan or other efficient means for the removal of dust in the process of ware cleaning after the dipper shall not apply.

Schedule A.

Dipping or other process carried on in the dipping house,
Glaze blowing,
Painting in majolica or other glaze,
Drying after dipping,
Ware cleaning after the application of glaze by dipping or other process,
China scouring,
Glost placing,
Ground laying,
Colour dusting } whether on-glaze or under-glaze,
Colour blowing }
Lithographic transfer making,
Making or mixing of fritts, glazes, or colours containing lead.
Any other process in which materials containing lead are used or handled in the dry state, or in the form of spray, or in suspension in liquid other than oil or similar medium.

Litho-transfers.

The manufacture of transfers for making coloured patterns on pottery is a very dusty occupation, and is dangerous on account of the amount of white lead in the colours. The coloured impressions are made on paper, which is applied to the china or earthenware before it is fired. The work is done chiefly by women and girls, who rub the powder, which often contains 50 or 60 per cent. of lead, on to the paper and shake off the superfluous quantity.

The work is usually done under glass cases in which there is an exhaust draught for carrying away the dust.

SPECIAL RULES FOR THE MANUFACTURE OF TRANSFERS FOR EARTHENWARE AND CHINA.

Duties of Occupiers.

1. No person under 15 years of age shall be employed in making transfers for earthenware or china.

2. All women and young persons employed shall be examined once a month by the Certifying Surgeon for the district, who shall after May 1st, 1899, have power to order suspension from employment.

No person after such suspension shall be allowed to work without the written sanction of the Certifying Surgeon.

3. A register, in the form which has been prescribed by the Secretary of State for use in earthenware and china works shall be kept, and in it the Certifying Surgeon will enter the dates and results of his visits, the number of persons examined, and particulars of any directions given by him. This register shall contain a list of all persons employed, and shall be produced at any time when required by H.M. Inspector of Factories or by the Certifying Surgeon.

4. The occupier shall provide and maintain suitable overalls and head coverings for all women and young persons employed in rooms in which colour processes are carried on.

All overalls and head coverings shall be kept by the occupier in proper custody and shall be washed at least once a week, and suitable arrangements shall be made for carrying out these requirements.

A suitable place shall be provided in which the above workers can deposit clothing put off during working hours.

It shall be a sufficient compliance with the requirements of this rule as to head coverings if they are made of suitable glazed paper and renewed once a week. The head coverings shall be made so as to completely cover the hair and to the satisfaction of the Inspector.

5. No person shall be allowed to prepare or partake of any food or drink, or to remain during meal times, in any place in which is carried on the process of making transfers.

The occupier shall make suitable provision to the reasonable satisfaction of the Inspector in charge of the district for the accommodation during meal times of persons employed in such places or processes, with a right of appeal to the Chief Inspector of Factories.

6. Transfer making shall not be carried on without the use of exhaust fans for the effectual removal of dust, or other efficient means for the effectual removal of dust, to be approved in each particular case by the Secretary of State, and under such conditions as he may from time to time prescribe.

7. The occupier shall provide and maintain sufficient and suitable washing conveniences for all persons employed, as near as is practicable to the places in which such persons are employed.

The washing conveniences shall comprise soap, nail-brushes and towels, and at least one wash-hand basin for every five persons employed as above, with a constant supply of water

laid on, with one tap at least for every two basins, and conveniences for emptying the same and running off the waste water on the spot down a waste pipe.

Duties of Persons Employed.

8. All women and young persons employed shall present themselves at the appointed time for examination by the Certifying Surgeon as provided in Rule 2.

No person after suspension by the Certifying Surgeon shall work without the written sanction of the Certifying Surgeon.

9. Every person employed in any room in which colour processes are carried on shall, when at work, wear an overall suit and head covering, which shall not be worn outside the factory or workshop, and which shall not be removed therefrom except for the purpose of being washed. All overalls and head coverings shall be washed or renewed at least once a week.

The overalls and head coverings, when not being worn, shall be deposited in the place provided for the purpose under Rule 4.

Clothing put off during working hours shall be deposited in the place provided for the purpose under Rule 4.

It shall be a sufficient compliance with the requirements of this rule as to head coverings if they are made of suitable glazed paper and renewed once a week. The head coverings shall be made so as completely to cover the hair, and to the satisfaction of the Inspector.

10. No person shall remain during meal times in any place in which is carried on the making of transfers ; or prepare or partake of any food or drink therein at any time.

11. No person shall in any way interfere, without the knowledge and concurrence of the occupier or manager, with the means and appliances provided by the employers for the ventilation of the workshops and for the removal of dust.

12. No person employed shall leave the works or partake of meals without previously and carefully cleaning and washing his or her hands.

Glass Polishing.

A few cases of lead poisoning occur every year in this industry, owing to the use of " putty powder," which contains about 70 per cent. of oxide of lead to about 30 per cent. of oxide of tin.

Glass that has been cut has a dull white surface, and must be polished to be made bright. This is done on a revolving wheel or table, upon which water containing either rouge or putty powder is allowed to drip.

For finely cut glass (such as wine glasses) the work is done by means of a hard brush attached to the rim of a vertical wheel revolving at high speed on a horizontal axis. For this work putty powder only is used, and is automatically dripped from a small conical vessel on to the brush.

Rouge is practically oxide of iron, and is much less dangerous than putty powder, which is almost as harmful as white lead itself. It is also cheaper, but it is said that it takes more time and does not produce such good "finish" and "colour."

The danger arises from the spraying of the wet powder, which soon dries and becomes dust, and is then inhaled.

There are no special rules for this trade. Cleanliness is important, and no food should be taken in the workshop. Exhaust ventilation now prevents the spattering, and has greatly diminished the danger.

Electrical Accumulators.

There is considerable danger of lead poisoning in this industry, as the number of reported cases in the table on p. 161 shows; and regulations made in 1903 now govern the manufacture.

The dangerous processes are:—

(*a*) The casting of the plate, which is made of ordinary lead: fumes of lead are evolved from the melting pot, which (by Regulation 4) must be covered with a hood and shaft so as to remove the fumes and hot air from the work-rooms.

(*b*) The mixing of the dry compounds of lead into paste, which is a dusty process. Red lead or litharge is mixed with dilute sulphuric acid into the consistency of clay. This

must be done either in a closed apparatus or with exhaust draught (R. 5).

(*c*) Pasting. This consists of rubbing the paste on to the embossed or perforated accumulator plate, so as to make an even surface on both sides.

Regulations for the Manufacture of Electric Accumulators.

1903. No. 1,004.

Whereas the manufacture of electric accumulators has been certified in pursuance of Section 79 of the Factory and Workshop Act, 1901, to be dangerous ;

I hereby, in pursuance of the powers conferred on me by that Act, make the following Regulations, and direct that they shall apply to all factories and workshops or parts thereof in which electric accumulators are manufactured.

In these Regulations " lead process " means pasting, casting, lead burning, or any work involving contact with dry compounds of lead.

Any approval given by the Chief Inspector of Factories in pursuance of these Regulations shall be given in writing, and may at any time be revoked by notice in writing signed by him.

Duties of Occupier.

1. Every room in which casting, pasting or lead burning is carried on shall contain at least 500 cubic feet of air space for each person employed therein, and in computing this air space, no height above 14 feet shall be taken into account.

These rooms and that in which the plates are formed, shall be capable of through ventilation. They shall be provided with windows made to open.

2. Each of the following processes shall be carried on in such manner and under such conditions as to secure effectual separation from one another and from any other process :—

(*a*) Manipulation of dry compounds of lead ;

(*b*) Pasting ;

(*c*) Formation, and lead burning necessarily carried on therewith ;

(*d*) Melting down of old plates.

Provided that manipulation of dry compounds of lead

carried on as in Regulation 5 (*b*) need not be separated from pasting.

3. The floors of the rooms in which manipulation of dry compounds of lead or pasting is carried on shall be of cement or similar impervious material, and shall be kept constantly moist while work is being done.

The floors of these rooms shall be washed with a hose pipe daily.

4. Every melting pot shall be covered with a hood and shaft so arranged as to remove the fumes and hot air from the workrooms.

Lead ashes and old plates shall be kept in receptacles specially provided for the purpose.

5. Manipulation of dry compounds of lead in the mixing of the paste or other processes, shall not be done except (*a*) in an apparatus so closed, or so arranged with an exhaust draught as to prevent the escape of dust into the workroom ; or (*b*) at a bench provided with (1) efficient exhaust draught and air guide so arranged as to draw the dust away from the worker, and (2) a grating on which each receptacle of the compound of lead in use at the time shall stand.

6. The benches at which pasting is done shall be covered with sheet lead or other impervious material, and shall have raised edges.

7. No woman, young person, or child shall be employed in the manipulation of dry compounds of lead or in pasting.

8.—(*a*) A duly qualified medical practitioner (in these Regulations referred to as the " Appointed Surgeon ") who may be the Certifying Surgeon, shall be appointed by the occupier, such appointment unless held by the Certifying Surgeon to be subject to the approval of the Chief Inspector of Factories.

(*b*) Every person employed in a lead process shall be examined once a month by the Appointed Surgeon, who shall have power to suspend from employment in any lead process.

(*c*) No person after such suspension shall be employed in a lead process without written sanction entered in the Health Register by the Appointed Surgeon. It shall be sufficient compliance with this regulation for a written certificate to be given by the Appointed Surgeon and attached to the Health Register, such certificate to be replaced by a proper entry in the Health Register at the Appointed Surgeon's next visit.

(*d*) A Health Register in the form approved by the Chief

Inspector of Factories shall be kept, and shall contain a list of all persons employed in lead processes. The Appointed Surgeon will enter in the Health Register the dates and results of his examinations of the persons employed and particulars of any directions given by him. He shall on a prescribed form furnish to the Chief Inspector of Factories on the 1st day of January in each year a list of the persons suspended by him during the previous year, the cause and duration of such suspension, and the number of examinations made.

The Health Register shall be produced at any time when required by H.M. Inspectors of Factories or by the Certifying Surgeon or by the Appointed Surgeon.

9. Overalls shall be provided for all persons employed in manipulating dry compounds of lead or in pasting.

The overalls shall be washed or renewed once every week.

10. The occupier shall provide and maintain—

(*a*) a cloakroom in which workers can deposit clothing put off during working hours. Separate and suitable arrangements shall be made for the storage of the overalls required in Regulation 9 ;

(*b*) a dining-room unless the factory is closed during meal hours.

11. No person shall be allowed to introduce, keep, prepare or partake of any food, drink, or tobacco, in any room in which a lead process is carried on. Suitable provisions shall be made for the deposit of food brought by the workers.

This Regulation shall not apply to any sanitary drink provided by the occupier and approved by the Appointed Surgeon.

12. The occupier shall provide and maintain for the use of the persons employed in lead processes a lavatory, with soap, nail brushes, towels, and at least one lavatory basin for every five such persons. Each such basin shall be provided with a waste pipe or the basins shall be placed on a trough fitted with a waste pipe. There shall be a constant supply of hot and cold water laid on to each basin.

Or, in the place of basins the occupier shall provide and maintain troughs of enamel or similar smooth impervious material, in good repair, of a total length of two feet for every five persons employed, fitted with waste pipes, and without plugs, with a sufficient supply of warm water constantly available.

The lavatory shall be kept thoroughly cleansed and shall be

supplied with a sufficient supply of clean towels once every day.

13. Before each meal and before the end of the day's work, at least ten minutes, in addition to the regular meal times, shall be allowed for washing to each person who has been employed in the manipulation of dry compounds of lead or in pasting.

Provided that if the lavatory accommodation specially reserved for such persons exceeds that required by Regulation 12, the time allowance may be proportionately reduced, and that if there be one basin or two feet of trough for each such person this Regulation shall not apply.

14. Sufficient bath accommodation shall be provided for all persons engaged in the manipulation of dry compounds of lead or in pasting, with hot and cold water laid on, and a sufficient supply of soap and towels.

This rule shall not apply if in consideration of the special circumstances of any particular case, the Chief Inspector of Factories approves the use of local public baths when conveniently near, under the conditions (if any) named in such approval.

15. The floors and benches of each workroom shall be thoroughly cleansed daily, at a time when no other work is being carried on in the room.

Duties of Persons Employed.

16. All persons employed in lead processes shall present themselves at the appointed times for examination by the Appointed Surgeon as provided in Regulation 8.

No person after suspension shall work in a lead process, in any factory or workshop in which electric accumulators are manufactured, without written sanction entered in the Health Register by the Appointed Surgeon.

17. Every person employed in the manipulation of dry compounds of lead or in pasting shall wear the overalls provided under Regulation 9. The overalls, when not being worn, and clothing put off during working hours, shall be deposited in the places provided under Regulation 10.

18. No person shall introduce, keep, prepare, or partake of any food, drink (other than any sanitary drink provided by the occupier and approved by the Appointed Surgeon), or tobacco, in any room in which a lead process is carried on.

19. No person employed in a lead process shall leave the premises or partake of meals without previously and carefully cleaning and washing the hands.

20. Every person employed in the manipulation of dry compounds of lead or in pasting shall take a bath at least once a week.

21. No person shall in any way interfere, without the concurrence of the occupier or manager, with the means and appliances provided for the removal of the dust or fumes, and for the carrying out of these regulations.

These Regulations shall come into force on the 1st day of January, 1904.

A. Akers-Douglas,
One of His Majesty's Principal Secretaries of State.

Home Office, Whitehall,
21st November, 1903.

Paints and Colours.

White lead dust is again the chief source of danger in the manufacture of paints and colours: it is generated mostly in mixing and grinding, but also in scooping out the white lead, and in packing of the colours into parcels.

The figures show that 64 per cent. of the cases furnished by the Certifying Surgeon's reports occur amongst persons occupied in mixing and grinding. Moreover, of the various methods by which plumbism may occur, 72·9 per cent. of the cases are attributable to the inhalation of dust mainly of white lead dust.[1]

The process of mixing and grinding is as follows :—

In small factories a cask of white lead is broken and the material scooped out and placed in a pail. When the amount removed weighs half a hundredweight, the contents of the pail are discharged either into a cylindrical pug mill or into the pan of an edge runner. Oil is then added.

In larger works there is usually an upper platform in which the white lead is shovelled out of the cask into

[1] Report on the Manufacture of Paints and Colours containing Lead, by T. M. Legge, M.D., 1905.

openings in the floor leading to shoots which convey the lead into the pug mills or edge runners below. In these processes, in the absence of exhaust draught, dust inevitably arises before the lead has time to mix with the oil.

Other processes of the manufacture in which lead poisoning occurs are :—

Packing of red lead vermillionettes, chrome yellows, and Brunswick greens in kegs and parcels.

Sieving, in which dry colours are forced through a fine wire gauze by means of a fast rotating brush, which is fed through a hopper. Exhaust draught is now required at the hopper (R. 1).

In the *Colour house* there is less danger owing to the wet nature of the process, which consists of boiling and stirring a precipitate of the colour used. Where this is chrome yellow (chromate of lead) there is considerable danger, probably from the steam arising from the vats.[1] This source of danger is recognised by the Regulations, which include the manufacture of chromate of lead in the definition of " lead process."

REGULATIONS FOR THE MANUFACTURE OF PAINTS AND COLOURS.

1907. No. 17.

Whereas the manufacture of paints and colours has been certified in pursuance of section 79 of the Factory and Workshop Act, 1901, to be dangerous ;

I hereby in pursuance of the powers conferred on me by that Act make the following Regulations, and direct that they shall apply to all factories and workshops in which dry carbonate of lead or red lead is used in the manufacture of paints and colours or chromate of lead is produced by boiling, provided as follows :—

(1) The Regulations shall not apply to factories and workshops in which paints and colours are manufactured not for sale but solely for use in the business of the occupier ; or to factories or workshops in which only the manufacture of

[1] See Report on the Manufacture of Paints and Colours containing Lead, p. 11, for striking statistics.

artists' colours is carried on : or to the manufacture of varnish paints.

(2) Regulation 2, and so much of Regulation 3 as prevents the employment of a woman in manufacturing lead colour, shall not apply to the packing in parcels or kegs not exceeding 14 lbs. in weight, unless and until so required by notice in writing from the Chief Inspector of Factories.

(3) Regulations 4, 5, 6, 11, and 12 shall not apply to factories or workshops in which the grinding of lead colour occupies less than three hours in any week, unless and until so required by notice in writing from the Chief Inspector of Factories.

Definitions.

For the purpose of these Regulations—

"Lead colour" means dry carbonate of lead and red lead, and any colour into which either of these substances enters.

"Lead process" means any process involving the mixing, crushing, sifting, grinding, in oil or any other manipulation of lead colour giving rise to dust ; or the manufacture and manipulation of chromate of lead produced by boiling in the colour house.

It shall be the duty of the occupier to observe Part I. of these regulations.

It shall be the duty of all persons employed to observe Part II. of these Regulations.

PART I.

Duties of Employers.

1. No lead colour shall be placed in any hopper or shoot without an efficient exhaust draught and air guide so arranged as to draw the dust away from the worker as near as possible to the point of origin.

2. No lead process shall be carried on, save either—

(*a*) with an efficient exhaust draught and air guide so arranged as to carry away the dust or steam as near as possible to the point of origin ; or

(*b*) in the case of processes giving rise to dust, in an apparatus so closed as to prevent the escape of dust.

Provided that this Regulation shall not apply to the immersion and manipulation of lead colour in water.

3. No woman, young person, or child shall be employed in manipulating lead colour.

4. Every person employed in a lead process or at the roller mills connected with the grinding in oil of lead colour (hereinafter referred to as the roller mills) shall once in each calendar month, on a date of which notice shall be given to every such person, be examined by the Certifying Surgeon of the district or other duly qualified medical practitioner (hereinafter referred to as the Appointed Surgeon) if appointed for the purpose by the Chief Inspector of Factories by a certificate under his hand and subject to such conditions as may be specified in that certificate.

The Certifying or Appointed Surgeon shall have power to suspend from employment in any lead process or at the roller mills.

5. No person after suspension in accordance with Regulation 4, shall be employed in any lead process or at the roller mills without written sanction entered in the Health Register by the Certifying or Appointed Surgeon.

6. A Health Register in a form approved by the Chief Inspector of Factories shall be kept and shall contain a list of all persons employed in any lead process or at the roller mills. The Certifying or Appointed Surgeon will enter therein the dates and results of his examinations of such persons with particulars of any directions given by him.

The Health Register shall be produced at any time when required by any of His Majesty's Inspectors of Factories or by the Certifying or Appointed Surgeon.

7. Overalls shall be provided for all persons employed in lead processes or at the roller mills; and shall be washed or renewed at least once every week.

8. The occupier shall provide and maintain for the use of all persons employed in lead processes or at the roller mills—

(*a*) a cloak-room or other suitable place in which such persons can deposit clothing put off during working hours, and separate and suitable arrangements for the storage of overalls required by Regulation 7.

(*b*) a dining-room, unless all workers leave the factory during meal hours.

9. No person shall be allowed to introduce, keep, prepare, or partake of any food, drink (other than a medicine provided by the occupier and approved by the Certifying or Appointed

Surgeon), or tobacco in any room in which a lead process is carried on. Suitable provision shall be made for the deposit of food brought by persons employed.

10. The occupier shall provide and maintain in a cleanly state and in good repair for the use of persons employed in lead processes or at the roller mills a lavatory containing either—

(*a*) at least one lavatory basin for every five such persons, fitted with a waste pipe, or placed in a trough having a waste pipe, and having a constant supply of cold water laid on and a sufficient supply of hot water constantly available ; or

(*b*) troughs of enamel or similar smooth impervious material, fitted with waste pipes without plugs, and having a constant supply of warm water laid on. The length of such troughs shall be in a proportion of not less than two feet for every five persons employed in lead processes or at the roller mills.

He shall also provide in the lavatory soap, nail brushes, and a sufficient supply of clean towels renewed daily.

PART II.

Duties of Persons Employed.

11. All persons employed in lead processes or at the roller mills shall present themselves at the appointed time for examination by the Certifying or Appointed Surgeon as provided in Regulation 4.

12. No person after suspension under Regulation 4 shall work in a lead process or at the roller mills in any paint and colour factory or workshop to which these Regulations apply without written sanction entered in the Health Register by the Certifying or Appointed Surgeon.

13. All persons employed in lead processes or at the roller mills shall wear the overalls provided under Regulation 7 and shall deposit such overalls and any clothing put off during working hours in the places provided under Regulation 8.

The overalls shall not be removed by persons employed from the factory or workshop.

14. No person shall introduce, keep, prepare, or partake of any food, drink (other than a medicine provided by the

occupier and approved by the Certifying or Appointed Surgeon), or tobacco in any room in which a lead process is carried on.

15. All persons employed in lead processes or at the roller mills shall carefully clean and wash their hands before leaving the premises or partaking of any food.

16. No person shall, without the permission of the occupier or manager, interfere in any way with the means and appliances provided for the removal of dust, steam or fumes and for the carrying out of these Regulations.

These Regulations shall come into force on the 1st February, 1907.

H. J. Gladstone,
One of His Majesty's Principal
Secretaries of State.

Home Office, Whitehall,
21st January, 1907.

Coach Painting.

In this industry the reported cases (see table p. 161), if not on the increase, are at a standstill. Owing to the methods in which it is carried on, and its variety, it is impossible to legislate by way of regulations. The cases come from the railway carriage and wagon works in different parts of the country, and the recent increase in the use of motor cars is responsible for several.

The chief danger occurs in the dust given off in sand-papering the various coats of paint, of which there are many, and nearly all of them contain white lead or other compounds of lead. Some cases have occurred in the breaking up and burning of old railway carriages.

Exhaust ventilation is really impossible. The only practical precaution is cleanliness, especially of the hands when eating. Some firms have abandoned white lead, and use zinc white or zinc oxide in place of it. This might be done more often, especially for interior work.

The attacks are somewhat severe, and include colic and

wrist-drop. Out of 85 cases in 1906, 7 were fatal, and out of 70 cases in 1907, 3 were fatal.

Shipbuilding.

The plumbism in this industry is due to the use of paint and red lead paste in rivetting, and severe cases continue to be reported from the dockyards.

It occurs in painting the outside of the steel plates with red lead.

Paints used in other Industries.

It is impossible to deal with all the many industries in which paint may lead to risk.

House Painters.

The Home Office returns under this head do not include cases amongst house painters, unless the disease is contracted in a factory or workshop (see p. 162 supra). Some cases occur in mixing or grinding in a factory, but many occur in ordinary outside work, and the returns are quite incomplete. As a matter of fact there is a serious prevalence of the disease amongst house painters, and there seems no reason why such cases should not be made notifiable. They may incur risk of lead poison in various ways. In addition to the mixing and grinding, which is a dusty business, there is the sandpapering in the good work, where the colours have to be smooth—the same danger as in coach painting. Burning off the old paint is known to produce nausea and colic: while getting the paint on to the hands is always serious, as from there it so easily passes into the system through the mouth.

A careful employer or foreman makes all his workmen wash their hands before they take their meals. It is said that a house painter cannot contract lead poison in less than five or six weeks, unless the circumstances are exceptional, or he has had a previous attack. House plumbers suffer in much the same way.

Other Industries.

It is impossible to give a complete list of the many occupations in which lead poisoning may arise. There are, however, certain trades where the risk is well known, about which a short note may be useful.

Red and Orange Lead.

These are both oxides of lead obtained by melting lead and letting it oxidise in the air. The manufacture is often in connection with white lead works.

Red lead proper is blue lead oxidised at a temperature at which the resulting oxides do not melt. Pig lead is put into a furnace with a large surface exposed, so that the metal is not deep, and is raked about through a door through which the lead fumes escape : these ought to be carried away by a chimney. When the charge is first drawn from the furnace, it comes out in the form of massicot, or the yellow oxide, and is then further oxidised into red lead or minium.

Orange lead is white lead treated in the same way.

There is not generally the same amount of danger in this process as in white lead works, but the safety of the furnacemen depends very much on there being a good upward draught in the chimney, and exhaust ventilation in packing.

Special Rules for the Manufacture of Red and Orange Lead.

Duties of Occupiers.

In drawing charges of massicot, or of red lead, or of orange lead from the furnace, they shall not allow the charges of massicot, or of red lead, or of orange lead, to be discharged on to the floor of the factory or workshop, but shall arrange that it be shovelled, not raked, into waggons.

They shall arrange that no red or orange lead shall be packed in the room or rooms where the manufacture is actually carried on.

They shall arrange that no red or orange lead shall be packed in casks or other receptacles except in a place provided with a hood connected with a fan, or shall provide other suitable means to create an effective draught.

They shall provide sufficient bath accommodation for all persons employed in the manipulation of red and orange lead and lavatories, with a good supply of hot water, soap, nail brushes and towels for the use of such persons.

They shall arrange for a monthly visit by a medical man who shall examine every worker individually, and who shall enter the result of each examination in a register book to be provided by the said occupiers.

They shall provide a sufficient supply of approved sanitary drink for the workers.

Duties of Persons Employed.

In cases where the co-operation of the workers is required for carrying out the foregoing rules, and where such co-operation is not given, the workers shall be held liable in accordance with the Factory and Workshop Act, 1891, Section 9, which runs as follows :—

> "If any person who is bound to observe any Special Rules established for any factory or workshop under this Act acts in contravention of, or fails to comply with, any such Special Rule, he shall be liable on summary conviction to a fine not exceeding two pounds."

Yellow Lead.

Yellow lead is chromate of lead, and is a dye, the manufacture of which has occasioned several cases of severe illness.

It is manufactured either by mixing solutions of bichromate of sodium or potassium with acetate or brown sugar of lead—or by acting with a solution of bichromate of sodium or potassium on carbonate of lead.

Special Rules for the Manufacture of Yellow Lead.

Duties of Occupiers.

They shall provide washing conveniences, with a sufficient supply of hot and cold water, soap, nail brushes, and towels.

They shall provide respirators and overall suits for the persons employed in all dry processes.

They shall provide fans or other suitable means of ventilation wherever dust is generated in the process of manufacture.

They shall provide a sufficient supply of Epsom Salts and of an approved sanitary drink.

Duties of Persons Employed.

In cases where the co-operation of the workers is required for carrying out the foregoing Rules and where such co-operation is not given, the workers shall be held liable in accordance with the Factory and Workshop Act, 1891, Section 9, which runs as follows :—

> "If any person who is bound to observe any Special Rules established for any factory or workshop under this Act, acts in contravention of, or fails to comply with any such Special Rule, he shall be liable on summary conviction to a fine not exceeding two pounds."

Respirators.—A good respirator is a cambric bag with or without a thin flexible wire made to fit over the nose.

Sanitary Drink suggested.—Sulphate of Magnesia, 2 ozs. ; water, 1 gallon ; essence of lemon sufficient to flavour.

The Heading of Yarn dyed by means of a Lead Compound.

This process is closely connected with the preceding, inasmuch as the dyes which contain lead compounds are usually made of the chromate of lead.

The various chrome colours are orange, chrome yellow, chrome lemon, and green chrome. They are all made by processes somewhat similar, by which bichromate of soda or potash acts upon a solution of lead, and forms a chromate of lead ; the orange chrome seems to be the most dangerous.

The process of dyeing is not dangerous : the danger occurs after the goods are dried. The chromate of lead is

more in the nature of a coating than a dye, and comes off in a yellow dust as soon as the yarn is handled. This dust occasions well defined symptoms of lead poisoning in the workers unless it is carried away by exhaust ventilation : anæmia, headache, blue line, and colic are frequent, and the more acute symptoms occur sometimes : the contents of the stomach when vomited are often the same colour as the yarn handled. This handling is done over a post, and is called "heading," and must not be carried on without an efficient exhaust draught as near as possible to the point of origin. The speed of the draught must be determined once in every three months.

The nearer the exhaust hood is placed to the posts, the better, as a rule, are the results in drawing away the dust. Experiment shows that the best effects are obtained by placing the draught immediately below the post, and not above it. An effective velocity is 350 linear feet per minute at a distance of eight inches from the point where the heading is done.

(See Factories and Workshops : Annual Report of Medical Inspector for 1906, p. 312.)

It will be noticed that the Regulations provide a power of exemption from some of the important provisions in the case of factories where a very small amount of yarn is headed.

REGULATIONS[1] FOR THE HEADING OF YARN DYED BY MEANS OF A LEAD COMPOUND.

1907. No. 616.

Whereas the process of heading of yarn dyed by means of a lead compound has been certified in pursuance of Section 79 of the Factory and Workshop Act, 1901,[2] to be dangerous ;

I hereby, in pursuance of the powers conferred on me by that Act, make the following Regulations, and direct that they shall apply to all factories in which the said process is carried on.

[1] These Regulations were gazetted Aug. 13, 1907.
[2] 1 Edwd. 7, c. 22.

Provided that if the Chief Inspector of Factories is satisfied with regard to any such factory, that the heading of yarn dyed by means of a lead compound will not occupy more than three hours in any week, he may by certificate, suspend Regulations 2, 3, 4, 7 (*a*), and 8 (*a*), or any of them. Every such certificate shall be in writing, signed by the Chief Inspector of Factories, and shall be revocable at any time by further certificate.

Definitions.

"Heading" means the manipulation of yarn dyed by means of a lead compound over a bar or post, and includes picking, making-up, and noddling.

"Employed" means employed in heading of yarn dyed by means of a lead compound.

"Surgeon" means the Certifying Factory Surgeon of the district or a duly qualified medical practitioner appointed by certificate under the hand of the Chief Inspector of Factories, which appointment shall be subject to such conditions as may be specified in that certificate.

"Suspension" means suspension by written certificate in the Health Register, signed by the Surgeon, from employment in heading of yarn dyed by means of a lead compound.

Duties.

It shall be the duty of the occupier to observe Part I. of these regulations.

It shall be the duty of all persons employed to observe Part II. of these Regulations.

PART I.

Duties of Employers.

(1) No yarn dyed by means of a lead compound shall be headed unless there be an efficient exhaust draught so arranged as to draw the dust away from the worker, as near as possible to the point of origin. The speed of the draught at the exhaust opening shall be determined at least once in every three months and recorded in the General Register.

2. No person under 16 years of age shall be employed.

3. A Health Register, containing the names of all persons

employed, shall be kept in a form approved by the Chief Inspector of Factories.

4. Every person employed shall be examined by the Surgeon once in every three months (or at shorter intervals if and as required in writing by the Chief Inspector of Factories) on a date of which due notice shall be given to all concerned.

The Surgeon shall have power of suspension as regards all persons employed, and no person after suspension shall be employed without written sanction from the Surgeon entered in the Health Register.

5. There shall be provided and maintained for the use of all persons employed—

(*a*) a suitable cloakroom for clothing put off during working hours ;

(*b*) a suitable meal room separate from any room in which heading of yarn dyed by means of a lead compound is carried on, unless the works are closed during meal hours ;

and, if so required by notice in writing from the Chief Inspector of Factories,

(*c*) suitable overalls and head coverings which shall be collected at the end of every day's work, and be washed and renewed at least once every week ;

(*d*) a suitable place, separate from the cloakroom and meal room, for the storage of the overalls and head coverings.

6. There shall be provided and maintained in a cleanly state and in good repair, for the use of all persons employed, a lavatory, under cover, with a sufficient supply of clean towels, renewed daily, and of soap and nail brushes, and with either—

(*a*) a trough with a smooth impervious surface, fitted with a waste pipe without plug, and of such length as to allow at least two feet for every five such persons, and having a constant supply of warm water from taps or jets above the trough at intervals of not more than two feet ; or

(*b*) at least one lavatory basin for every five such persons, fitted with a waste pipe and plug or placed in a trough having a waste pipe, and having either a constant supply of hot and cold water or warm water laid on, or (if a constant supply of heated

water be not reasonably practicable) a constant supply of cold water laid on and a supply of hot water always at hand when required for use by persons employed.

PART II.

Duties of Persons Employed.

7. Every person employed shall—
   (*a*) present himself at the appointed time for examination by the Surgeon as provided in Regulation 4 ;
   (*b*) wear the overall and head covering (provided in pursuance of Regulation 5 (*c*)) while at work, and shall remove them before partaking of food or leaving the premises, and shall deposit in the cloakroom provided in pursuance of Regulation 5 (*a*), clothing put off during working hours ;
   (*c*) wash the hands before partaking of food or leaving the premises.
8. No person shall—
   (*a*) work in heading of yarn dyed by means of a lead compound after suspension without written sanction from the Surgeon entered in the Health Register ;
   (*b*) introduce, keep, prepare, or partake of any food or drink, or tobacco, in any room in which heading of yarn dyed by means of a lead compound is carried on ;
   (*c*) interfere in any way, without the concurrence of the occupier or manager, with the means and appliances provided for the removal of the dust, and for the carrying out of these Regulations.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Home Office, Whitehall,
6th August, 1907.

Mercury Poisoning or its Sequelæ.

Description of Process.—Any process involving the use of mercury or its preparations or compounds.

Mercury in its liquid form rarely gives rise to poisoning. Its danger arises either—

(i) from inhaling its vapour; or

(ii) from swallowing its salts; or

(iii) to a lesser degree, from absorption through the skin.

Industrially, inhalation is the usual source of cases of poisoning. At all ordinary temperatures mercury gives off vapour, which is increased as the temperature rises. The vapour is said to become oxidised before entering the system, and there to become dissolved.

Industrial mercury poisoning is usually chronic. There is an *acute form* due to swallowing the salts of mercury, *e.g.* corrosive sublimate, which is the bichloride and is very poisonous. The symptoms vary very much, and include vomiting, purging, profuse salivation and looseness of the teeth: serious cases usually end in death. As the acute form rarely occurs in industrial mercury poisoning, it is not here dealt with at length.

Symptoms.

In the *chronic form* the symptoms are excessive salivation, swelling and ulceration of the gums, accompanied with a yellowish deposit, fœta of the breath, and looseness of the teeth. The onset is slow: for years there may be only gradual development of anæmia, diarrhœa, and slight increase of saliva: sometimes a slight tremor of the muscles of the face and hands is present at this stage. If the worker is removed from exposure to the fumes before the disease has worked further mischief, the symptoms disappear in a few weeks: if not they become worse.

Erythism.

The mental condition known as "mercurial erythism" is found in many cases: sleeplessness, depression, hallucinations, loss of memory and even delirium are the main symptoms of this.

Tremor.

"Mercurial tremor," the most characteristic symptom

of the disease, becomes much more marked. It is generally confined to the face, hands and arms, but also occurs in the body and legs: from slight tremor the movement increases and becomes convulsive till speech is inarticulate, and the limbs can hardly be used.

A "blue line" is sometimes observed, as in the case of plumbism.

Erosion and loss of teeth is a special symptom due to nitrate of mercury fumes amongst hatters' furriers.

Chronic mercury poisoning does not lead directly to death.

The number of persons exposed to the risk of industrial mercury poison is not large. The silvering of mirrors was formerly the chief source of the reported cases, but the dangerous amalgam of tin and mercury is now superseded by a harmless one of nitrate of silver and ammonia.

Statistics. Since 1901 the reported cases have averaged about six cases annually. Of the seven cases in 1907, five occurred in the "carotting" process of hatters' furriers.

There are no special rules or regulations which affect industries in which mercury is used.

Precautions. The chief precautions are periodical examination of the workpeople, and strict attention to the teeth. Experience shows that amongst those whose teeth are sound and clean mercurial poisoning is exceptional.

The "conditions to be aimed at" in the management and arrangement of factories where mercury is used are collected in an article by the Medical Inspector in the Factories and Workshops Annual Report, 1900, p. 457.

The following industries are those in which mercurial poisoning is chiefly found.

Manufacture of Barometers and Thermometers.

Mercury is heated to boiling point in order to fill the tubes of the instruments, and this causes a great deal of vapour. The number of persons employed in this industry is not very large, but after some years' work they are nearly all found to suffer from chronic mercurialism, such as slight

tremor and salivation. There are generally some two or three cases reported annually.

Hatters' Furriers' Processes.[1]

Dilute solution of nitrate of mercury is used for increasing the felting properties of the rabbit fur used. The skins are "carotted," that is, brushed with the solution before being dried and subjected to the subsequent processes of the industry.

The carotters suffer from special symptoms in the teeth, owing to the fumes of the nitric acid combined with the mercury. The vapours of either, singly, would in time impair the teeth, but in combination they cause premature decay and loss. Those who have been long engaged lose their molar teeth, and the teeth that remain are blackened and loose : moreover, they suffer from erosion of the enamel, and the gums recede.

Those engaged in the other processes suffer to a certain extent from tremor (hatters' shakes) and erythism, owing to the dust arising from the fur, which contains mercury.

The removal of fumes and dust is especially necessary in this industry.

Chemical Works.

Chemical works in which compounds of mercury are manufactured are dangerous. The chief compounds are—

Calomel or subchloride of mercury,

Corrosive sublimate or bichloride of mercury,

Vermilion or sulphide of mercury, and

Red oxide of mercury.

These are all made by sublimation, which involves the volatilisation of mercury, and needs great care. The processes are all productive of the symptoms of the poison, perhaps the manufacture of the red oxide and corrosive

[1] See Circular Letter from the Home Office in the Factories and Workshops Ann. Rep. 1900, p. 115, upon this industry.

sublimate more than the others.[1] A severe attack in the manufacture of red oxide was reported in 1906.

Other Industries.

Mercury is used in other industries, and cases of poisoning appear from time to time. For instance, in the manufacture of electric meters mercury is freely handled and used, and three cases were reported in 1902, and two cases in 1903. In 1902 a case was reported of a photographer suffering from using perchloride of mercury in photo-engraving. In the same year a case was reported from an explosives factory due to the use of fulminate of mercury.

PHOSPHORUS POISONING OR ITS SEQUELÆ.

Description of Process.—Any process involving the use of phosphorus, or its preparations or compounds.

Phosphorus is a powerful irritant poison, which causes a severe internal malady if swallowed, unless prescribed in medicinal doses. Its industrial importance is its use in the match trade, where it has been the cause of a serious and painful complaint known as "phossy jaw."

There are two kinds of phosphorus, both used in the match trade :

1. White or yellow phosphorus : when pure, a colourless crystalline substance which turns yellow when exposed to the light, and absorbs oxygen from the air, if moist, and forms oxides. It is highly inflammable, ignites at 34° C., and gives off poisonous fumes consisting mainly of the low oxides. It is volatile at ordinary temperatures : is not soluble in water, but is if swallowed.

2. Red or amorphous phosphorus : a powder obtained by heating the ordinary form at a high temperature of 230° C. in a closed space, where the atmosphere cannot act upon it. It is not inflammable, and may be handled with

[1] Factories and Workshops Annual Report, 1904.

impunity, does not take fire when rubbed on rough surfaces, does not fume, and is not poisonous even if swallowed.

In the manufacture of phosphorus, which is now usually made from mineral phosphate of lime and is finished under water, there is little risk. Cases of serious poisoning are very rare, though if they occur they will come under this Act for compensation. Industrially phosphorus may get into the system in three ways :—

(i) by inhaling the fumes ;

(ii) by getting it on to the hands and thence to the mouth ; or, possibly,

(iii) by absorption through the skin.

The first of these is the most important, as being the recognised cause of " phossy jaw."

Industrial phosphorus poisoning is practically confined to the match-making trade, and to this characteristic complaint, though if there were the same risk of fumes, it would occur in other occupations.

Ordinary lucifers, or " strike anywhere " matches, are made from white phosphorus : safety matches from the red phosphorus, which is put on the box, the head of the match containing a preparation of oxygen so as to ignite it. The public demand lucifer matches, so that the consumption of white phosphorus is much the larger. Its use is, however, prohibited altogether in the manufacture of matches after January 1, 1910, by the White Phosphorus Matches Prohibition Act, 1908. See p. 247, infra.

Phosphorus if taken internally causes very severe local inflammation of the stomach, with vomiting and hemorrhage. This is not a malady which occurs industrially, and it is omitted here in any detail. It is sufficient to say it is very serious, and ends in death as a rule.

The action of phosphorus fumes, when inhaled, is chronic, and gives rise to phosphorus necrosis or phossy jaw, the characteristic complaint of match-makers. It is a disease of the jawbone, producing exfoliation of the bone accompanied with inflammation and constant discharge of pus.

Sometimes the whole of the jaw comes away, and a new jawbone forms. Either jaw is liable to be attacked, but the lower one rather more frequently. If the upper jaw is attacked there is a danger of the inflammation reaching the brain, when death ensues.

Symptoms. The disease usually begins with an aching tooth ; if this is extracted the wound does not heal, but discharges pus : the jawbone becomes more and more exposed, the gums grow spongy, the teeth fall out and the offensive suppuration becomes more copious, and the bone becomes necrosed or dead, and, if not removed, is expelled naturally. It is very painful and very tedious, and in course of time the patient loses the whole or a large part of his jaw. In severe cases he dies in prolonged suffering, but more often returns to health, the victim of permanent deformity ; 83 per cent. of cases recover, whether the sequestrum (dead part) is removed by operation or not.

When the necrosis is severe it is accompanied with other symptoms : nausea, vomiting, fever, delirium, and kidney disease. Tuberculosis is often present, while paralysis must be counted as an occasional sequela.

Bad teeth are usually the immediate cause of phosphorus necrosis. Phosphorus fume has a detrimental action on bones, but does not affect bone covered with membrane. There must be some exposure of the bone upon which the phosphorus can act, and dental caries is the common cause.

Necrosis of the jaw is a result of chronic poisoning, but it is impossible to say how long it takes to develop—certainly not within twelve months; generally where the workman has been employed from seven to fifteen years ; sometimes it develops after he has left the factory, where he was exposed to the fumes, for two years.

Very long exposure is not necessary, because fatality occurs mostly among young people, from 19 to 22 years of age. Probably the young have less power of resisting the poison than those of mature age.

Expert opinion differs as to the exact cause of phosphorus necrosis, and the nature of the attack of the poison.

There is a consensus of opinion that the fumes are the most dangerous of the causes. These fumes contain oxides of phosphorus, and the lower oxides are said to be the most dangerous. Phosphorus at once oxidises in the air and forms phosphorus oxide (P_4O_6), but this in time is converted into phosphoric oxide (P_4O_{10}), which is much less dangerous, if not harmless.

Some Continental writers maintain that there is a definite malady which has been termed "phosphorism," as there is "plumbism" and "mercurialism," and the symptoms mentioned (altogether apart from the necrosis) are bronchitis, tubercular disease of the lungs, dyspepsia, loss of appetite, and muscular pains, while in women it produces miscarriage.

This constitutional effect is not recognised in this country. Our authorities are agreed in regarding match-makers as quite as healthy as the class from which they come, but that they are not a very well-fed class, and often suffer from debilitating conditions such as phthisis, alcoholism and anæmia, which, by lowering the resistance of the tissues of the body, predispose it to the attack of the poison.

The main controversy, however, is whether phosphorus has a mere local action, when it produces necrosis of the jaw, or acts generally on the system and produces more remote effects of which the necrosis is a local symptom.

It must not be assumed to be merely local, because exposure of the bone is the proximate cause of the necrosis. It is known to be a chronic poison, which often takes years to reveal itself in this particular form. Continual absorption of the oxides of so powerful a drug would be expected to produce some effect on the system, and we have one other marked symptom amongst match-makers which must be remembered as a sequela of phosphorus poisoning. This is the tendency of the bones to fracture spontaneously with muscular effort, and which points to an effect upon

the osseous tissues of which necrosis and fracture are both accidental results. This tendency of the long bones, especially of the lower limbs, to fracture, has been proved to exist in so many cases that have also suffered from necrosis that it cannot be coincidence.[1]

Manufacture of Matches.[2]

The dangerous processes are—

Mixing the paste, which contains a percentage of white phosphorus, for the tip of the match ;

Dipping the ends in the paste at a warm temperature ;

Drying the matches in a warm room, and

Boxing them when dry.

In all these processes there is considerable fume, especially in the dipping and drying.

The subject of match-making and phossy-jaw aroused a great deal of attention, both here and on the Continent, about ten years ago. At that time there was an average of about seven cases reported every year, and it was alleged that a good many more were overlooked or actively concealed. The special rules came into force in March 1900, after the report of a commission appointed to inquire into the use of phosphorus in the manufacture of lucifer matches in 1899. A reference to the table on p. 161 will show that these rules, combined with the invention and improvement in machinery, have reduced the number of cases to a minimum in this country.

It must be remembered that the danger is in the use of white phosphorus for making lucifers : the safety matches are made from red phosphorus, and are safe from the point of view of the maker as well as the striker.

The abolition of the use of white phosphorus was outside the range of practical politics till quite recently. The demand for lucifers was very great, and they could not be

[1] See Factories and Workshops : Annual Report, 1899.

[2] See Reports on the Use of Phosphorus in the Manufacture of Lucifer Matches : by Professors T. E. Thorpe and T. Oliver and Dr. G. Cunningham. 1899.

made without it. The demand is still very large, though the safety match is gaining in popularity. Moreover, they can now be made without white phosphorus, or with a sesqui-sulphide of phosphorus which is not dangerous, and there are excellent machines and patents for making lucifers in this way. The time was therefore ripe for a much-needed Act which was passed with the consent of the trade last autumn. The White Phosphorus Prohibition Act, 1908, prohibits the use of white phosphorus after January 1, 1910, or the sale of matches made with white phosphorus after January 1, 1911, and provides for the grant of compulsory licences to use any process patented for the manufacture of "strike anywhere" matches without white phosphorus.

Special Rules for Lucifer Match Factories in which White or Yellow Phosphorus is Used.

Amended Special Rules settled by Arbitration, March 31, 1900.

In these Rules "phosphorus process" means mixing, dipping, drying, boxing, and any other work or process in which white or yellow phosphorus is used; and "person employed in a phosphorus process" means any person who is employed in any room or part of the factory where such a process is carried on.

"Double dipped matches" means wood splints both ends of which have been dipped in the igniting composition.

"Certifying Surgeon" means a surgeon appointed under the Factory and Workshop Acts.

Any approval or decision given by the Chief Inspector of Factories in pursuance of these Rules shall be given in writing, and may at any time be revoked by notice in writing signed by him.

Rules 5 (*a*), 5 (*b*), 6, 8, and 19, so far as they affect the employment of adult workers, shall not come into force until the 1st day of October, 1900.

Duties of Employers.

1. No part of a lucifer match factory shall be constructed, structurally altered, or newly used, for the carrying on of any phosphorus process, unless the plans have previously been submitted in duplicate to the Chief Inspector of Factories, and unless he shall have approved the plans in writing, or shall not within six weeks from the submission of the plans have expressed his disapproval in writing of the same.

2. Every room in which mixing, dipping, drying or boxing is carried on—

shall be efficiently ventilated by means of sufficient openings to the outer air, and also by means of fans, unless the use of fans is dispensed with by order in writing of the Chief Inspector;

shall contain at least 400 cubic feet of air space for each person employed therein; and in computing this air space no height above fourteen feet shall be taken into account;

shall be efficiently lighted;

shall have a smooth and impervious floor. A floor laid with flagstones or hard bricks in good repair shall be deemed to constitute a smooth and impervious floor.

3. (*a*) The processes of mixing, dipping, and drying shall each be done in a separate and distinct room. The process of boxing double dipped matches or matches not thoroughly dry shall also be done in a separate and distinct room. These rooms shall not communicate with any other part of the factory unless there shall be a ventilated space intervening; nor shall they communicate with one another, except by means of doorways with closely fitting doors, which doors shall be kept shut except when some person is passing through.

(*b*) Mixing shall not be done except in an apparatus so closed, or so arranged, and ventilated by means of a fan, as to prevent the entrance of fumes into the air of the mixing room.

(*c*) Dipping shall not be done except on a slab provided with an efficient exhaust fan, and with an air inlet between the dipper and the slab, or with a hood so arranged as to draw the fumes away from the dipper, and to prevent them from entering the air of the dipping room.

(*d*) Matches that have been dipped and cannot at once be

removed to the drying room shall immediately be placed under a hood provided with an efficient exhaust fan, so arranged as to prevent the fumes from entering the air of the room.

(*e*) Matches shall not be taken to a boxing room not arranged in compliance with sub-section (*f*) of this Rule until they are thoroughly dry, and matches shall not be taken to a boxing room that is so arranged until they are dried so far as they can be before cutting down and boxing.

(*f*) Cutting down of double dipped matches and boxing of matches not thoroughly dry shall not be done except at benches or tables provided with an efficient exhaust fan so arranged as to draw the fumes away from the worker and prevent them from entering the air of the boxing room.

Provided that the foregoing rule shall not prevent the employment of any mechanical arrangement for carrying on any of the above-mentioned processes if the same be approved by the Chief Inspector as obviating the use of hand labour, and if it be used subject to the conditions (if any) specified in such approval.

Provided, further, that if the Chief Inspector shall, on consideration of the special circumstances of any particular case, so approve in writing, all or any of the provisions of the foregoing Rule may be suspended for the time named in such approval in writing.

4. Vessels containing phosphorus paste shall, when not actually in use, be kept constantly covered, and closely fitting covers or damp flannels shall be provided for the purpose.

5. (*a*) For the purposes of these Rules the occupier shall appoint, subject to the approval of the Chief Inspector, a duly qualified and registered dentist, herein termed the Appointed Dentist.

It shall be the duty of the Appointed Dentist to suspend from employment in any phosphorus process any person whom he finds to incur danger of phosphorus necrosis by reason of defective conditions of teeth or exposure of the jaw.

(*b*) No person shall be newly employed in a dipping room for more than 28 days, whether such days are consecutive or not, without being examined by the Appointed Dentist.

(*c*) Every person employed in a phosphorus process, except persons employed only as boxers of wax vestas or other thoroughly dry matches, shall be examined by the Appointed Dentist at least once in every three months.

(*d*) Any person employed in the factory complaining of toothache, or a pain or swelling of the jaw, shall at once be examined by the Appointed Dentist.

(*e*) When the Appointed Dentist has reason to believe that any person employed in the factory is suffering from inflammation or necrosis of the jaw, or is in such a state of health as to incur danger of phosphorus necrosis, he shall at once direct the attention of the Certifying Surgeon and occupier to the case. Thereupon such person shall at once be examined by the Certifying Surgeon.

6. No person shall be employed in a phosphorus process—
after suspension by the Appointed Dentist; or
after the extraction of a tooth; or
after any operation involving exposure of the jawbone; or
after inflammation or necrosis of the jaw; or
after examination by the Appointed Dentist in pursuance of Rule 5 (*d*); or
after reference to the Certifying Surgeon in pursuance of Rule 5 (*e*), unless a certificate of fitness has been given, after examination, by signed entry in the Health Register, by the Appointed Dentist or by the Certifying Surgeon in cases referred to him under Rule 5 (*e*).

7. A Health Register, in a form approved by the Chief Inspector of Factories, shall be kept by the occupier, and shall contain a complete list of all persons employed in each phosphorus process, specifying with regard to each such person the full name, address, age when first employed, and date of first employment.

The Certifying Surgeon will enter in the Health Register the dates and results of his examinations of persons employed in phosphorus processes, and particulars of any directions given by him.

The Appointed Dentist will enter in the Health Register the date and results of his examinations of the teeth of persons employed in phosphorus processes, and particulars of any directions given by him, and a note of any case referred by him to the Certifying Surgeon.

The Health Register shall be produced at any time when required by H.M. Inspectors of Factories, or by the Certifying Surgeon, or by the Appointed Dentist.

8. Except persons whose names are on the Health Register mentioned in Rule 7, and in respect of whom certificates of fitness shall have been granted, no person shall be newly employed in any phosphorus process for more than 28 days, whether such days are consecutive or not, without a certificate of fitness, granted after examination by the Certifying Surgeon, by signed entry in the Health Register.

This Rule shall not apply to persons employed only as boxers of wax vestas or other thoroughly dry matches.

9. The occupier shall provide and maintain sufficient and suitable overalls for all persons employed in phosphorus processes, except for persons employed only as boxers of wax vestas or other thoroughly dry matches, and shall cause them to be worn as directed in Rule 20.

At the end of every day's work they shall be collected and kept in proper custody in a suitable place set apart for the purpose.

They shall be thoroughly washed every week, and suitable arrangements for this purpose shall be made by the occupier.

10. The occupier shall provide and maintain—

(*a*) A dining room, and

(*b*) A cloakroom in which workers can deposit clothing put off during working hours.

11. No person shall be allowed to prepare or partake of any food or drink in any room in which a phosphorus process is carried on, nor to bring any food or drink into such room.

12. The occupier shall provide and maintain for the use of the workers a lavatory, with soap, nail brushes, towels, and at least one lavatory basin for every five persons employed in any phosphorus process.

Each such basin shall be fitted with a waste pipe, or the basins shall be placed on a trough fitted with a waste pipe. There shall be a constant supply of hot and cold water laid on to each basin.

Or, in the place of basins, the occupier shall provide and maintain enamel or galvanised iron troughs, in good repair, of a total length of two feet for every five persons employed, fitted with waste pipes and without plugs, with a sufficient supply of warm water constantly available.

The lavatory shall be kept thoroughly cleansed, and shall be supplied with a sufficient quantity of clean towels twice in each day.

There shall, in addition, be means of washing in close proximity to the workers in any department if so required in writing by the Inspector in charge of the district.

13. The occupier shall provide for the use of every person employed in a phosphorus process an antiseptic mouth wash approved by the Appointed Dentist, and a sufficient supply of glasses or cups.

14. The floor of each room in which a phosphorus process is carried on shall be cleared of waste at least once a day, and washed at least once a week.

15. A printed copy of these Rules shall be given to each person on entering upon employment in a phosphorus process.

Duties of Persons Employed.

16. No person shall work in a mixing, dipping, drying, or boxing room under other conditions than those prescribed in Rule 3.

17. No person shall allow a vessel containing phosphorus paste to remain uncovered except when actually in use.

18. All persons employed in a phosphorus process shall present themselves at the appointed times for examination by the Certifying Surgeon and Appointed Dentist, as provided in Rules 5, 6 and 8.

19. Every person employed in a phosphorus process and suffering from toothache or swelling of the jaw, or having had a tooth extracted, or having undergone any other operation involving exposure of the jaw, shall at once inform the occupier and shall not resume employment in a phosphorus process without a certificate of fitness from the Appointed Dentist, as provided in Rule 6.

No person, after suspension by the Appointed Dentist, or after reference to the Certifying Surgeon, shall resume employment in a phosphorus process without a certificate of fitness as provided in Rule 6.

20. Every person employed in a phosphorus process for whom the occupier is required by Rule 9 to provide overalls shall wear while at work the overalls so provided.

21. Every person employed in a phosphorus process shall, before partaking of meals or leaving the premises, deposit the overalls in the place appointed by the occupier for the purpose, and shall thoroughly wash in the lavatory.

22. No person shall prepare or partake of food or drink in

any room in which a phosphorus process is carried on, or bring any food or drink into such room.

23. No person shall in any way interfere, without the knowledge and concurrence of the occupier or manager, with the means and appliances provided for the removal of dust and fumes.

24. Foremen and forewomen shall report to the manager any instance coming under their notice of a worker neglecting to observe these Rules.

Arsenic Poisoning or its Sequelæ.

Description of Process.—Any process involving the use of arsenic or its preparations or compounds.

Further Description of Process in Order of May 22, 1907. —Handling of arsenic or its preparations or compounds.

Arsenic, like many other drugs, is a powerful poison, although often prescribed medicinally in small doses.

Formerly it was used in a great variety of industries, on account of its colouring properties. Many articles of every-day use (even sweetmeats) were coloured with arsenic and have caused cases of poison, but it is now chiefly used in the industries here discussed.

Acute arsenic poisoning does not often occur industrially: its symptoms are a burning in the throat and stomach, accompanied with vomiting, purging and great pain. If death does not ensue, paralysis often results.

Industrial arsenic poisoning appears in two forms, excluding poisoning by arseniuretted hydrogen, which is discussed separately, as the symptoms are more acute and quite peculiar:—

1. *Gastric*, due to the inhalation of the salts or dust of arsenic.

2. *Cutaneous*, due to contact with arsenic compounds, either by manipulation or by wearing next the skin.

The symptoms are chronic, and vary with the severity of the attack.

Symptoms. The most usual are hoarseness and sore throat, conjunctivitis (inflammation of the eyes), catarrh of the nose, headache, vomiting, colic and diarrhœa—the gastric disturbance being often severe.

In serious cases the nerves are affected. Peripheral neuritis, paralysis (usually of the lower limbs), and convulsions sometimes occur; death is not common in this complaint when occasioned industrially.

Arsenic pock. A characteristic and common symptom in connection with the manufacture of emerald green and sheep dip is arsenic rash or "arsenic pock" as it is usually called. It is an eczema or itching eruption, which especially affects the nose and the exposed parts of the body such as the elbows, the scrotum and genitals. Brown pigmentation is often seen round the eyes, temples, neck, and chest.

The only special rules in force relating to arsenic are made under the Metalliferous Mines Regulation Acts, and are referred to below under the heading of "Arsenic Reduction."

The number of reported cases of arsenic poisoning during the last few years is an average of five. The reduction is largely due to the decrease in the use of Scheele's green, a copper compound of arsenic used for the colouring of many articles such as artificial flowers and wall papers. Of the nine cases in 1907, three were due to inhalation of arseniuretted hydrogen, and two of these were fatal.

Verification. Where there is doubt as to the symptoms, the finding of arsenic in the urine will verify the diagnosis.

Arseniuretted Hydrogen (AsH_3).

Attention has been called during the last few years to the danger of this highly poisonous gas. The symptoms are entirely different from the usual cutaneous and gastric symptoms of arsenic poisoning, but when once seen can never be mistaken, a marked feature being the destructive action of the red blood corpuscles.

In the course of a few hours after inhalation of even a minute quantity, there is shivering followed by weakness,

headache, vomiting, and collapse, with rapid weak pulse. After eight or ten hours, blood is found in the urine. After twenty-four hours jaundice appears, usually of intense coppery hue. Death may occur in twenty-four hours, but it usually takes about a week. Recovery in mild cases is slow.[1]

The cause is said to be impure hydrochloric acid, and cases have occurred in the manufacture of bleaching powder (which was made from Spanish sulphur pyrites, containing a large quantity of arsenic), zinc chloride, zinc sulphate, and in galvanizing iron.

Cases have often occurred where work has been in confined spaces, where the gases evolved are not properly removed, so that the remedy is obvious.[2]

Arsenic Reduction.

Arsenic ore (mundic) is crushed and sieved through a half-inch sieve, and then calcined in a furnace. The fumes are received into flues and chambers and at a temperature of 365° F. are deposited as a solid "soot" of a greyish colour, the arsenic being mixed with dust of the ore and coal. The flues are cleared of this arsenic soot, which is again heated in a refining furnace in which only anthracite coal or coke is used. The fumes are again received into flues and chambers, and the deposit is this time perfectly white, and while still warm is passed through a mill, and ground as fine as flour, and packed into barrels.

There is a certain amount of fume escaping from the flues and furnaces, which is a source of mischief, but the part of the process most attended with danger is the emptying of the flues, both of arsenic soot and of pure arsenic, which is done at a temperature not sufficiently cool to be safe, as the fumes given off are dangerous. In the grinding and packing into barrels precautions should be taken to avoid inhaling the arsenic dust.

[1] Report on Compensation for Industrial Diseases, 1907, p. 5.

[2] Medical Inspector's Annual Report, 1902. For the symptoms and details of a case of death after exposure for only ten minutes see the Medical Inspector's Report for 1907, p. 54.

This industry is carried on in Devon and Cornwall, and the alleged injury to health therein was the subject of an inquiry and report in 1901.[1]

The complaint to which the workers are most liable is the "arsenic pock," arising from the fine dust collecting round the covering of the mouth and under the clothes, where there is friction, and ulcers form if the skin is broken. This can be largely met by cleanliness of the person, use of clean respirators (a sponge washed each time of use with soap and water is probably best), and protection of abrasions.

Bronchitis and its concomitant affections and sequelæ are alleged in this industry, but is adopted with some reservation by the report of 1901 already referred to.

Where the arsenic reduction works are connected with mines, special rules exist under the Metalliferous Mines Regulation Acts, 1872 and 1875, for the protection of the workers from arsenic poisoning.

They prohibit persons under sixteen and females from entering the flues: necessary clothes and wrappings must be provided for doing the dangerous work, also a suitable place for washing and changing the clothes. All persons so employed must carefully wash themselves before leaving the mine: and an antidote must be supplied by the mine surgeon. The arsenic and arsenic soot must be kept under supervision, and sent away packed in casks or barrels, or sound carts securely covered over.

The Report above referred to advocated the withdrawal of these rules, but at the same time made certain recommendations as to the conduct of the industry.

Sheep Dip.

There is risk of arsenical poisoning in the manufacture of sheep dip, which is arseniate of soda containing arsenic sulphide and free arsenious acid or white arsenic (As_2O_3). The grinding and packing is the most risky process, as it

[1] Report on certain alleged cases of poisoning in arsenic reduction works by E. Gould and J. S. Martin, 1901.

gives rise to considerable dust. In the Medical Inspector's Report for 1902 Dr. Legge gives the details of eighteen cases which came under his observation in one factory. Pigmentation, eczema, and mottling of the skin, congested throat and slight conjunctivitis were the most usual symptoms. Perforation of the septum of the nose occurred in several cases. There was an absence of gastro-intestinal and nervous symptoms.

Grinding mills and sieves should be covered over, washing accommodation provided, and overalls, head coverings and respirators worn. Precautions.

Arsenic in other Industries.

Arsenic poisoning occurs in tanneries and leather factories on account of the use of caustic potash and arsenious acid for removing hair from the skins, in the preservation of hides and skins, in dye works, and the making of emerald green, the powder of which is very light and causes great dust. The symptoms are as already described, including colic and gastric pains. Exhaust fans and periodical medical examinations once a week should be instituted.

Arseniate of soda is also used in the dyeing industries—especially for turkey red. It is a dangerous material, and should be used with every precaution.[1]

ANKYLOSTOMIASIS.

Description of Process.—Mining.

This is a tropical disease due to the presence of a small worm in the upper part of the intestines. In 1854 this worm[2] was recognised as the cause of "Egyptian chlorosis," and a few years later of a common malady in Brazil and other tropical countries. Some thirty years ago it was identified as the cause of much trouble in the workers in the St. Gothard tunnel, and has appeared amongst coal-

[1] Final Report of Dangerous Trades Committee, 1899, p. 30.
[2] Called variously, ankylostoma or ankylostomum duodenale, dochmius duodenalis, and strongylus duodenalis.

miners in France, Westphalia, and Belgium, and brick-makers near Cologne and elsewhere.

Its occurrence in England was not definitely recorded until in 1902 Dr. J. S. Haldane presented his report to the Home Secretary on an outbreak in the Dolcoath mine in Cornwall. An epidemic of anæmia had reached its height in 1897 and 1898, and Dr. Haldane identified the ova of ankylostoma in the fæces of the cases treated by him.

The adult worm lives in the duodenum and upper part of the small intestine, with its head fixed in the mucous membrane. The female is about half an inch in length, the male being a little shorter. The female produces an enormous number of ova, which may easily be found in the fæces, and are distinguished in their delicate and transparent oval shells.

If the fæces are left in a moderate temperature for several days, or in a warm place for a few hours, an embryo worm develops and hatches.

The spread of this disease depends entirely on contact with material which has been polluted by human fæces under such conditions of temperature and moisture that the ova have developed. In mines there are practically no arrangements for prevention of pollution, which is carried on the men's boots to all parts, and gets on to tools and clothes and hands, by which means infection is taken in with food. Infection may possibly occur through the skin.

The spread of the disease may be checked by preventing pollution of the mine,[1] and by increasing the ventilation, and thus reducing the temperature,[2] and moisture, as a low temperature is unfavourable to complete development of the larvæ outside the body. Unless such measures are taken the disease may spread throughout England whenever

[1] *E.g.* a system of pails with disinfectants and a careful disinfection of the soil of the polluted parts of the mine.

[2] In the Dolcoath mine, the temperature of the engine shaft where nearly everyone employed was affected, varied from 62° to 79°.

the temperature and moisture are favourable, whether in coal mines or metalliferous mines.

The Cornish mines are specially exposed to this risk, as the miners are constantly returning from tropical countries : and those who are only slightly infected, so that they show no symptoms, may be a source of infection for years. There has been no spread of the disease above ground in this country, owing to the low temperature and the means of disposal of excreta. There were two cases in a Scotch mine in 1907, but both men had returned from Mysore, in India.

Symptoms

The symptoms of ankylostomiasis are as follows : The face, particularly the lips, tongue, and inner surface of the eyelids, become pale, as in the case of anæmia common among young women. The person affected complains of palpitations, dizziness, and shortness of breath on exertion, which causes a suspicion of heart disease. There is also frequently discomfort or tenderness of the stomach, with capricious or abnormal appetite and other symptoms of gastro-intestinal disturbance. These symptoms become more and more pronounced until work becomes impossible. The anæmia is due not to loss or destruction of blood, as hitherto supposed, but to a great increase in its volume, with a corresponding dilution of the hæmoglobin.

In more advanced stages of the disease the symptoms become complicated. There is frequently dropsy, with signs of heart failure. Death may occur in untreated cases from some intercurrent disease, such as pneumonia or phthisis.

In the Dolcoath epidemic, skin symptoms were prominent, those affected suffering from itching of various parts of the skin, with pustular eruptions called by the miners "bunches."

Diagnosis.

The main symptoms are pallor and palpitation. Underground work always causes a certain amount of pallor, but this pallor of the lips is a definite sign, and when accompanied with palpitations should be easily recognised.

Verification.

Early diagnosis is very desirable : verification depends

upon the finding of ova in the fæces. The adult worm is not found unless a vermifuge remedy is administered. An examination of the blood in which the eosinophile leucocytes are largely increased will assist diagnosis.

Treatment.

Treatment in Europe is successful. The worms should be expelled by a vermifuge, and the disappearance of the ova from the fæces will prove the success of this remedy. Restoration to health is then rapid, unless complications ensue. The graver forms of the disease seldom occur in this country, and one death only has been definitely recorded.

When underground work is stopped, infection ceases in this climate, and the tendency is towards recovery.

DISEASES SCHEDULED BY ORDER, MAY 22, 1907.

1. Poisoning by Nitro- and Amido-derivatives of Benzene (dinitro-benzol, anilin, and others) or its Sequelæ.

Description of Process.—Any process involving the use of a nitro- or amido-derivative of benzene or its preparations or compounds.

This disease covers cases of poisoning from a dangerous chemical group used in the preparation of explosives and in dye works.

Benzene is a liquid distilled from coal tar which dissolves fatty substances, and which exists in many different compounds. The nitro-derivatives of benzene include nitro-benzol, dinitro-benzol, dinitrotoluol, and are made by the action of nitric acid upon benzene.

Anilin is an amido-derivative of benzene, known as anilin oil, and is much used as a dye, especially for anilin-black.

The poisonous effects usually result from inhaling fumes or dust, and also (unlike most chemicals) from direct absorption through the skin. This is especially so with anilin.

The symptoms produced by the poison are due to the degeneration and destruction of the red corpuscles of the blood, and to direct action, in severe cases, on the nerve centres. The action of the poison on the blood is the subject of a report by Dr. Walter Malden in an appendix to the Report of the Departmental Committee on Industrial Diseases, 1907. The poison deprives the blood of its power to take oxygen from the air, and the best treatment is therefore inhalation of oxygen.

In cases of poisoning by the nitro-derivatives of benzene the symptoms are :—

Anæmia and cyanosis (lividity), most easily seen in the lips, are prominent and distinctive : there is often severe headache, giddiness and failure of sight, and the urine is highly coloured. In severe cases the sensory and motor nerve endings become affected and muscular atrophy, mostly of the fingers and thumb, results.

These symptoms may incapacitate for some weeks or months. They are both acute and chronic. It is said a man's urine may become coffee-coloured in two hours. Alcohol is considered to predispose to this poison, and some manufacturers diet their men as much as possible on milk.

Poisoning due to anilin is comparable, though less severe. The symptoms produced by inhalation of the vapour of anilin oil or anilin hydrochloride, or by absorption of the oil through the skin are similar, but less pronounced, and are more chronic : grey or blue colouring of the lips accompanied by varying degrees of headache, dizziness, drowsiness, lassitude, difficulty in breathing, gastric disturbance and loss of appetite. These effects may, without doubt, incapacitate for more than a week : the workmen usually wish to return in from two to four weeks. Except that the anæmia is difficult to get rid of, there need be no permanent effects. Fatal cases are rare.

In all cases the symptoms are aggravated in hot weather.

Regulations, dated December 30, 1908, made by the Secretary of State, for the Manufacture of Nitro- and Amido-derivatives of Benzene, and the Manufacture of Explosives with use of Dinitrobenzol or Dinitrotoluol.

Whereas the manufacture of nitro- and amido-derivatives of benzene, and the manufacture of explosives with use of dinitrobenzol or dinitrotoluol, have been certified in pursuance of Section 79 of the Factory and Workshop Act, 1901, to be dangerous;

I hereby, in pursuance of the powers conferred on me by that Act, make the following Regulations, and direct that they shall apply to all factories and workshops in which the said manufactures are carried on.

Provided that Regulations 1 (*a*), 2, 3, 4, and 14 (*c*) shall not apply to any process in the manufacture of explosives in which dinitrobenzol is not used.

Definitions.

"Employed" means employed in any process mentioned in the Schedules.

"Surgeon" means the Certifying Factory Surgeon of the district or a duly qualified medical practitioner appointed by written certificate of the Chief Inspector of Factories, which appointment shall be subject to such conditions as may be specified in that certificate.

"Suspension" means suspension by written certificate in the Health Register, signed by the Surgeon, from employment in any process mentioned in the Schedules.

Duties.

It shall be the duty of the occupier to observe Part I. of these Regulations.

It shall be the duty of all persons employed to observe Part II. of these Regulations.

PART I.

Duties of Occupiers.

1. (*a*) Every vessel containing any substance named in Schedules A or B shall, if steam is passed into or around it, or if the temperature of the contents be at or above the

temperature of boiling water, be covered in such a way that no steam or vapour shall be discharged into the open air at a less height than twenty feet above the heads of the workers.

(*b*) In every room in which fumes from any substance named in Schedules A or B are evolved in the process of manufacture and are not removed as above, adequate through ventilation shall be maintained by a fan or other efficient means.

2. No substance named in Schedule A shall be broken by hand in a crystallising pan, nor shall any liquor containing it be agitated by hand, except by means of an implement at least six feet long.

3. No substance named in Schedule A shall be crushed, ground, or mixed in the crystalline condition, and no cartridge filling shall be done, except with an efficient exhaust draught so arranged as to carry away the dust as near as possible to the point of origin.

4. Cartridges shall not be filled by hand except by means of a suitable scoop.

5. Every drying stove shall be efficiently ventilated to the outside air in such manner that hot air from the stove shall not be drawn into any workroom

No person shall be allowed to enter a stove to remove the contents until a free current of air has been passed through it.

6. A Health Register, containing the names of all persons employed, shall be kept in a form approved by the Chief Inspector of Factories.

7. No person shall be newly employed for more than a fortnight without a certificate of fitness granted after examination by the Surgeon by signed entry in the Health Register.

8. Every person employed shall be examined by the Surgeon once in each calendar month (or at such other intervals as may be prescribed in writing by the Chief Inspector of Factories) on a date of which due notice shall be given to all concerned.

9. The Surgeon shall have power of suspension as regards all persons employed, and no person after suspension shall be employed without written sanction from the Surgeon entered in the Health Register.

10. There shall be provided and maintained for the use of all persons employed—

(*a*) suitable overalls or suits of working clothes which shall be collected at the end of every day's work,

and (in the case of overalls) washed or renewed at least once every week; and

(*b*) a suitable meal room, separate from any room in which a process mentioned in the Schedules is carried on, unless the works are closed during meal hours; and

(*c*) a suitable cloakroom for clothing put off during working hours; and

(*d*) a suitable place, separate from the cloakroom and meal room, for the storage of the overalls;

For the use of all persons handling substances named in the Schedules—

(*e*) india-rubber gloves, which shall be collected, examined and cleansed, at the close of the day's work and shall be repaired or renewed when defective, or other equivalent protection for the hands against contact;

For the use of all persons employed in processes mentioned in Schedule A—

(*f*) clogs or other suitable protective footwear.

11. There shall be provided and maintained in a cleanly state and in good repair for the use of all persons employed—

A lavatory under cover, with a sufficient supply of clean towels, renewed daily, and of soap and nail brushes, and with either—

(*a*) a trough with a smooth impervious surface, fitted with a waste pipe without plug, and of such length as to allow at least two feet for every five such persons, and having a constant supply of warm water from taps or jets above the trough at intervals of not more than two feet; or

(*b*) at least one lavatory basin for every five such persons, fitted with a waste pipe and plug or placed in a trough having a waste pipe, and having either a constant supply of hot and cold water or warm water laid on, or (if a constant supply of heated water be not reasonably practicable) a constant supply of cold water laid on and a supply of hot water always at hand when required for use by persons employed;

For the use of all persons employed in processes mentioned in Schedules A and B—

(*c*) sufficient and suitable bath accommodation (douche or other) with hot and cold water laid on and a sufficient supply of soap and towels. Provided that

the Chief Inspector may in any particular case approve of the use of public baths, if conveniently near, under the conditions (if any) named in such approval.

12. No person shall be allowed to introduce, keep, prepare, or partake of any food, drink, or tobacco in any room in which a process mentioned in the Schedules is carried on.

PART II.

Duties of Persons Employed.

13. Every person employed shall :—

(*a*) present himself at the appointed time for examination by the Surgeon as provided in Regulation 8 ;

(*b*) wear the overalls or suit of working clothes provided under Regulation 10 (*a*), and deposit them, and clothing put off during working hours, in the places provided under Regulation 10 (*c*) and (*d*) ;

(*c*) use the protective appliances supplied in respect of any process in which he is engaged ;

(*d*) carefully clean the hands before partaking of any food or leaving the premises ;

(*e*) take a bath at least once a week, and when the materials mentioned in the Schedules have been spilt on the clothing so as to wet the skin. Provided that (*e*) shall not apply to persons employed in processes mentioned in Schedule C, nor to persons exempted by signed entry of the Surgeon in the Health Register.

14. No person employed shall :—

(*a*) after suspension, work in any process mentioned in the Schedules without written sanction from the Surgeon entered in the Health Register ;

(*b*) introduce, keep, prepare, or partake of any food, drink, or tobacco, in any room in which a process mentioned in the Schedules is carried on ;

(*c*) break by hand in a crystallising pan any substance named in Schedule A, or agitate any liquor containing it by hand, except by means of an implement at least six feet long ;

(*d*) interfere in any way, without the concurrence of the occupier or manager, with the means and

appliances provided for the removal of the fumes and dust, and for the carrying out of these Regulations.

H. J. Gladstone,
One of His Majesty's Principal Secretaries of State.

Home Office, Whitehall,
30th December, 1908.

Schedules.

A.

Processes in the manufacture of :—
Dinitrobenzo
Dinitrotolu
Trinitrotoluol.
Paranitrochlorbenzol.

B.

Processes in the manufacture of :—
Anilin oil.
Anilin hydrochloride.

C.

Any process in the manufacture of explosives with use of dinitrobenzol or dinitrotoluol.

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2. Poisoning by Carbon Bisulphide or its Sequelæ.

Description of Process.—Any process involving the use of carbon bisulphide or its preparations or compounds.

This disease has long been recognised as the cause of a number of grave cases, but has in recent years been practically eradicated, partly owing to the stringent special rules that came into force in May 1898, and partly by the fact that the vulcanising of india-rubber is largely done by heat without carbon bisulphide. The carbon bisulphide (CS_2) is used for dissolving the india-rubber or guttapercha and the sulphur is combined with it. The danger lies in inhaling the vapour in this process, which causes chronic effects of two kinds : (1) upon the nerve centres: there is

Symptoms.

mental exaltation or depression—it is described as the feeling of being drunk without having had anything to drink—staggering, giddiness, loss of memory and even mania and insanity; (2) inflammation of the sensory and motor nerve endings: numbness of the feet and hands, followed by peripheral neuritis, paralysis, temporary blindness and loss of speech.

In less severe cases headache, dizziness, gastric disturbance and impairment of appetite are frequent.

Special Rules for Vulcanising of India-Rubber by means of Bisulphide of Carbon.

Duties of Employers.

1. No child or young person shall be employed in any room in which bisulphide of carbon is used.

2. After May 1st, 1898, no person shall be employed for more than five hours in any day in a room in which bisulphide of carbon is used, nor for more than two and a half hours at a time without an interval of at least an hour.

3. In vulcanising waterproof cloth by means of bisulphide of carbon—

(*a*) the trough containing the bisulphide of carbon shall be self-feeding and covered over;

(*b*) the cloth shall be conveyed to and from the drying-chamber by means of an automatic machine;

(*c*) no person shall be allowed to enter the drying-chamber in the ordinary course of work;

(*d*) the machine shall be covered over and the fumes drawn away from the workers by means of a downward suction fan maintained in constant efficiency.

4. Dipping shall not be done except in boxes so arranged that a suction fan shall draw the fumes away from the workers.

5. No food shall be allowed to be eaten in any room in which bisulphide of carbon is used.

6. A suitable place for meals shall be provided.

7. All persons employed in rooms in which bisulphide of carbon is used shall be examined once a month by the Certifying Surgeon for the district, who shall, after May 1st, 1898, have power to order temporary or total suspension from work.

8. No person shall be employed in any room in which bisulphide of carbon is used, contrary to the directions of the Certifying Surgeon given as above.

9. A Register in the form which has been prescribed by the Secretary of State for use in india-rubber works shall be kept, and in it the Certifying Surgeon will enter the dates and results of his visits, with the number of persons examined, and particulars of any directions given by him. This Register shall contain a list of all persons employed in rooms in which bisulphide of carbon is used, and shall be produced at any time when required by H.M. Inspector of Factories or by the Certifying Surgeon.

Duties of Persons Employed.

10. No person shall enter the drying room in the ordinary course of work, or perform dipping except in boxes provided with a suction fan carrying the fumes away from the workers.

11. No person shall take any food in any room in which bisulphide of carbon is used.

12. After May 1st, 1898, no person shall, contrary to the direction of the Certifying Surgeon, given in pursuance of Rule 7, work in any room in which bisulphide of carbon is used.

13. All persons employed in rooms in which bisulphide of carbon is used shall present themselves for periodic examination by the Certifying Surgeon, as provided in Rule 7.

14. It shall be the duty of all persons employed to report immediately to the employer or foreman any defect which they may discover in the working of the fan or in any appliance required by these rules.

3. Poisoning by Nitrous Fumes or its Sequelæ.

Description of Process.—Any process in which nitrous fumes are evolved.

Nitrous fumes are evolved in many processes where nitric acid is used: especially in the manufacture of nitro-glycerine, dynamite, gun cotton and celluloid, in chemical works, cotton printing and dye works.

The fuming occurs suddenly in chemical and explosive factories, more gradually in printing and dye works. The disease is really the result of accident, but is scheduled owing to the insidious onset of the symptoms. The effect may be immediate, but a man may continue his work after inhaling the fumes, and succumb twenty-four or thirty-six hours later from acute congestion of the lungs. The fumes set up a severe inflammation, which takes some hours to bring about exudation into the smaller bronchial tubes and air vesicles, which eventually completely fills them: there is great difficulty in breathing, and death occurs in a few hours, or else recovery in the course of a day.

A knowledge of a man's work is an assistance to diagnosis, as the symptoms are not characteristic.

Three cases were reported in 1907, of which two were fatal.

4. Poisoning by Nickel Carbonyl or its Sequelæ.

Description of Process.—Any process in which nickel carbonyl gas is evolved.

Nickel carbonyl ($NiCO$) is a dangerous gas, occurring in the separation of nickel from the ore. When first the process was introduced there were a number of cases, some fatal, but there is only one plant in this country, near Swansea, and that is so carefully watched and safeguarded that cases are now very rare.

Cases of poisoning by this gas are really accidents due to defects in the machinery.

Knowledge of this poison is practically confined to a group of forty-two cases in four and a half years, of which three were fatal, and which are discussed by Dr. J. Jones in his evidence before the Industrial Diseases Committee.

The symptoms are remarkable, and unlike those produced by any other known compound.

Initial symptoms come on within a few minutes of the

inhalation of the gas: headache, giddiness, sensation of drunkenness, nausea, and pain in the post sternal region. The later developments are somewhat similar, difficulty of breathing and pain in the chest being most marked. The pulse is very rapid, and there is cyanosis in the lips and ears. Recovery sets in about the fifth or sixth day, and the average duration of the illness where there is no complication is from fifteen to twenty-one days.

5. Arsenic
6. Lead
} Poisoning or its Sequelæ.

Description of Process.—Handling of {arsenic / lead} or its preparations or compounds.

These two diseases are included in this order merely to extend the process described in the second column to the *handling* as well as the *use* of arsenic and lead, so as to include such workmen as dock labourers employed in unloading cargoes, which can hardly be said to be a process involving the *use* of lead or arsenic. It was felt by the committee that reported that such workmen should be relieved from the onus of proving that the disease is due to their employment as much as the others, and this order puts them on the same footing.

As to the meaning of the word "process" in this connection, see p. 49.

7. Poisoning by Gonioma Kamasii (African Boxwood) or its Sequelæ.

Description of Process.—Any process in the manufacture of articles from Gonioma Kamasii (African boxwood).

This wood belongs to the order Apocynaceæ, a family that contains many heart poisons. It contains an alkaloid, which is very poisonous if continuously inhaled in the form of dust. It is a hard yellow wood used in shuttle-making.

It is not a boxwood at all, but is a name given to two kinds of African woods resembling each other closely in appearance. The name was suggested by the fact that shuttles are largely made of Persian boxwood, which it resembles, and which it has supplanted, as it is cheaper and better for the purpose.

The workmen create a great deal of dust in sandpapering the shuttles by hand—the earlier processes can be done with exhaust ventilation. The drug acts either as a cardiac depressant, or as a paralyser of nerve endings similar to curare. There is a difference of opinion as to this, but none as to its being very poisonous.

The symptoms are running at the eyes and nose, headache, nausea, sickness, a feeling of great weakness or faintness, and difficulty of breathing, described as asthma-like seizures, which are the characteristic guide to the practitioner.

There have not been many cases of incapacity: the industry is a small one and the men do not work many continuous hours at the dangerous wood: continued and accumulated exposure would end in heart failure.

The open air affords relief, and exhaust ventilation and the use of respirators are a great preventive.

8. Chrome Ulceration or its Sequelæ.

Description of Process.—Any process involving the use of chromic acid or bichromate of ammonium, potassium or sodium, or their preparations.

The manufacture of the bichromates of sodium and potassium, and the use of chromic acid and the solutions of alkaline bichromates cause eruptions and ulcerations of the skin.

The bichromates are largely used in dyeing, calico-printing and photography, and in the making of colours, especially the chrome yellows, when they are used with a

compound (such as the acetate) of lead. (See pp. 233, 234, supra, as to yellow lead and heading of yarn.)

The trouble usually begins where there is a cut or abrasion or tenderness of the skin : e.g., the septum of the nose or underneath the finger nails.

Symptoms.

Where the work is the manufacture of the crystals or their use in strong solution, it is said that eruptions are rare, but a cut or abrasion may become a sluggish ulcer with characteristically undermined and thickened edges, known as "chrome hole" amongst the workmen, and which, if neglected, may become a very painful complaint, even penetrating to the bone of the finger or knuckle joint. It frequently attacks the roots of the nails, when it is also very troublesome, and is known amongst the men as "rag-nails." These chrome ulcers may incapacitate for some weeks, but are never known as a danger to life.

Where the dust caused in the manufacture of the crystals is inhaled, the septum of the nose very often becomes perforated. This causes a little running at the nose, but is a trivial complaint : it does not attack the cartilages, or cause disfigurement or affect the sense of smell ; it can hardly be said to "disable" at all, certainly not for a week.

When the material is used in dilute solution, as in anilin-black dyeing, the form this complaint assumes is a papular eruption especially at points on the hands, fingers, wrist and forearm, where contact is persistent. Constant immersion may cause the papulæ to burst, leaving the chronic ulcerated condition.

The precautions required to minimise the danger of this disease are cleanliness, attention to cuts and abrasions. Sometimes india-rubber gloves are worn.

The use of bichromate of ammonia in the sensitising solution for preparing plates for etching and photo-engraving causes nasty eruptions and irritation of the skin which may be severe and last some weeks.

The following special rules came into force in February 1900 :—

Special Rules for Manufacture of Bichromate or Chromate of Potassium or Sodium.

In these Rules "person employed in a chrome process" means a person who is employed in any work involving contact with chromate or bichromate of potassium or sodium, or involving exposure to dust or fumes arising from the manufacture thereof.

Any approval given by the Chief Inspector in pursuance of Rule 10 shall be given in writing, and may at any time be revoked by notice in writing signed by him.

Duties of Occupiers.

1. No uncovered pot, pan, or other structure containing liquid of a dangerous character shall be so constructed as to be less than 3 feet in height above the adjoining ground or platform.

This Rule shall not apply to any pot, pan, or other structure constructed before January 1, 1899, or in which a height of 3 feet is impracticable by reason of the nature of the work to be carried on: provided in either case that the structure is securely fenced.

2. There shall be a clear space round all pots, pans, or other structures containing liquid of a dangerous character, except where any junction exists, in which case a barrier shall be so placed as to prevent passage.

3. No unfenced plank or gangway shall be placed across any pot, pan, or other structure containing liquid of a dangerous character.

4. The lighting of all dangerous places shall be made thoroughly efficient.

5. The grinding, separating, and mixing of the raw materials (including chrome ironstone, lime, and sodium and potassium carbonate) shall not be done without such appliances as will prevent, as far as possible, the entrance of dust into the workrooms.

6. "Batches," when withdrawn from the furnaces, shall either be placed in the keeves or vats while still warm, or be allowed to cool in barrows, or other receptacles.

7. Evaporating vessels shall be covered in, and shall be

provided with ventilating shafts to carry the steam into the outside air.

8. Packing or crushing of bichromate of potassium or sodium shall not be done except under conditions which secure either the entire absence of dust or its effectual removal by means of a fan.

9. No child or young person shall be employed in a chrome process.

10. (*a*) The occupier shall, subject to the approval of the Chief Inspector, appoint a duly qualified medical practitioner (in these Rules referred to as the Appointed Surgeon), who shall examine all persons employed in chrome processes at least once in every month, and shall undertake any necessary medical treatment of disease contracted in consequence of such employment, and shall, after the 30th day of April, 1900, have power to suspend any such person from work in any place or process.

(*b*) No person after such suspension shall be employed in any chrome process without the written sanction of the Appointed Surgeon.

(*c*) A Register shall be kept in a form approved by the Chief Inspector, and shall contain a list of all persons employed in any chrome process. The Appointed Surgeon shall enter in the Register the dates and results of his examinations of the persons employed and particulars of any treatment prescribed by him. The Register shall be produced at any time when required by H.M. Inspectors of Factories or by the Appointed Surgeon.

11. Requisites (approved by the Appointed Surgeon) for treating slight wounds and ulcers shall be kept at hand and be placed in charge of a responsible person.

12. The occupier shall provide sufficient and suitable overall suits for the use of all persons engaged in the processes of grinding the raw materials ; and sufficient and suitable overall suits or other adequate means of protection approved in writing by the Appointed Surgeon, for the use of all persons engaged in the crystal department or in packing.

Respirators approved by the Appointed Surgeon shall be provided for the use of all persons employed in packing or crushing bichromate of sodium or potassium.

At the end of every day's work they shall be collected and kept in proper custody in a suitable place set apart for the purpose

The overalls and respirators shall be thoroughly washed or renewed every week.

13. The occupier shall provide and maintain a cloak-room in which workers can deposit clothing put off during working hours.

14. The occupier shall provide and maintain a lavatory for the use of the persons employed in chrome processes; with soap, nail brushes, and towels, and a constant supply of hot and cold water laid on to each basin. There shall be at least one lavatory basin for every five persons employed in the crystal department and in packing. Each such basin shall be fitted with a waste pipe, or shall be placed in a trough fitted with a waste pipe.

15. The occupier shall provide and maintain sufficient baths and dressing-rooms for all persons employed in chrome processes, with hot and cold water laid on, and a sufficient supply of soap and towels; and shall cause each person employed in the crystal department and in packing to take a bath once a week at the factory.

A bath register shall be kept containing a list of all persons employed in the crystal department and in packing, and an entry of the date when each person takes a bath.

The bath register shall be produced at any time when required by H.M. Inspectors of Factories.

16. The floors, stairs, and landings shall be cleaned daily.

Duties of Persons Employed.

17. No person shall deposit a "batch" when withdrawn from the furnace upon the floor nor transfer it to the keeves or vats otherwise than as prescribed in Rule 6.

18. No person shall pack or crush bichromate of potassium or sodium otherwise than as prescribed in Rule 8.

19. (*a*) Every person employed in a chrome process shall present himself at the appointed times for examination by the Appointed Surgeon as provided in Rule 10.

(*b*) After the 30th day of April, 1900, no person suspended by the Appointed Surgeon shall work in a chrome process without his written sanction.

20. Every person engaged in the processes of grinding the raw materials shall wear an overall suit, and every person engaged in the crystal department or in packing shall wear an

overall suit or other adequate means of protection approved by the Appointed Surgeon.

Every person engaged in packing or crushing bichromate of sodium or potassium shall in addition wear a respirator while so occupied.

21. Every person employed in the processes named in Rule 20 shall before leaving the premises deposit the overalls and respirators in the place appointed by the occupier for the purpose and shall thoroughly wash face and hands in the lavatory.

22. Every person employed in the crystal department and in packing shall take a bath at the factory at least once a week; and, having done so, he shall at once sign his name in the bath register with the date.

23. The foreman shall report to the manager any instance coming under his notice of a workman ineglectng to observe these Rules.

9. Eczematous Ulceration of the Skin produced by Dust or Caustic or Corrosive Liquids, or Ulceration of the Mucous Membrane of the Nose or Mouth produced by Dust.

This is revoked by the Order of December 2, 1908 (except as regards cases arising before that date), and re-enacted without the words "caustic or corrosive," so that the disease as scheduled may include eczema caused by alkaline solutions such as are used by laundry women. The disease in the Order of December 2, 1908, is discussed infra, p. 287.

10. Epitheliomatous Cancer or Ulceration of the Skin, or of the Corneal Surface of the Eye, due to Pitch, Tar, or Tarry Compounds.

Description of Process.—Handling or use of pitch, tar, or tarry compounds.

Epithelioma is a cancerous growth of the cells of the skin. It is the least malignant form of cancer, and on removal it is not usually followed by recurrence.

Tar has a peculiar and irritating action upon the skin which varies in intensity. Those who handle and use pitch or tarry products, men employed in unloading, in making briquettes (which are a mixture of pitch and coal dust), in handling "coal oil" or creosote, are all liable to suffer from warty growths which ulcerate, and may become the seat of epithelimatous cancer. The growths occur on any part of the body, especially the face, hands, and scrotum, and are often accompanied with a dark pigmentation of the skin. They commence as small nodules, but soon break down, forming an ulcer covered by a crust, which gives the appearance of the so-called wart. The underlying ulcer almost invariably heals up, leaving a small scar when the crust has fallen off. If the growth becomes epithelimatous the situation is almost invariably on the scrotum, when it involves the neighbouring organs and tissues. It is then much the same as chimney-sweeper's cancer, and may be serious, as it can only be arrested by free excision, and the patient may lose one or both testicles. Symptoms.

Cleanliness is a very necessary precaution, but in spite of this, the disease may develop. The length of the incapacity is not great in most cases, and the worker may completely recover and resume his work.

Particles of pitch striking the eye may cause inflammation of the conjunctiva (the mucous membrane covering the eye-ball) and the cornea. This may be very serious: cases of this kind are said to do very badly.

It is said that the pitch getting into the surface of the eye causes a wound which lets in bacteria which induce a septic inflammation, and there is danger of loss of sight.

11. Scrotal Epithelioma (Chimney-sweep's Cancer).

Description of Process.—Chimney sweeping.

Soot sets up an irritation of the skin similar to pitch and tar, and with similar results as described under the last heading.

This cancer of the scrotal region is so prevalent amongst chimney-sweeps that it owes its name to this fact, and though it is occasionally found in other people, it is distinguished from other forms of cancer, and is characteristic of the trade, and is therefore scheduled separately. Amongst chimney-sweeps it has been the cause of excessive mortality. According to the Registrar's figures for three years the comparative mortality from this disease was 133 per thousand, as against 63 amongst other occupied males of the same ages (i.e. 26—65).

Symptoms. This form of cancer is invariably cutaneous and of slow growth: it is frequently preceded by a warty ulcerous growth, which may exist for some time before becoming cancerous, but the warts described as common among pitch workers are not so frequent in chimney-sweeps.

There is probably some unknown property in soot which makes it cancerous: not merely its grittiness. See, however, Dr. Butlin's opinion contra, p. 56 of the Minutes of the Industrial Diseases Committee, 1907.

Cleanliness is an important precaution.

12. Nystagmus.

Description of Process.—Mining.

Nystagmus is a disease of the eye prevalent amongst miners especially where the coal seams are thin. It is an involuntary oscillation of the eyes primarily due to fatigue of the elevator muscles of the eyes from the constrained oblique and upward position in which they have to be kept. Insufficiency of light from the lamp is also a cause.

The hewer who works at the coal face is mainly affected, owing to the strain of often working lying on his side, but others also suffer, such as deputies in low seams and onsetters in charge of the cage from the constant watching it go up and down.

Symptoms. The objective symptom is an oscillation of the eyes—the rate varying from 100 to 300 and even 350 times per

minute. Associated with this subjectively are headache, giddiness, and dancing of objects before the eyes, which frequently cause much discomfort, and occasionally incapacitate the miner entirely from work.

As regards degree of incapacity, Dr. Meighan, surgeon to the Glasgow Infirmary, classes cases of nystagmus under three heads :—

1. Slight, where the men do not cease work.

2. Where giddiness accompanies, and the men have to cease their particular work underground.

3. Where the men are obliged to cease work altogether.

He considered that 5 per cent. of the men employed in mines sought treatment under one or other of these classes —mostly in the first class.

Medical opinion is that pit work ought to be relinquished in order to prevent aggravation, whatever stage the disease has reached, although in some cases men have resumed their work after treatment without further injury. This is important, because a prominent characteristic of this disease is that, although it is easily diagnosed, the symptoms are largely subjective, and there is no necessary relation between its severity and the degree of incapacity. One man may exhibit very marked oscillation and yet suffer little discomfort, and be able to continue his work : another may show less acute overt symptoms, but may be truly incapacitated from his usual employment.

This may give rise to difficulty in settling disputed cases of compensation. Since the only prospect of effecting a cure is for the sufferer to cease work below ground, if not altogether, at least for a time, he ought to receive compensation, even if his overt symptoms are comparatively slight. He ought to discontinue his work if he is not to get worse, and if under medical advice he has to accept employment above ground at a lower wage, he is entitled to compensation.

This disease does not as a rule occur in persons under thirty years of age, and rarely until ten years after the

commencement of work. Recovery may be expected in from three to twelve months' time if pit work is abandoned. Long before this, in most cases, work that does not involve the particular eye-strain is possible.

Nystagmus is found to a certain extent in other trades. Compositors, metal rollers, platelayers and others whose employment necessitates an upward strain of the eyes are known to suffer from it. If such workmen fulfil the conditions of section 8 (1) by getting a certificate of disablement they may receive compensation under the Act, but (except in mining) the burden of proof is on them to show that the disease is due to the nature of their employment.

13. Glanders.

Description of Process.—Care of any equine animal suffering from glanders: handling the carcase of such animal.

Stablemen and grooms and others whose occupations bring them into contact with horses, asses or mules are liable to catch this disease from infected animals. It is a common disease in horses: it is rare, but very fatal in man. About four fatal cases have been reported annually during the last twenty years.

In the horse two forms of glanders are recognised, viz. glanders and farcy.

Glanders commences with nodules in the horses' nostrils, which ulcerate and give out an offensive discharge.

Farcy is characterised by the formation of nodules and abscesses in the skin of other parts of the body, and swellings along the course of the lymphatic vessels, termed "farcy buds." In either form the disease may last some time, but usually ends fatally. It is caused by the *bacillus mallei*, which is present in the discharges. Knackers who deal only with carcases do not often contract the disease, as the bacillus is confined to the lesions and discharges, with which their hands are not usually brought in contact.

In man glanders is contracted through getting the discharge upon the hands or body, especially if there is an abrasion or cut. It is also possible that the men may infect their food with their hands and contract it that way. It assumes an acute and a chronic form.

In the *acute form* incubation generally takes a few days, though it may vary from twenty-four hours to three weeks. The patient complains of headache and pains, and soon the characteristic eruptions or "farcy buds" appear, accompanied later by discharge from the nasal passages, which is fœtid and often blood-stained. The head and face become then affected: the glands swell and complications ensue. Death may follow in about a fortnight.

In the *chronic form* the symptoms are similar but much less severe: they assume the form of fever, with swollen and ulcerous skin, and may last for months or even years.

Diagnosis is not easy, and as the disease is novel to most practitioners, it should be verified bacteriologically.

14. Compressed Air Illness or its Sequelæ.

Description of Process.—Any process carried on in compressed air.

This illness is sometimes known as "caisson disease," from the large increase in the use of caissons for bridge-building, tunnelling, and other engineering works. It is plainly due to the employment. A caisson is a cylinder which is driven down into the bed of the river so that the open, bell-shaped mouth shall rest on the river bed: air is driven into this at considerable pressure to drive out the water and to keep it out. The pressure of the atmosphere is 15 lbs. to the square inch, which we do not notice, as the pressure is equal all round. The pressure in the caisson is often from two to three atmospheres, or even four atmospheres, which is 60 lbs. to the square inch. This does not hinder work at the time, and is not itself the source of danger, but upon returning to the lower pressure of the

open air (decompression), the worker is liable to very serious and varied complaints. The amount of gas that can be dissolved and held in solution by the blood or other liquids depends upon its volume, which varies inversely with the pressure. Therefore the bodies of the men who work under conditions of compressed air, whether in caissons or diving bells, dissolve an excess of air : the oxygen gas of this air is of no importance, because it combines chemically with the tissues, whereas the nitrogen is not chemically combined, and on coming out of the compressed air without sufficient interval to allow of gradual decompression, this nitrogen, in the form of bubbles, is set free in the blood and tissue fluids. Provided sufficient time for decompression is allowed, so that the dissolved gas may be given off gradually and safely from the lungs, the danger is much lessened and the disease is entirely preventible. This precaution as to time for decomposition in most engineering works is managed by "air-locks," where the pressure is gradually reduced. The proper allowance of time is said to be five minutes for each atmosphere, or 3 lbs. to the minute, and it is important that the workmen should not hasten this by drawing out bolts or by any other means. In the case of very high pressure, longer time should be given for decompression. If decompression is sudden, as where a caisson bursts, very painful or fatal results occur. As a matter of fact, cases have been numerous, but fatalities have been few.

Symptoms.

The symptoms are very varied : muscular pains, headache, sickness, loss of power over the limbs, vertigo, paralysis, deafness, inflammation of the ear, and even blindness.[1]

[1] The following answer of Mr. Leonard Hill, M.B., F.R.S., before the Industrial Diseases Committee of 1907, p. 27, is the best account of the cause and effect of this complaint :—

"Caisson illness is produced by bubbles occurring in the blood, and these bubbles may block up any vessel in any part of the body ; if they occur in the muscles or joints, they cause violent pains, which are called 'bends' by the workmen ; if they occur in the heart in sufficient amount, they may stop the action of the heart and produce instant death ; if they occur in the central nervous system, they may cause paralysis, and the paralysis may be of the most varying kinds, according to the

Workers in caissons are occasionally exposed to the risk of poisoning by carbonic oxide, sulphuretted hydrogen, and other poisonous gases, the symptoms of which must not be confused with compressed-air illness.

15. Subcutaneous Cellulitis of the Hand (Beat Hand).

16. Subcutaneous Cellulitis over the Patella (Miner's Beat Knee).

17. Acute Bursitis over the Elbow (Miner's Beat Elbow).

Description of Process—Mining.

These three diseases are due to the same causes, and may be considered together.

Cellulitis is inflammation of the cellular or connective tissue. It may be suppurative or non-suppurative (Quain).

Bursitis is inflammation of the *bursæ*, or spaces in the connective tissue lubricated with a small amount of serous fluid, and situated at points exposed to repeated pressure or friction.

Beat hand is an acute inflammation of the subcutaneous tissues of the hand or palmar side of the fingers. It is especially prevalent amongst miners, though found in other workmen, and is the result of constant friction of the pick or other instrument on the hand.

There is septic inoculation, probably through an abrasion, a speck of coal or dirt getting through the skin, leading to inflammation which becomes suppurative, and the products, confined by the dense skin over the palm, track in directions where the resistance of the tissues is least, usually to the back of the hand, but sometimes along the tendon sheaths. An operation is usually imperative, but the average period

places where the bubbles occur. A bubble may occur in the central artery of the retina of the eye, and produce blindness : it may occur in the internal labyrinth of the ear and produce noises in the head and vertigo : it may occur in the great brain and produce hemiplegia : or it may occur in the spinal cord and produce paraplegia, so that the symptoms are extremely various."

of incapacity is only about three weeks, and complete recovery is usual. Occasionally slight deformities of fingers or hand have resulted. The inflammation must be acute, which distinguishes *beat hand* from the chronic puckering of the skin known as Dupuytren's contraction.

Beat knee is an acute inflammation of the subcutaneous cellular tissues over the patella or kneecap, following on septic inflammation as in *beat hand*. The inflammation is acute; there is swelling and usually suppuration. The knee, owing to its exposed position and constant use upon hard and rough surfaces in mining, is very liable to injury. There is no reason why an acute bursitis over the kneecap should not, if it extends to the cellular tissues, come within the description of the disease scheduled as *miner's beat knee*.

Beat knee must be distinguished from *housemaid's knee*, which is also bursitis of the patella, due to constant kneeling: the latter is a much less acute form, there is swelling and secretion of the synovial fluid, but less pain and an absence of inflammation and suppuration. It is, in fact, a chronic form, and may become acute with neglect or through septic infection, when it is the same as beat knee. It is, however, not a scheduled disease. The Order expressly only schedules *miner's beat knee*. The committee upon whose report the Order was framed distinguished the two complaints, and recommended the exclusion of *housemaid's knee* from compensation on two grounds, viz. because it very rarely incapacitated for a month, and would be compensated for by the usual month's wages, and also because it was avoidable by the simple method of kneeling upon a proper mat.

Beat elbow is acute bursitis over the olecranon process of the elbow—a bone in the forearm. It is usually suppurative, and is in all respects similar to beat knee. It is especially a miner's complaint, due to the friction of the elbow on the ground when "holing." A pad does not avoid this friction altogether, and in low workings is not

practicable. The man has his elbow naked on the ground, and wants all the room he can get.

One death is reported owing to the spread of cellulitis up the arm, the man dying of septicæmia in eight days.

This disease is also described as *miner's beat elbow*, and if found in other occupations is not the subject of compensation.

18. Inflammation of the Synovial Lining of the Wrist Joint and Tendon Sheaths.

Description of Process.—Mining.

A long succession of " jars " to the wrist due to working a pick in hard coal or ironstone produces a serious form of sprained wrist, due to inflammation of the synovial membrane and tendon sheaths in the wrist joint. It is known as synovitis or tenosynovitis. If neglected it may lead to fibrous adhesions in and around the joint.

The pain and difficulty of using the wrist renders cessation of work necessary, and causes incapacity for various periods of time, largely dependent upon the attention paid to the complaint in the first instance.

Its presence can nearly always be detected by swelling of the part, and in the case of tenosynovitis the constant friction of the tendons within their sheaths sets up a roughening by the deposit of lymph, with constant crepitating sensation when the hand is placed on the affected part.

DISEASES SCHEDULED BY ORDER, DECEMBER 2, 1908.

Cataract in Glassworkers.

Description of Process.—Processes in the manufacture of glass involving exposure to the glare of molten glass.

Cataract is an opacity, partial or complete, of the substance of the crystalline lens or of its capsule (Quain). It is uncommon amongst persons under 40, but is found

frequently in the eyes of elderly people in a varying degree of severity. About 15 per cent. of people between 50 and 60 have some opacity of the lens, about 30 per cent. between 60 and 65. But those figures include many cases that are not mature cataract.

Cataract is much more prevalent amongst men who work with molten glass than amongst the rest of the population. Whether this is due to the heat or the glare of the furnace is a somewhat disputed point. The glare is usually given as the cause, but the heat may have something to do with it.

Recent investigation made by the Medical Inspector of Factories tends to prove that persons exposed to the furnace glare in glass works have an opacity of one kind or other in the lens between the ages of 30 and 40 about five times, between 41 and 50 about twice, and at 51 and over more than three times as frequent as those engaged in other work and not exposed to the glare.

These figures are striking and show the prevalence of the complaint amongst younger men. Senile cataract does not as a rule commence before 60 : often later. There is no doubt it is a trade disease in glass works—especially among the bottle-makers. At the same time the Industrial Disease Committee felt that in scheduling the disease they might expose many men to the risk of dismissal if the employer had to pay them compensation for a long period. A modification has therefore been introduced. An operation for the removal of cataract is attended by practically no danger, and among glass-workers usually enables them to obtain employment again even at the highly skilled work at which they were formerly engaged. The period in respect of which compensation is payable shall not exceed six months in all, nor four months unless the workman has undergone an operation for cataract. The period is intended to cover the time of incapacity immediately preceding and succeeding the operation. This should be a relief to the workman, and reduce the burden on the employer to very small proportions.

Telegraphist's Cramp.

Description of Process.—Use of telegraphic instruments.

This is not a common disease, but affects an appreciable proportion of operatives who use the Morse key instrument. It is characterised by muscular spasm, pain, tremor and weakness: there is no disease of the nervous system; muscular wasting, signs of paralysis and neuritis are all absent. It is developed by prolonged employment in special movements in the manipulation of the key, when the action has become practically automatic, not during the period of learning when muscular effort and attention are greatest.

The symptoms complained of are discomfort at work or pain which is not confined to one set or group of muscles. Its effect on the work is shown by production of jerkiness and illegibility in signalling, and disability to work limited to the particular movements involved. Final evidence of telegraphist's cramp is therefore recorded on the Morse signalling slip. In this way it can be distinguished from other disorders, such as neuritis or rheumatism followed by reduction of manipulative skill.

The Order introduces a modification by substituting the Post Office medical officer, under whose charge the workman is placed, for the certifying surgeon as regards Post Office employés—not others. There will still remain an appeal to a medical referee.

Eczematous Ulceration of the Skin produced by Dust or Liquids, or Ulceration of the Mucous Membrane of the Nose or Mouth caused by Dust.

No process is scheduled.

This disease is the same as the revoked disease (No. 9) in the Order of May 22, 1907, except that the words "caustic or corrosive" are omitted, so that it may include eczema

caused by alkaline solutions such as are used by laundry-women and others.

Many dusts and liquids produce a disease of the skin resembling eczema in appearance. It is, however, different inasmuch as it is not the idiopathic superficial dermatitis known as eczema, but is the reaction of a healthy skin to a definite known irritant, and is characterised by those parts only of the body being affected, as a rule, which are uncovered, such as the hands and forearm. Less frequently the disease assumes the form of ulceration, such as is described above as "chrome ulceration," and includes such symptoms as the eczema caused by bichromate of ammonia, which is described under that heading. (See p. 272.)

It occurs in a variety of trades, including tile-makers and colour-blowers in the potteries, dyers, bleachers, and cabinet makers using certain kinds of satinwood. It includes eczema or ulceration of the mucous membrane caused by the inhalation of lime and other dust in unloading cargoes, such as calcined spathic ore, the eczema due to varnishes in nickel-plating and French polishing, which is rare, and the alleged cases of chrysoidine poisoning in a dye used in the boot trade. Chrysoidine is a derivative of benzene (C_{12} H_{12} N), and possibly the ulceration is caused by some acid with which it is mixed.

As no process is scheduled in the second column for this disease, there is no presumption that it is due to the employment (under section 8, sub-section (2)). Injuries to the skin are less certain than other diseases : they may be due to irritants used at home, or even, in rare cases, may be the result of idiopathic disease. In this case the burden of proof is upon the workman, and there should be little difficulty in furnishing the necessary proofs.

INDEX

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