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THE MINES REGULATION ACT, 1906.

1430/09.

Department of Mines,
Perth, 1st December, 1910.

HIS Excellency the Governor, with the advice of the Executive Council, under the powers conferred upon him by Section 63 of "The Mines Regulation Act, 1906," has been pleased to repeal the whole of Part 12 of the Regulations under the said Act, and to approve of the following Regulations in lieu thereof, to come under the heading of "Use of Electricity," to take effect from the first day of February, 1911.

HENRY GREGORY,
Minister for Mines.

12.—USE OF ELECTRICITY.

SECTIONS.

- I.—General.
- II.—Generating or Distributing Stations and Machine Rooms.
- III.—Cables, Wires, Poles, etc.
- IV.—Motors
- V.—Circuit-breakers, Switches, and Fuses.
- VI.—Accidents and Fire Protection.
- VII.—Signalling, Shot-firing, etc.
- VIII.—Notices and Exemptions.

Note.—The rules have been grouped under the above sections for convenience of reference only.

REGULATIONS FOR THE INSTALLATION AND USE OF ELECTRICITY IN MINES.

The following Rules shall be observed, as far as is reasonably practicable,
in all Mines using electricity.

SECTION I. GENERAL.

1. The expression "pressure" means the difference of electrical potential under normal conditions between any two conductors through which a supply of energy is given, or between any part of either conductor and earth, as read by a hot wire or electrostatic voltmeter; and—

Low pressure
up to 250 volts.

(a.) Where the conditions of the supply are such that the pressure at the terminals where the electricity is used *cannot exceed 250 volts*, the supply shall be deemed a *low-pressure* supply:

Medium pres-
sure 250 volts to
650 volts.

(b.) Where the conditions of supply are such that the pressure at the terminals where the electricity is used, between any two conductors, or between one conductor and earth, *may at any time exceed 250 volts*, but *cannot exceed 650 volts*, the supply shall be deemed a *medium pressure* supply:

High pressure
650 volts to
3,500 volts.

(c.) Where the conditions of supply are such that the pressure at the terminals where the electricity is used, between any two conductors, or between one conductor and earth, *may at any time exceed 650 volts*, but *cannot exceed 3,500 volts*, the supply shall be deemed a *high-pressure* supply:

Extra high
pressure above
3,500 volts.

(d.) Where the conditions of supply are such that the voltage at the terminals where the electricity is used, between any two conductors, or between one conductor and earth, *may at any time exceed 3,500 volts*, the supply shall be deemed an *extra high-pressure* supply.

Cables and
appliances to be
efficient.

2. All electrical apparatus and conductors shall be sufficient in size and power for the work they may be called upon to do, and efficiently covered or safeguarded, and so installed, worked, and maintained as to reduce the danger, through accidental shock, or fire or overheating, to the minimum, and shall be of such construction, and so worked that the rise in temperature caused by ordinary working will not injure the insulating materials.

3. The armouring of cables, and the frames and bedplates and all metallic coverings of generators, transformers, rheostats, liquid switches, and motors other than portable motors, shall be properly connected to earth in a skilful and careful manner, if the pressure at the terminals where the electricity is used exceeds the limits of low pressure. Earthing frames, etc.

4. Where a medium pressure supply is used for power purposes, or for arc or incandescent lamps in series, the conductors which form the connections to the motors, transformers, or lamps, or are otherwise used in connection with the supply, shall be:— Medium pressure.

- (a.) Completely enclosed in strong armouring or metal casing efficiently connected with earth, or
- (b.) They shall be fixed at such a distance apart, or in such a manner that danger from fire or shock shall be reduced to the minimum. (This rule shall not apply to trailing cables, which are dealt with under Regulations Nos. 39 to 46.)

5. A higher pressure than a medium pressure shall not be used or transmitted for any purpose below ground without special permission of the Minister. High pressure

6. Where electricity is used for power or lighting purposes in excess of 100 kilowatts a competent person shall be employed who shall be subject to the authority of the Manager, and shall have charge of all electrical machinery and apparatus in or about the mine, and who is in these Regulations called the electrician. Competent person in charge.

7. Every person appointed or allowed to work any electric motor or other apparatus shall have been instructed in his duty and be competent for the work that he is set to do. Do.

8. No person shall wilfully damage, interfere with, or, without proper authority, remove or render useless any electric line or any machine, apparatus, or part thereof, used in connection with the supply or use of electricity. Interference and damage.

SECTION II. GENERATING OR DISTRIBUTING STATIONS AND MACHINE ROOMS.

9. There shall be a passage way in front of the main switchboard of not less than 3ft. in width, and if there are any connections at the back of the switchboard the passage way behind the switchboard shall not be less than 3ft. clear. This space shall be kept clear and shall not be utilised for hats, clothes, lumber, etc., or obstructed in any way by resistance frames, meters, or otherwise. If space is required for resistance frames or other electrical apparatus behind the board, the passage way must be widened accordingly. Switchboard passage way.

- Cables crossing passage. 10. No cable shall cross the passage way at the back of the board except below the floor, or at a height of not less than 7ft. above the floor.
- Space at back of switchboards. 11. The space at the back of the main switchboards shall be properly floored, and except in the case of low pressure switchboards, must be closed by a self-closing door, with a warning notice in a prominent position upon it. The floor at the back shall be firm and even, and insulating boards or mats shall be provided.
- Automatic circuit breakers. 12. Automatic circuit breakers must be arranged so that when the contact lever opens outwards no danger exists of striking the head of the attendant. If unenclosed fuses are used they must be placed within 2ft. of the floor or not less than 6ft. above the floor, or must be suitably protected.
- Pressure above medium. 13. Where the supply is at a pressure exceeding the limits of medium pressure, there shall be no live metal work on the front of the main switchboard within 8 feet of the floor or platform, and the space provided under rule 9 of this Section shall be not less than 4ft. in the clear. Insulating floors or mats shall be provided for boards exceeding low pressure where live metal work is on the front or back.
- Protection above medium pressure. 14. All terminal and live metal on machines over medium pressure above ground, and over low pressure under ground, where practicable, shall be protected with insulating covers or with metal covers connected to earth in a skilful and careful manner.
- Leakage detector. 15. In every completely insulated circuit having a pressure above low pressure earth or fault detectors shall be kept connected up in every generating station, to show immediately any defect in the insulation of the system. These instruments shall be placed where they shall be under observation, and inspected daily by a competent person, and in the event of leakage current occurring suitable steps shall be taken at once to localise and remedy the leakage.
- Live parts of fittings. 16. All live metal on main and distribution switches and fuse boards shall be mounted on incombustible material properly insulated, such as marble or slate free from metallic veins, and shall be fixed in as dry a situation as practicable.
- Fuses or cutouts. 17. Every sub-circuit above low pressure shall be protected by a fuse on each pole, except in the case of the earthed middle wire of a 3-wire system, in which case the fuses shall be on the outers, but no fuse or switch shall be placed between the middle wire and earth. Every circuit having a current of more than three amperes at any pressure above low pressure must be protected by one of the following alternative methods:—
- (a.) By an automatic maximum-current circuit breaker on each pole; or

(b.) By a detachable fuse on each pole constructed in such a manner that it can be safely removed from a live circuit; or

(c.) By a switch and fuse on each pole.

18. Fuses shall only be adjusted or replaced by an authorised person. ^{Replacing fuses.}

19. A record of each instance of a generator circuit-breaker or generator fuse opening shall be kept in the Record Book in each generating station or room, and signed by the person making the record. ^{Record of fuses.}

20. Where electric cables go into a shaft mouth or mine entrance from a generating or transformer station situated more than 400 yards from the shaft mouth or mine entrance, then a main switch to control these circuits shall be placed in a box efficiently enclosed or protected or in a small switch house near the shaft mouth or mine entrance for cutting off the supply of electricity to the underground workings of the mine. ^{Switch near mine entrance.}

21. (a.) In cases where cables carry current exceeding 250 volts on the mine, from a source outside the mine, an emergency main switch shall be placed in a convenient place near where the cables come on to the mine, and shall be properly protected. ^{Emergency switches for supply outside mine.}

(b.) This switch must be so placed that it can be operated without risk to a person unused to operating such switches.

(c.) In the event of this switch being locked up, or the main switch to be used for emergency purposes being placed inside the transformer cabin, the keys for obtaining access to same shall be kept in such places as to be immediately available at any time, day or night, by responsible mine officials.

(d.) In cases where the main switch in the transformer cabin is to be used for emergency purposes (in addition to protection, see sub-clause (b)), it must be so placed as to avoid risk of accident from other apparatus; and a conspicuous notice shall be placed to indicate the switch, and how to operate it.

Electric Lighting.

22. Small wires for lighting-circuits shall either be conveyed in pipes or casings, or they may be suspended from porcelain insulators, or tied to them by insulated tie wire or some non-conducting material which will not cut the covering, and so that they do not touch any timbering or metal work. On no account shall staples be used. If metallic pipes are used they must be electrically continuous and earthed. If separate uncased wires are used they shall be kept at least three-quarters of an inch apart, and not brought together except at lamps or switches or fittings. ^{Electric lighting wires}

Emergency oil lamps. 23. In all machine rooms and other places underground, where a failure of electric light is likely to cause danger, suitable lamps or other proper lights shall be kept ready for use in the event of such failure.

SECTION III.
CABLES, WIRES, ETC.

No cables near mine hoist. 24. No electric cable or wire of any kind shall cross over or be placed in such a position that it could fall on or foul any mine hoisting rope.

All conductors to be insulated. 25. All conductors in the underground workings of any mine, except as hereinafter provided, shall be continuously covered with insulating material of which the insulation resistance per mile shall not be less than 1,200 megohms for low pressure and 2,500 megohms for medium pressure, and all such conductors shall in every case be maintained completely insulated from earth.

Concentric system. 26. It is permissible to use the concentric system with earthed outer conductor, if in the opinion of the Inspector proper arrangements have been made to reduce the danger from fire or shock to the minimum; and the neutral point of polyphase systems, and the middle wire of three-wire continuous-current systems may be earthed at one point. In these latter cases fuses and switches are prohibited.

Earthing armoured cable. 27. Unless fixed out of reach of injury all conductors, other than armoured cables, must, in addition to the insulation, be protected by a suitable covering. Where lead-covered cable is used each section of the lead shall be properly connected to earth in a skilful and careful manner.

Exposed ends of cables. 28. The exposed ends of cables, where they enter the terminals of switches, fuses, and other appliances, shall be properly protected and finished off, so that moisture cannot creep along the insulating material within the waterproof sheath, or the insulating material, if of an oily nature, leak out of the cable.

Cable joints. 29. All joints shall be mechanically and electrically efficient, and where reasonably practicable, shall be suitably soldered. Wires other than blasting wires or cables must not be joined by merely twisting them together. This rule does not apply to trailing cables.

High and low pressure cables on points. 30. Cables and wires supported on poles or buildings, carrying current exceeding the limits of low pressure, shall, wherever possible, be so erected that they shall not be closer than three feet from lower voltage circuits, excepting at transformers and other necessary apparatus, and in cases where it is not possible to keep wires three feet apart special precautions shall be taken and protection afforded.

Cables entering buildings. 31. Where cables or wires enter buildings or structures of any kind they shall be protected by porcelain tubes or other suitable insulators, to prevent the cables or wires from being injured.

32. All overhead transmission lines or feeders to the shaft or mine entrance shall be provided with lightning arresters of well approved type connected to earth in a skilful and careful manner.

Lightning arresters on overhead lines.

33. Overhead bare wires on the surface shall be properly secured to insulators, and clear of any traffic or moving machinery, and provided with lightning arresters of well approved type connected to earth in a skilful and careful manner.

Overhead wires and lightning arresters.

34. All cables used in shafts must be highly insulated and substantially fixed. Shaft cables not capable of sustaining their own weight shall be properly supported at intervals, varying according to the weight of the cable.

Cables in shafts.

35. When cables are placed in ladderways precautions shall be taken that they shall be so installed as to prevent any person using the ladderway from receiving a shock.

Cables in ladderways.

36. Where the cables in main haulage ways cannot be kept at least one foot from any part of the cage, skip, tub, or truck, they shall be specially protected. Where separate cables are used they shall be fixed as far apart as possible.

Cables in haulage ways

37. Cables and wires, unless provided with metallic coverings, shall not be fixed to walls or timbers by means of metallic fastenings.

Cables on walls

38. Where main or other roads are being repaired or blasting is being carried out, suitable temporary protection must be used, so that the cables are protected from damage.

Cables and protection.

Trailing Cables.

39. Trailing cables for portable machines shall be specially flexible, heavily insulated, and protected with extra stout braiding, hose pipes, or other equally effective covering. Bare metal armouring shall not be used upon any trailing cable carrying current at a pressure exceeding the limits of low voltage.

Trailing cables protection.

40. The two cables of the twin trailing cable shall be divided at the motor end only for such a length as is necessary for the making of connection to the motor; and the twin cable with its outer covering complete shall be held by a suitable clamp on the motor frame in such a manner as to protect the trailing cable from injury, and to prevent any mechanical strain being borne by the single ends making electrical connection with the motor.

Twin trailing cables.

41. At points where the flexible conductors are joined to the main cables a fixed terminal box shall be provided; and a switch and fuses shall be fitted in the terminal box capable of entirely cutting off the supply from the trailing cable, unless the machine is operated on a circuit of its own, either from the power house or some sub-station, at which point it shall be permissible to place the fuse or circuit-breaker.

Flexible cables terminal boxes.

- Trailing cable inspection. 42. The machine-men shall be required to carefully inspect each trailing cable, while in use, so as to detect defects; and, in the event of any defect becoming apparent, notice of the same shall at once be sent to the electrician or manager.
- Machines not to be left with current on. 43. The person in charge of a portable machine shall not leave the machine while it is working, and shall, before leaving the working place, see that the current is cut off from the trailing cables. He must not allow the cables to be dragged along by the machine. No repairs shall be made to any portable machine until the current has been cut off from the trailing cables.
- If defects appear, machine to be stopped. 44. If any electric sparking or arcs be produced outside a portable machine or by the cables or rails, the machine shall be stopped, and not be worked again until the defect is repaired, and the occurrence shall be reported to an official of the mine.
- Horse traffic with cable. 45. All horse traffic shall be suspended on the part of every road along which a trailing cable is extended for the purpose of moving a machine from place to place.
- Cables clear of rails. 46. Trailing cables shall at all times be kept clear of the rails and traffic, except when machines are being moved from place to place.

Poles, etc.

- Poles to be kept in good condition. 47. All poles carrying electric cables shall be maintained in good condition, and shall be of sufficient strength to support the cables, and with a view to prevent weakening by dry rot, white ants, etc., in wooden poles, or corrosion, etc., in iron poles, shall be examined at least once every six months.
- Cross-fitting kept in good condition. 48. All cross-arms, insulators, and attachments of cables shall be examined at least once every six months, and all defective cross-arms, insulators, and attachments removed and replaced, and the cables re-strained if required.
- Warning notices. 49. A notice shall be kept posted in a conspicuous place on the mine warning unauthorised persons not to touch or interfere with any fallen or broken electric cable or wire but to report such at once to the manager or electrician.
- High and low pressure cables. 50. Overhead cables carrying current exceeding medium pressure are to be erected so that cables carrying a lower pressure should be below and not closer at the poles than three feet between the high and low pressure cables in any direction.

Disused Cables.

- Disused cable. 51. All electric cables, wires, etc., whether inside or outside a building, which are no longer in use, shall be disconnected from the mains, and removed, excepting in the case of cables, wires, etc., which are temporarily not in use.

52. In the event of cables and wires being out of use temporarily, these shall, where practicable, be coiled up and not allowed to lie about, and precautions shall be taken to prevent dead and disused wires from touching or making contact with those circuits in use. Cables not to lie about.

Underground Tramway Circuits.

53. In underground roads the trolley-wires, unless sufficiently guarded, shall be placed so that they are throughout at least seven feet above the level of the road or track, or the pressure shall be cut off from the wires at all times when such roads are used for travelling on foot. The hours during which travelling on foot therein is permitted shall be clearly indicated by notices and signals placed in conspicuous positions at the ends of, and at all entrances into, the roads. At other times no one except a person duly authorised by the manager shall be permitted to travel on foot along such roads. Tramway circuits.

54. Under the conditions indicated in the foregoing Rule, trolley-wires may be used with current at a pressure not exceeding low pressure; but a pressure not exceeding medium pressure may be used on roads on which travelling on foot is not at any time permitted, except in the case of drivers of locomotives or of persons duly authorised by the management to travel only for purposes of inspection and to effect repairs. Pressure on tramway circuits.

SECTION IV.

MOTORS.

55. Every motor, together with its starting resistances, shall be protected by switches capable of entirely cutting off the pressure, and fixed in a convenient position near the motor. Motor protection.

56. Where unarmoured cables or wires pass through metal frames or into boxes or motor casings, the holes shall be substantially bushed with insulating collars, and, where necessary, with gas-tight bushings which cannot readily become displaced. Cable protection.

57. Terminal boxes of portable motors shall be securely attached to the machine, or be designed to form a part thereof. Terminal boxes.

58. Where the insulation of a motor is found to become damp during a stoppage, suitable steps shall be taken to ensure that the insulation shall be dry before the working of the motor is resumed, in order that the base may not become alive. Insulation of motor to be maintained.

59. The casing or inspection doors of all portable motors used underground, and the casing of their switches and other appliances, shall at least once a week be opened by a competent person appointed by the manager, and the parts so disclosed shall be cleaned and examined before the coverings are replaced. In special cases Motors to be kept clean.

requiring a motor to run continuously longer than one week, the motor shall be examined at the end of the run. A report of such examination shall be entered in the record book.

Repairs to Live Parts.

Repairs to live parts.

60. Where the live parts of electrical apparatus, switches, or machines working at a pressure exceeding the limits of low pressure may have to be handled for the purpose of adjustment, gloves, mats, or shoes, of india-rubber or other sufficient non-conducting material, shall be supplied by the Manager and shall be used by the attendants.

SECTION V.

CIRCUIT BREAKERS, SWITCHES, AND FUSES.

Automatic circuit breakers.

61. Automatic circuit breakers and fuses shall be so constructed as to effectually interrupt the current when a short circuit occurs, or when in the case of direct current motors the current through them exceeds the working current by 200 per cent., or by 100 per cent. the permissible current of the cables which the fuses protect. Fuses shall be stamped or marked or shall have a label attached, indicating the current with which they are intended to fuse, or, where fuse wire is used, each coil in use shall be so stamped or labelled.

Live parts to be guarded.

62. All switches, except oil or enclosed switches, circuit breakers, and fuses shall be on incombustible bases of slate, marble, porcelain, or other suitable insulating material. All live parts of switches, contact breakers, and fuses which it is necessary to handle in replacing or removing, not in machine rooms or in compartments specially arranged for the purpose, shall be covered or guarded. These covers or guards shall be of incombustible material, and shall be either non-conducting or of rigid metal, and, as far as practicable, clear of all internal mechanism.

Makeshift not allowed.

63. All points at which a circuit (other than those for signals) has to be made or broken shall be fitted with proper switches. The use of hooks or other makeshifts is prohibited.

Switches and fittings to be protected.

64. All open-type switches and fittings, such as main switches and fittings controlling an installation in a building or electrical machinery, shall be so placed or protected as to guard against any person accidentally coming in contact with the live parts of the switch or apparatus.

Knife switches.

65. All switches of the "knife" type shall be so placed that the hinged part of the switch is below, so that should anything fall on the handle it would tend to open the switch.

SECTION VI.

ACCIDENTS AND FIRE PROTECTION.

66. Instructions shall be posted up at the mine entrance and in main generating, transformer, and motor houses, containing directions as to the restoration of persons suffering from electric shock. All employees working in connection with electrical apparatus shall acquaint themselves with the said instructions. Electric shock accidents.

67. Fire buckets filled with clean dry sand shall be kept near main switchboards ready for immediate use in extinguishing fires. Fire buckets and sand.

68. Every personal accident occurring in connection with the operation of the electrical equipment (including electric shocks and burns) shall be promptly reported by the person injured, or by some other person on his behalf, or by any person witnessing or discovering the accident, at the office of the mine, and shall be there recorded. Accidents to be reported.

SECTION VII.

SIGNALLING, SHOT-FIRING, ETC.

Signalling, etc.

69. The foregoing Rules shall not apply to apparatus used for telephone, telegraph, and signal purposes, which are provided for by the three following Rules:—

70. The voltage of underground signal circuits shall not exceed 30 volts. Signals voltage.

71. Electric signal and telephone wires shall not be allowed to come into contact with other electric conductors, whether insulated or not. Signal wires protection.

72. Bells, wires, insulators, contact-makers, and other apparatus used in connection with electric signals underground shall be of a substantial and reliable description, and shall be erected in such a manner as, in the opinion of the Inspector, to reduce the liability to failures or false signals to the minimum. Signal appliances to be substantial.

Shot-Firing.

73. Electricity from lighting or power cables shall not be used for firing shots. Shot-firing circuits.

74. When shot-firing cables or wires are used in the vicinity of power or lighting cables, sufficient precautions shall be taken to prevent the shot-firing cables or wires from coming into contact with the lighting or power cables. Cables to be protected.

75. Only competent persons who have been properly instructed in the work and duly authorised by the manager in writing shall be allowed to fire shots electrically in any part of a mine. Only competent person to fire shots.

- Wires suitable.** 76. The exploder, fuses, and wires shall be suitable for the conditions under which the blasting is carried out.
- Shot-firer to have key only.** 77. The exploder shall be in the charge of the shot-firer, and shall be fitted with a handle or key, which shall be detached when not required for firing, and shall not under any conditions pass from the personal custody of the shot-firer whilst on duty. A primary or secondary battery shall not be used for shot-firing.
- Connection of exploder.** 78. The exploder shall not be connected to the shot-firing cable until all other steps preparatory to the firing of the shot have been completed and all persons have removed to a place of safety.
- Misfires.** 79. Immediately after the firing of the shot the firing cable shall be disconnected from the exploder; and no person shall approach a shot which has been attempted to be fired by electricity and has failed to explode, until the firing cable has been so disconnected and an interval of five minutes has elapsed since the last attempt to fire the shot.

SECTION VIII.

NOTICES AND EXEMPTIONS.

- Notices.** 80. Within three months after the coming into force of these Regulations notice in writing of any existing electric installation shall be sent to the Inspector of Mines.
- Plans and data.** 81. A plan, of a scale not smaller than four chains to one inch, shall be kept at the mine, showing the position of all permanent electrical machinery and fixed main cables in the mine, and shall be corrected as often as may be necessary to keep it as nearly as practicable up to date, and never more than three months in arrear; and the Inspector shall be entitled to examine the plan and, for official purposes only, to demand and be supplied with a copy of every part thereof.
- Reports of breakdowns.** 82. In the event of any instance occurring of overheating of any electrical portion of the apparatus or of the appearances of arcs outside the enclosing casings, or in the event of any portion of the equipment (not being a proper part of the electrical circuit) becoming alive, every such occurrence shall be promptly reported in the Record Book and signed by the person making such report.

Exemptions and Miscellaneous.

- Rule to operate from 1st Feb., 1911.** 83. Notwithstanding anything contained in these Regulations, any electrical plant or apparatus installed or in use or contracted to be bought before the 1st February, 1911, before the coming into

force of these Regulations, may be continued in use or used subject to any reasonable conditions affecting safety that the Inspector may prescribe.

84. Exemption from any of the foregoing requirements may ^{Exemption.} be granted by the Minister, on the ground either of emergency or special circumstances, on such conditions and to such extent as the Minister shall prescribe. Such exemption must be in writing, signed by the Minister or the Secretary for Mines.

What to do in cases of accident from Electric Shock.

FIRST AID.

To be carried out until the Doctor arrives.

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1. When a person has received an electric shock and has become insensible or apparently dead, effort should be at once made to restore animation and also no time should be lost in sending for a doctor. Avoid touching live wires unless you have good rubber gloves on. Do not touch with bare hands a live wire, even if it is covered with insulating material, as the latter may be damaged or defective.

2. *To remove a person in contact with an electric wire.*—1st, cut off current at once, if switch is close at hand; 2nd, if not, do not touch body with bare hands; 3rd, pull body from wire by his coat tails or loose parts of his dry clothing. (Armpits or moist parts of clothing should be avoided.) Or fold a coat or other dry article, such as a newspaper (several thicknesses) and using this as a pad, take hold of body or push away wire. Or use dry wood handle or stick to raise body or push off wire. If necessary to cut wire, do so by means of axe with dry wood handle, if possible stand on dry wood.

3. *To restore animation and breathing.*—Having removed body clear of wire, place body on back, loosen clothes about neck and chest, roll up coat or anything convenient, and place it under shoulders so that the head drops backwards.

4. *To maintain free air passage to lungs.*—Open mouth and draw out tongue with fingers (covered with handkerchief or cloth to prevent slipping) and get someone to hold tongue or make it fast, so as to prevent tongue falling back and blocking windpipe.

5. *To imitate breathing.*—To draw air into lungs, kneel behind patient's head and catch hold of forearms near elbows, and draw arms upwards and outwards towards you, making elbows almost touch the ground on either side of patient's head. Hold arms in this position for two or three seconds. To expel air from lungs, return arms to former position alongside chest, and squeeze arms tightly against chest for two or three seconds to drive out air.

6. Continue this process, moving the arms backwards and forwards as described above, steadily and deliberately, not too quickly, about fifteen times per minute.

7. Circulation may be added by rubbing or striking the body with a wet towel.

8. Stimulants should not be given unless recommended by the Doctor.

9. Steady persistent efforts are absolutely necessary in successful attempts at restoring animation.

10. In cases of severe shock, natural breathing is seldom restored under an hour, while cases are known where after three hours' continuous work successful respiration has been restored.

11. Assistants should therefore be available to continue the process without interruption.

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Government Electrical Engineer.

Perth, Western Australia.

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