

JAMAICA FIRE BRIGADE

TRAINING DEPARTMENT



FIREMANSHIP

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Practical Firefighting

A firelighter must be physically fit, for work at a fire will always involve exertion. He/she must be courageous and yet be calm, because their reaction in an emergency will depend on these qualities. He must be patient, for often they will be dealing with persons whose property is involved in or threatened by fire, and who are in a state of mental distress, He must have initiative and willing to keep going for long periods under adverse conditions, he must be observant and must also possess an inquiring mind. His sense of discipline must be high, for unless he is able to obey orders he cannot expect others to obey his orders.

The duties of a Firefighter may be summed up as firstly, to save life, secondly, to prevent the destruction of property by fire and thirdly, to render humanitarian services.

The firefighter must never forget that as a member of the Fire Brigade, he or she, is a Public Servant, and it is to him/her that the public turns in times of emergency.

BEFORE THE FIRE

Before a fire, the firelighter should gain as extensive knowledge as possible of the station ground. This knowledge will grow with time, and repeated

attendance at fires on the ground. Every firefighter, especially the Officer, should know all the important details, such as hydrants, the layout and capacity of mains etc., and whether by arrangement with the water authorities, the supplies or pressure can be increased in any particular district.

Information on theaters, cinemas and places of public entertainment, and of hospitals, institutions, etc., where numbers of people will be sleeping at nights should be retained, as well as which buildings have fixed installations (e.g. Sprinklers). Enquires previous to a fire will tell firefighters whether police or other persons hold the key to certain premises and contact should be made with occupiers of large premises, and the officer in charge of Industrial or Private Brigades, for good liaison with them will produce that effective co-operation which is essential for smooth working should the Fire brigade be called to a fire on their premises.

In rural areas, firefighter should know the whereabouts of all important water supplies, the best ways of reaching them and whether or not they are likely to dry up in summer, or be unapproachable in the rainy season, because of mud. They should know the various form tracks and to what extent they can be used to reach isolated farmsteads, and they should keep themselves posted, as to changes in road conditions due to weather.

STATION ROUTINE

At the station, it is the duty of every firefighter to maintain appliances in a high stage of preparedness. Regular inspection, testing and cleaning help build up confidence in the equipment and ensures a thorough knowledge of where the various items of gear are stowed on the appliance. This should

be checked by periodical drills in the dark, and by sending men for particular items of equipment in order to ensure, not only that they know what each item is, but where it can be found on the appliance, so that it can be produce without delay.

Crew should always be fallen in and detailed as riders on coming on duty. A rider's board showing the availability of all the appliances at the station and the men riding them should be maintained.

When taking over an appliance at the beginning of a tour of duty, the man in charge must not forget that he is responsible for the appliance being roadworthy and that both it and the equipment are ready for any calls.

TURN OUT AND FIRST ATTENDANCE

The number of appliances, which will respond to a fire call is pre-determined in accordance with the fire grading of the area or the type of risk within that area. Those appliances, which respond on the initial call, are termed collectively the

“First Attendance.”

The time taken to turn out will, of course, defend upon the conditions existing at the station, but, whatever the conditions, too much emphasis cannot be laid on the necessity for the greatest possible speed in getting the first appliance away. Most large fires grow out of small beginnings is that, apart from the promptitude or otherwise of the call, whether or not the fire is confined and extinguished with little damage, or gets away completely, will depend almost entirely on the skill, initiative and resource of the officer in charge and the crews of the first appliance to arrive.

The driver must be sure not only that he knows before he leaves the station, the address to which he is called, but also the way to it. Where there is any possibility of confusion, time is saved and accuracy is ensured if this is checked before leaving the station.

PROCEEDING TO THE FIRE

Notwithstanding that a driver on his way to a fire is authorized to exceed the speed limit, it is essential that he should drive with caution and consideration. The greater proportion of the traffic encountered will be sympathetic and will endeavor to facilitate his passage, At round about follow the direction of the flow unless otherwise directed by a Police Officer.

Drivers of Fire Brigade vehicles are under the same obligation to obey traffic light signals as other drivers and a Fire Brigade driver should not proceed against the light unless it is certain that there is no risk of a collision. He should remember that a collision might well prevent his appliance from reaching its destination and might block the road for other essential services. No call is so urgent as to justify a risk.

Audible warning devices (sirens, bells etc.) Should be sounded. The warning devices not only serves to warn traffic on the road that a fire appliance is on its way to an emergency, but also indicates to persons who may be waiting rescue under extreme nervous distress that help is on the way, and may give them strength to hold on for those extra moments until the appliances arrives. The two toned horn is generally kept going in heavy traffic, at a roundabout, crossing, or wherever there is danger of converging traffic.

If called to a hospital, cinema or similar building where the public is likely to be gathered in large numbers, the sounding of the Audible Warning Device should cease in ample time before arrival, so as to avoid alarming those in the building. Also when passing the above-mentioned places the minimum soundings should be used. Discretion should also be used in sounding warning devices close to horses etc., since animals if frightened might bolt. Audible warning devices should not be used when returning from a fire or when on exerciser on such occasions the driver of the appliances must comply with all traffic regulations.

An appliance which may be involved in a minor collision while it is responding to an emergency call, but is still roadworthy should proceed, subject to any directions given by the Police it will usually be desirable to proceed after stopping, taking the necessary steps to minimize the distress caused. A member of the crew should be dropped off the appliance with the First Aid box, and a message should be sent to the mobilizing control, notifying them of the accident and request an appliance.

If, for any reason, it is impossible for the appliances to proceed, or if serious delay is probable, a message should be sent immediately to control so that another appliance can be dispatched.

If an appliance fitted with twin rear wheels is on its way to an incident and sustains a puncture in one of the rear wheels and the companion wheel is sound, the appliance should continue to its destination at a reduced speed. If the front wheel of any appliance fitted with single rear wheel, becomes punctured, the appliance should be halted and a message sent to control so that another appliance may be dispatched.

If a puncture occurs within walking distance of the address of the incident,

the crew should go on foot taking with them the appropriate gear and equipment.

ARRIVAL AT THE INCIDENT

If the call is to an address that was received on the emergency telephone (110), and on arrival no trace of fire is found, a message should be sent back asking for the address to be verified. In the meantime, the Officer in charge with his appliance and crew should make a short tour of the adjacent streets, as persons giving a fire call by telephone are often excited and sometime provide a garbled address.

When nearing the address, all members of the crew should be on the look out, firstly, for signs of fire, and secondly, for the nearest hydrant or other water supply. If the hydrant cannot immediately be located, a man with hydrant tools should search in the direction of the nearest main road. On arrival at the address of the call, the whereabouts of the fire is not immediately obvious, one of the occupants may have to act as a guide. If not the firefighter will have to locate the fire for themselves.

A cardinal rule in firefighting is never to enter a building empty handed, and thought should be given to the items of equipment, which will be necessary for dealing with the fire, having regard to true character of the building.

SEARCHING FOR THE FIRE

Although visible flame is a definite indication, the issue of smoke from any part of a building, whilst denoting the existence of a fire, does not necessarily imply that the part from which the smoke is issuing is affected. This is because smoke can travel considerable distances from the source of the outbreak by reason of air currents, etc. The volume of smoke is not a true guide to the size of the outbreak, as small fires have which been 'bottled up' for some hours may omit large quantities of smoke which can seep to all part of a building.

Various materials will give off different quantities of smoke, the type and color of which may often form a valuable guide as to what material is burning. Also, smoke from certain substances such as wood, rubber, etc., has a very characteristic smell.

NOTE: Smoke when heated will tend to rise, owing to its lesser density as compared with air, but as it cools the density increases, until the heavier particles of which it is composed tend to sink again. Near the fire there is a definite upward surge. The smoke will rise more or less vertically until it strikes a roof or ceiling, when it will spread side ways. This is called 'Mushrooming' and may lead to considerable damage as combustible material is heated to ignition temperature.

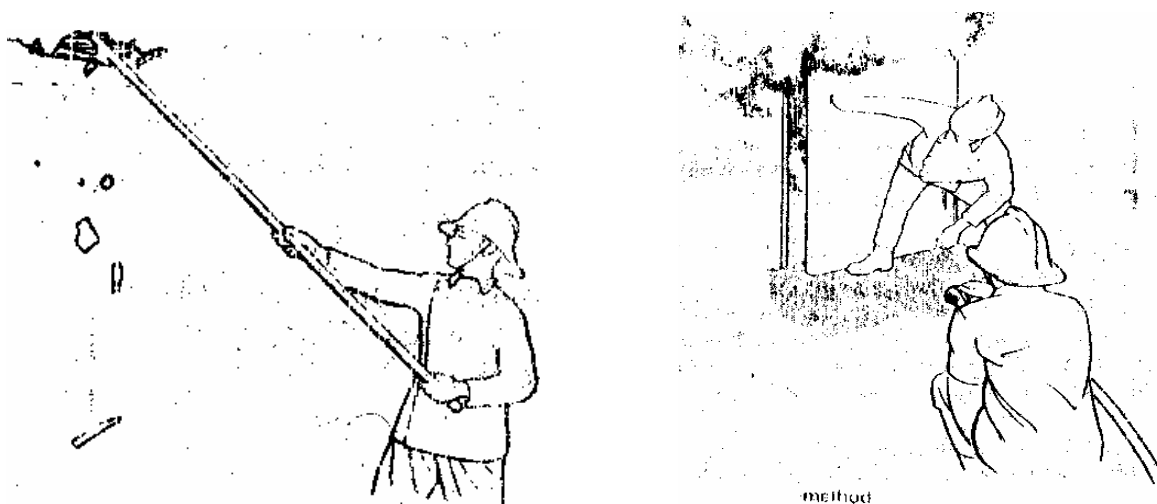
Sometimes at night, when only a smell of smoke can be detected, it may be wise to turn off all lights in a room, and use the beam from an electric torch, which will often show up a wisp of smoke which would not otherwise be seen.

The smoke can then be followed to its sources. Feeling walls or doors for heat is also one way to check for fires, as well as listening for cracking or sounds of burning. The alarms on fixed installations will tend to lead directly to the room on fire.

OPENING DOORS

When opening up a door behind which fire is suspected, the handle should be touched carefully. The handle should first be tested for temperature with the back of the hand in case a fallen cable may electrify it, to-avoid gripping the handle and being unable to let go. If the handle is hot, the corner of the tunic may be used to grasp it. Where the room to be entered is suspected to be already on fire, the door should not be opened except for rescue purpose, without a branch being available for immediate applications of water to the fire.

If the door swings outwards towards the firefighter, the foot should be placed against the bottom of the door, and one hand placed on the door, the handle should be turned gently. There may be considerable pressure in the room due to the expansion of the heated gases, which would otherwise force the door out of the grasp. The firefighter should crouch in such a way that any heated gas or flames, which are released pass over his head. Firefighters be aware of mistaking an external door for an internal one when opening up. Certain doors, such as loopholes, lead into space.



FIGHTING THE FIRE

When the fire has been located, the next step is to prevent it from spreading by surrounding it at the earliest possible Moment. The aim of the firelighter is to bring the fire under control in the minimum time, while causing as little water damage as possible. One important point to decide is the type of nozzle to use.

At a relatively snail fire, the first branch to be got to work should be a hand controlled type, and it should have plain nozzles. These give better jet and can be of larger diameter than 3/4" (19mm), the size that is normally used with a hand-controlled branch.

At certain fires, such as hotels or office corridors when a number of

rooms must be entered, a considerable amount of movement of the branch will be necessary. It may therefore, be preferable to use two or three branches with small nozzles rather than one large one or to use 1 1/3" (44mm) instead of 2 3/4" (70mm) delivery hose.

However, where large quantities of materials are burning and entry cannot be made into the building, it will be essential to use large nozzles because only they will:

- (i) Deliver the amount of water required.
- (ii) Give the throw necessary to strike the materials, which are actually burning
- (iii) Reach the fire without jet breaking up

When a long throw is required, the efficiency of the jet will depend on the nozzle being exactly circular and with no damage to the internal surface.

Laying out Hose and Line

Hose should always be run out as straight as possible, but if it has to be laid in the road, it should be kept clear of gutters where there is risk of contamination by oil and grease.

Sufficient excess length must be provided (laid out where circumstances permit in a long bight near the branch), so that the branch can be advanced as desired without having to shut down the hose line to add further lengths. If the hose line is not long the delivery must be shut down whilst a new length is added, and whilst this is being done the fire may get out of control.

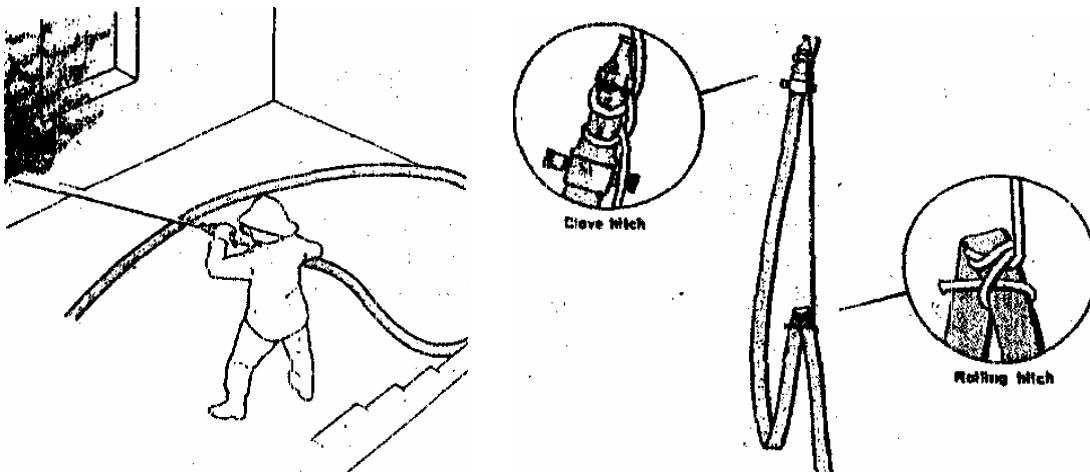
The first line of hose often has to work up a staircase, and to work charged up a staircase which is on fire or heavily laden with hot smoke and

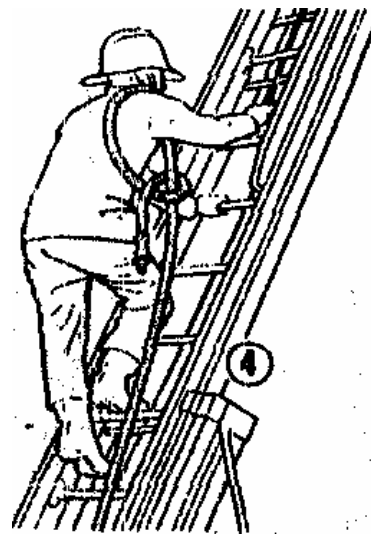
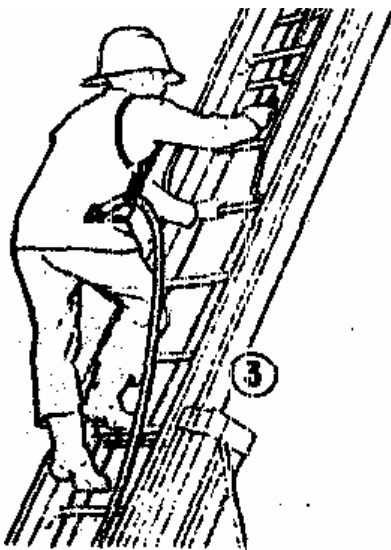
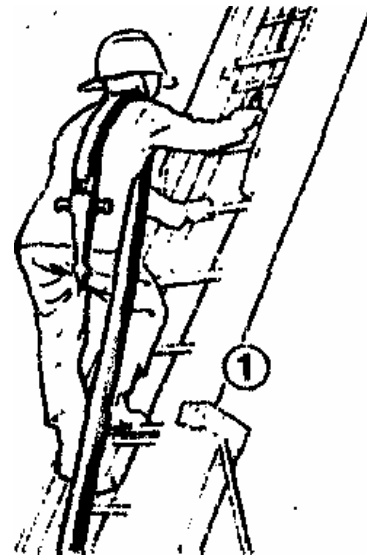
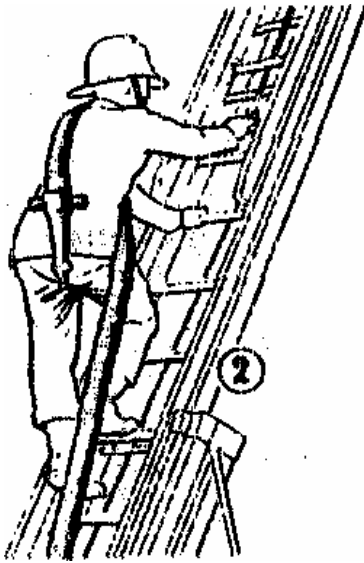
gases is an exhausting process. It may require four (4) persons, two (2) on the branch and two (2) behind supporting them.

With the, exception of the first line of the hose to be got to work, hose lines should whenever possible to be taken up outside a building and should enter at the most convenient floor from which to reach the fire because:

- (1) The base line are much shorter, and there will be less frictional resistance.
- (II) Staircases and passage-ways are kept free.
- (III) The hose can be more easily hoisted into a position and time is saved, The hose lines are easier to trace.

The hose can either be hoisted up by a line or carried up a ladder.



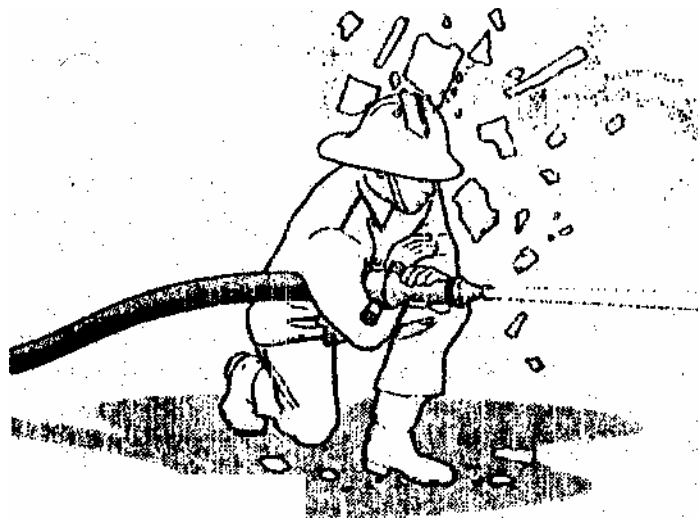


Branch Holding

One of the essentials of the fire extinction is correct branch holding, which greatly reduces fatigue and prevent accidents. When working a branch into a room which is well alight, the branch man should crouch in the shelter of the door or suitable opening and first direct the Jet over head and slightly in-front of him, to dislodge anything which may be hanging insecurely. This action should be repeated periodically as he advances. He

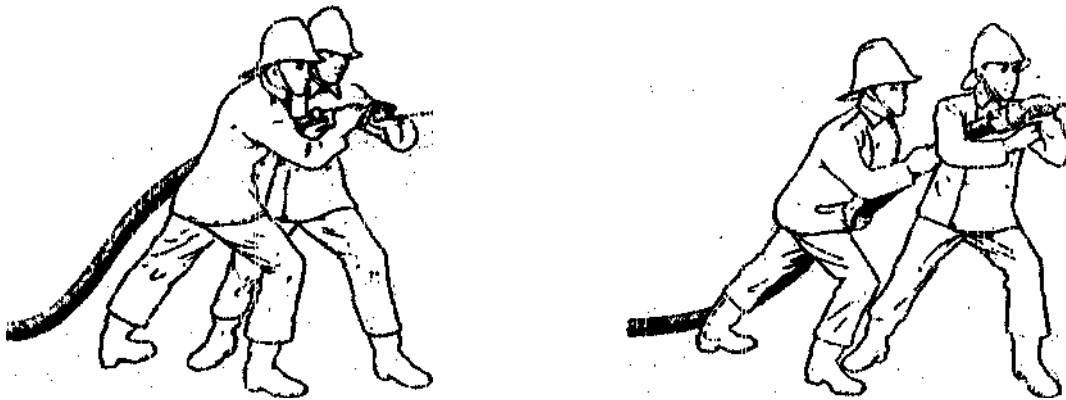
should not look up while doing this, and should hold the branch so that the hands are kept close into the body, to protect them from falling debris.

Except when holding one of the smaller jets in use, two persons should always be on the branch before the full pressure is allowed to develop. When for any reason this is impractical, the branch-man may find it of assistance, to position himself against a wall, preferable in a corner. That he may obtain maximum support to resist jet reaction. Alternatively, it may be possible, to place the hose so that the walls of a corner take part of the reaction.



One control of a branch is lost, it is difficult to regain. If the branch-man feels that he is losing control, he should throw himself on top of the branch, holding on to it tightly and pinning; it between him and the floor until assistance arrives. A branch out of control can causes serious injury to anyone it strikes.

Whilst correct branch holding is very important, especially when working-in difficult positions, such as on a roof or ladder, the pump operator must be alert under such conditions so he can reduce the pressure should there be any sign that the branch man is losing control.



Working on a Ladder

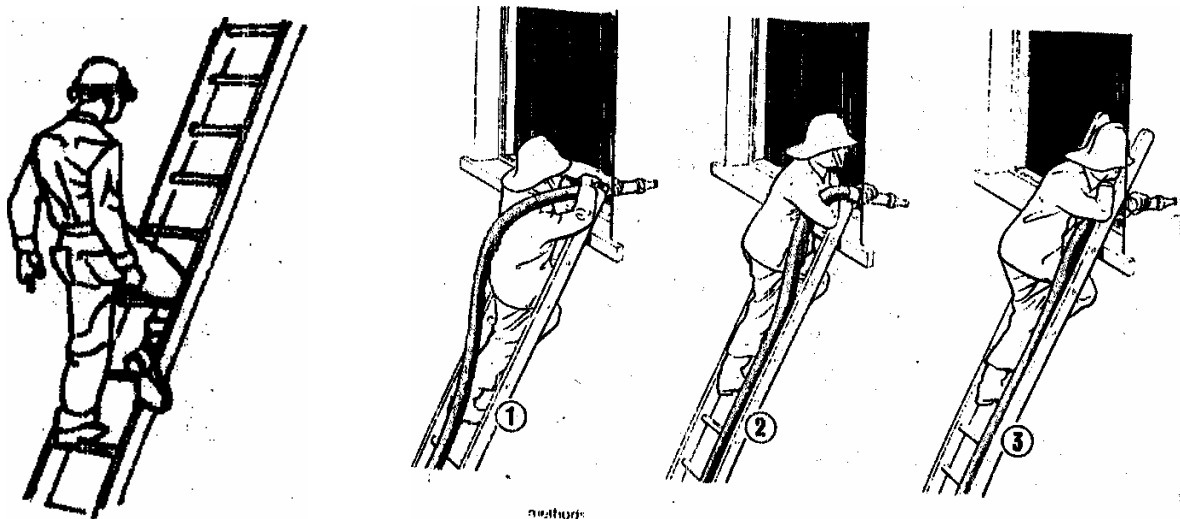
A firefighter operating a branch from a ladder should always take a leg-lock; if working to the left, it should be taken with the right leg and with the left leg if working to the right. It is also a wise precaution to take an arm hold as well as a leg-lock, by passing one arm around the string, before grasping the branch, while the other hand holds the base of the branch.

Operating a branch from a ladder is usually only preliminary to entering the room and a sufficient bight of hose should always be available which can be worked forward as soon as entry is made. The hose should be led up the ladder and secured by a line or hose Becket in order to relieve the firefighter of the weight, or if this is impossible, because the hose

is advancing, one or more men should be assisting in lightening the hose up the ladder.

The heel of the ladder from which a branch is to be operated should always be drawn somewhat farther out front the building than when in normal use and if conditions permit the head of the ladder should be secured. There must be a man at the foot of the ladder at all times whilst a man is on it.

Although it is essential to hit the fire with the jet, be ware that if (he branch is directed far to one side, the stability of the ladder may be affected by the sideways thrust; causing it to capsize.



A quick glance at any fire on enclosed premises, before the order 'water on' is given will often reveal by the light of the fire travelling up-stairs, lift shafts, or into other rooms etc. Important information that is difficult to obtain once water has been applied to the fire, owing to the consequent

increase in the smoke and steam.

Firefighters should not crowd into a small room, if two persons can tackle the job, so much the better; it reduces congestion and disturbance to the occupiers. Spare men should never crown round doorways or on staircases, as by doing this they keep fresh air from the men working inside and will be in the way should it be necessary for the menial the fire to beat a retreat.

When taking hose through a doorway in a warehouse or other building, branch men must see that as they work their way forward, they do not let the fire get behind him. Unless they are careful, it may travel unnoticed behind stockpiles and may reach the door, cutting off their retreat. It always pays to wedge open the door, which also serves to release some of the smoke and heat.

It may sometimes be desirable to post a man to watch for dangerous conditions, or if men are working in smoke or darkness, to place a lamp as guide to the position of the doorway.

WORKING IN SMOKE HEAT OR DARKNESS

Working conditions close to a fire, particularly at floor level are considerable better than would appear when it is being approached. Hot smoke and gases, as they expand and escape, tend to give false impressions of the conditions. In a confined smoke space such as a room on fire, it is the first minute of attacking the fire, which is worse. When the jet first strikes the fire, large quantities of steam and often smoke are

formed which drive toward the outlet and, once this initial surge is over, conditions tend to improve.

Once the Firefighter has entered the building, one of the main difficulties will be an inability to see if the premises are in darkness, or thick smoke is encountered. It will then be necessary to decide whether, if the electricity supply is on, it should be switched off at the main, or whether, if it is already off, it should be switch on.

If the building lights cannot be used, Fire Brigade emergency lighting will be necessary. Hand tamps should be used when it is necessary to move about the premises, but for prolonged lighting, other types of portable flood-lights should be employed. Naked light of any type must not be used if explosives or flammable gases or vapors are likely to be encountered.

Firefighters should always work in pairs in smoke as not only does this promotes confidence but makes it possible for one man to assist the other in case of difficulty. When in strange surrounding and unable to see, whether in smoke or not, the only course is to work by touch. Caution must be exercised; and a few simple steps will reduce the possibility of accidents.

The first of these is to shuffle not walk. The weight of the body should be kept poised on the rear foot until the advancing foot has tested that it is safe to move forward, the feet should not be lifted from the ground, they should slide forwards as this will help detect the obstructions and danger, such as nails etc, which might pierce the boots and injure the feet.

There is always an air space at floor level, which varies according to density of the smoke, and this air will be the coolest. The Firefighter will usually find the best method of progress is to be down on the hands and

knees, as he moves forward to feel for obstructions. If the back of the hand then touches a live electric wire, the shock will throw it clear and will not cause the hand to grasp the wire, as would occur were the hand open. It will often be possible to detect from this position the glow of a fire that cannot be seen when standing upright. Where, however, there is a risk of encountering dangerous fumes (such as those of Nitric or Hydrochloric Acid) that are heavier than air and therefore accumulate near the floor, a stooping or crawling position should not be adopted. These fumes will usually be detectable by smell, if (he Firefighter is not already aware of the presence of the hazardous commodities in the building.

When it is dark, or where there is much heat, it is better to proceed backwards downstairs towards a basement fire, since this renders breathing easier, shields the face from heat, and has additional advantage that the stairs can be grasped with the hands, preventing a fall in the case of accident.

An alternative method in dense smoke is to move downstairs in a sitting position with the head well back, close to the stairs, in this way the feet can be used to feel for the stairs ahead before the weight is transferred to it.



When first entering a smoky building, it is unwise to mount the stairs too quickly. Under such conditions it is easy to become out of breath and recovery is then rarely possible without going out into the fresh air again.

When ascending or descending stairs, the fireman should always keep close to the wall, since the treads will usually bear weight at this point even though their centers might be weakened. If there is any doubt as to their strength, only one man should be allowed on a flight at a time. On spiral stairs, keep to one side while using the stairs with the widest treads. The Balustrade should be used with caution when ascending or descending stairs since it may have been weakened by charring, and may collapse if any weight is applied to it. Caution balustrades if touched may be sufficiently heated to burn the hand.

If a staircase has been seriously damaged by fire, sections of extension or sealing ladders should be used to improvise a stairway.

IF LOST IN SMOKE

The possibility of getting; lost in a smokey building must always be borne in mind, and a mental note should be made of any features which will assist in retracing the route to safety. When breathing apparatus is being worn, guidelines will generally be used, but in the absence of guidelines, a fire-man can always find his way to safety by following back a hose line, which has been taken in by the Fire Brigade personnel by keeping it between the feet, but it should not be forgotten that it may run over the edge of a flat roof or out of a window or loop-hole far above ground level, (a loop hole is an opening above ground level through which goods can be loaded into, or unloaded from, a building by means of a rope and a pulley or crane). The branch man can always be found by following up the appropriate hose line.

If a man is lost in smoke, he should make for a wall of the room and continue around it until the door or window is reached. Sounds from outside can often provide a guide to the whereabouts of the exit. If it is suspected that a man is lost in smoke, it may be possible to indicate the way out for him by standing close to the exit and giving intermittent stow claps.

RESCUE AT FIRE

The primary function of a fireman is to save life from fire. He may on occasion need to rescue a fellow firelighter. To carry out a rescue, sometimes alone and un-aided, a fireman must be prepared to lift and carry a person to safety under the most difficult conditions. Often this work is made doubly difficult by the unreasoning fear, which smoke and fire induce in many people who are, or believed themselves to be, cut off from safety. Rescue Work divides itself into two broad categories:

- (a) Rescue by ordinary means.
- (b) Rescue by using Fire Brigade Equipment.

Rescue by ordinary means

The vast majority of rescues accomplished each year are made simply by firemen or other persons reaching those who are awaiting help, reassuring and comforting them, and perhaps leading them to safety by a way they have forgotten or through light smoke which has temporarily made them lose confidence.

On other occasions correct procedure may be for the firelighter to keep those to be rescued, where they are and remain with them so as to give them a feeling of confidence and safety, while the fire, which may be one or more floors away, is extinguished. If the fire should render this procedure impossible, then the firelighter can remain until rescue apparatus can be brought to bear by other firefighters.

Rescue by using Fire Brigade Equipment

The safest method of rescue is to bring persons down a ladder or to use a hydraulic platform. Rescue line though sometimes the only method available is always more difficult and laborious.

No hard and fast rules can be laid down as regards rescue work. Every job will be found to have individual features, and experience and training will enable the fireman to decide on the best method or combination of methods to be employed. Some rescue jobs permit of not a second's delay. Through training is of course essential, for it is this, which enables a fireman to improvise and extemporize when the time comes to

carry out a rescue, which is not straight-forward.

Getting people out of the building once they have been located is largely a matter of common sense. They will have to be carried if they are unconscious or injured.

Methods to use are:

- (i) Fireman's lift
- (ii) Dragging
- (iii) Hand scats
- (iv) Stretchers
- (v) Sling and Harnesses

Very heavy persons cannot be carried down, except by a phenomenally strong man, and if there is any doubt in the matter, it is advisable to resort to lowering rather than run the risk of the rescuer getting into difficulties.

The technique of lowering is more for practical drill than for verbal description.

Self rescue by line

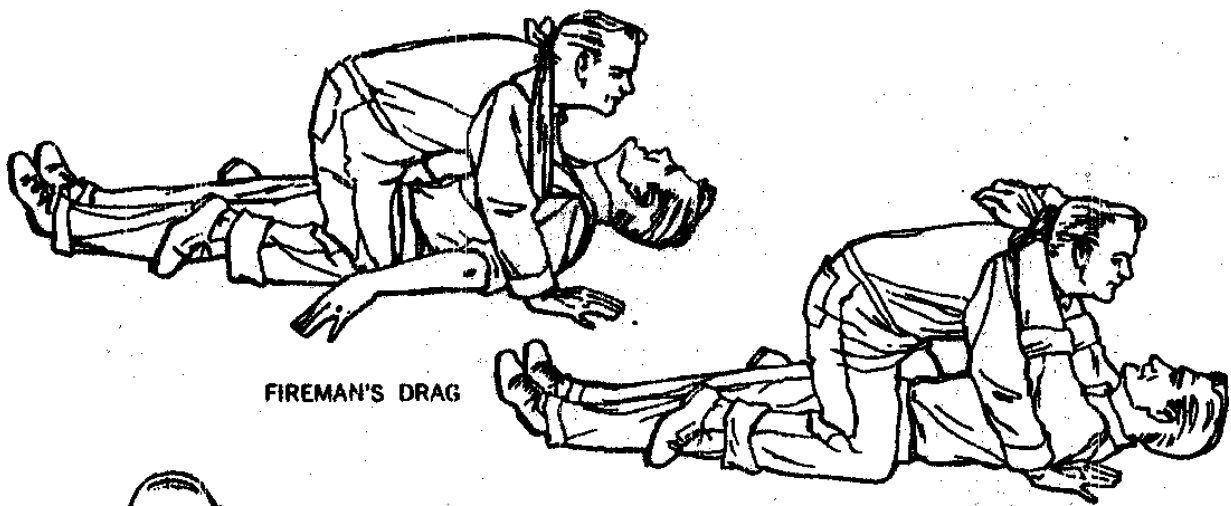
It may happen that a fireman finds his escape has been cut off by the spread of fire. When operating under difficult or dangerous conditions, the fireman should always have a line with him, it is then a simple matter to make this fast over a window frame or to a bed or other piece of furniture drawn across the window, and then go down the rope hand over hand,

gripping with the knees at the same time. A man should never slide down a rope. As the hands may be burned so severely in the process that it is impossible to retain a grip on the rope.

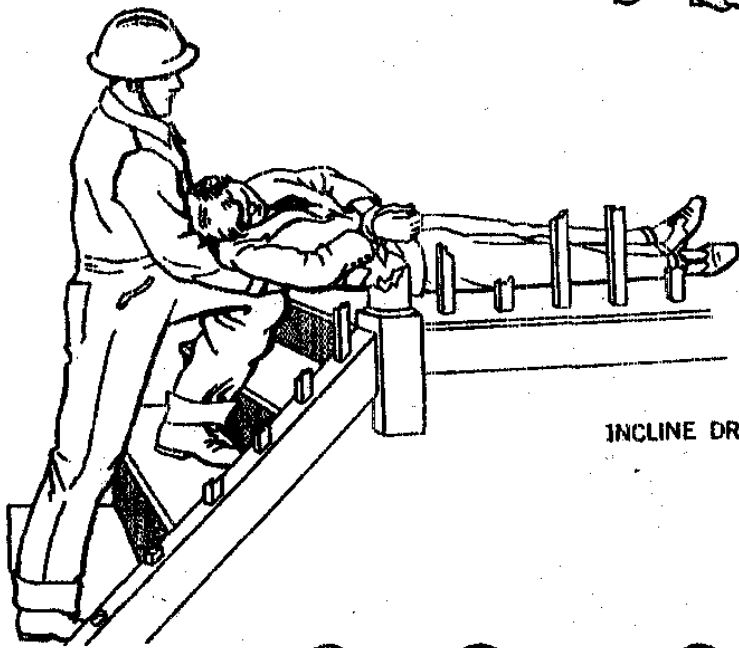
Fireman may also be trapped or cut off by the spread of fire when they are working with branches on a roof, parapet, or the upper floor of a building. A line may not be available in such circumstance, and a possible method of escape is to make the hose fast to a chimneystack or other convenient object and slide down it.







FIREMAN'S DRAG



INCLINE DRAG



A



B

SEARCHING

Searching should be carried out methodically and on a definite system, which should be detailed by the officer in charge before the search is begun. The general rule to be followed is that the searchers are nearest to fresh air and safety at the end of the search. In a multi-storied building the best plan will usually be to proceed straight to the top of a building and work down with men working in pairs taking each floor.

People, particularly children, trapped in fire or smoke, often take refuge under beds in cupboards etc., where they hope to escape the fire and flames. Searching should be thorough, every room being investigated and no possible hiding place, however unlikely, omitted.

Once inside the room, a complete circuit should be made keeping close to the wall, feeling under and on beds and opening and feeling inside cupboards wardrobes, divans and below other articles of furniture. If a complete circuit is made in this way there should be little danger of a victim being missed, but as a final precaution the room should be crossed diagonally to make sure there is no one lying in the center.

After the fire

As the fire comes under control, branches should be moved in closer and then finally shut down. After the main body of fire has been extinguished, the next step is to eliminate any remaining pockets of fire so that re-ignition cannot occur.

When branches at work inside a building are shut down prior to making up, a coupling outside the building should first be broken to allow the hose to drain and water to flow to places where it will do no damage. The hose should then be under-run from inside the building before the individual lengths are uncoupled. -

Fire may be buried by collapse of floors, but gradually it will burn its way out and will be evident by the rising smoke and heat, steam however, should not be confused with smoke. As far as possible, all debris should be turned over and well spread out to prevent re-ignition. This should be done either by removing the debris to an open space and then methodically turning over the debris, or working from one end of the affected area to the other, while a hand-controlled branch, hose reel or hand pump is used to damp as necessary.

Making up

Immediately the fire situation permits, the officer in charge should order a proportion of the appliances to make up and return to their station. Priority should be given to first line appliances, or special appliances e.g. foam tenders and hydraulic platforms, and then to those crews which have been longest on the fire ground. As far as possible, an appliance should always return to its station in a condition in which it could, if necessary, immediately respond to another fire call.

All equipment should, as far as possible, be replaced in its correct position on the appliance. Any equipment, which may have been in contact with acid, etc., should be washed so that it does not contaminate other gear.

Making sure the fire is out

It is the responsibility of the last fire officer leaving the fire to make quite sure that it is completely extinguished. It would be a grave reflection on the Fire Brigade to receive a second call to a fire, which had been left as having extinguished, and every effort should be made to ensure that no 'bulls eye,' pockets of fire beneath debris or other possible cause of re-ignition, remain.

If any doubt remain in an officers mind, a fireman or, if necessary a pump's crew should be left behind as watching party until it is certain that any re-occurrence of the existing fire is impossible. Alternately, a man can be detailed to visit the scene of the fire at regular intervals until it is quite certain that nothing further can develop. Before the fire leaves the fire ground, all hydrants, which have been in use, should be inspected to make sure the valves are properly closed. Pits should be clear of any debris, which may have been washed into them, and bailed out if necessary. The hose- reel tank should be replenished before the appliance leaves the fire ground.

On return to the station

On return to the station, the places of any members of the crew injured or left behind on the fireground should be filled, if possible. Station

personnel as necessary should be turned out to assist in restoring and getting the appliance back on run, ready to attend further calls.

The following are the more important items to which attention should be paid if the equipment has been used:

- (i) Pump - If salt or brackish water, or foam compound has been passed through the pump, it should be flushed.
- (ii) Application - Petrol (or fuel oil) lubricating oil and water should be checked, and tyres should be inspected for stones, gloss etc. Bodywork should be cleaned.
- (iii) Ladders - Should be examined and tested.
- (iv) Extinguishers - Should be replaced and recharged as necessary.
- (v) Breathing Apparatus - Should be thoroughly cleaned, recharged and tested. The details on B.A. tallies should be amended as necessary.
- (vi) Hand Lamps - Cleaned, checked and dried. Batteries should be replaced, or accumulators recharged as necessary.
- (vii) Small Gears - Should be checked find any shortage entered in the Station's Log. Appliances should be made up, if necessary, from reserve stock pending the return of any gear which has been left behind on the fire-ground.

Fires in Rural Area

Fire technique of a country fire fighting is very different from that in the town. The distance appliances have to travel, the possibility of delayed calls, the scarcity of water provides the background against which such fares are fought. Small quantities of water must be made to do the utmost amount of work, thus the selections of nozzle size is important.

Machinery or implement: used in agriculture can, when they are available often be put to good use and on occasion prove more effective than the equipment of the Fire Brigade it self. The use of mechanize machinery has also resulted in the storage of flammable liquids, and there is the additional danger of fire resulting from hot exhaust pipes in cornfields etc.

Apart from the fires which arc caused from carelessness, the incidence of fire in the country varies greatly with time of year. Forest and grass fires are most prevalent either during hot spells at the height of summer when heat, or crop fires dry out vegetation after the grain or cane is ripped and before it is cut.

The weather has its greatest effect, of course, on the state of water supplies and the condition of the ground. Within a few days, water in streams and ponds may increase or decrease greatly, while a field which is inaccessible to a water tender on week, may be passable the next. The influence of rain upon fire fighting itself should not be forgotten. For many

large bush fires are only extinguished by rain is probable should take this into account.

The officer in charge should make a detailed survey of the fire area. Two or more persons should complete a circuit, each taking position and should note:

- (a) The direction and rate of the spread of fire in various directions.
- (b) Wind direction and velocity (which may be in different direction in mountainous areas.)
- (c) Natural breaks such as roads, watercourses or cultivated and likely to check the course of the fire. (Tarred roads are not always a perfect fire since the surface of the road itself may take fire).
- (d) Any change in the character of the ground or vegetation e.g. from grass to bush, earth or peat etc, (Peat is brown or nearly black vegetable matter found in bogs, dried and used as fuel).

It must be emphasized that deliberation and a thorough investigation at the beginning may, in the end, save much labor, time and danger, so that when reinforcement arrive, they can be deployed to the best advantage.

In many cases fires have to be extinguished or confined not by water but partly or entirely by beating, trenching, pulling down or covering with earth, these are methods which involves firefighters tedious work for long

periods, whilst in other fires are rightly and precisely allowed to burn out under supervision.

Unless Military or similar assistance or considerable civilian help can be obtained, Fire Brigades will generally be unable, because of insufficiency of numbers, to extinguish large bush fires. Such fires usually occur in large areas supplied with little water, where the nature and accessibility of the country makes it difficult to use water tenders, while the provision, of water relays is often impracticable. In general the efforts of Fire Brigades are devoted to the protection of adjoining property, such as woodlands, farms and houses, by diverting the fire and allowing it to burn-out against a natural fire break, the available, man power being used to prevent the fire passing the break. The amount of water and its distance from the fire, the nature of access, prevailing weather conditions and proximity of the other fire risks, will indicate the course taken at any particular fire, but the following guidelines should be followed:

1. Large scale maps, together with information from local workers are the quickest methods of sizing up the situation, since in many cases it is impossible to see across the fire area on account of the flames and smoke, while in mountainous districts, it might take several hours to make a circuit of the fire.
2. Extreme care should be taken with the hose, the danger of a change of wind causing hose line to become involved in the fire should be borne in mind.
3. Firemen should be sent to the natural firebreak with spades and beaters to deal with small fire caused by sparks blowing across the breaks. Such, sparks can sometime be carried long distances.

4. In order to avoid damage to the tyre, appliances should not be taken overland that has been burning until the land is cool, or parked where there is no danger of the vehicle being involved in rapid fire spread. Drivers should also remember that if a vehicle is parked on soft ground it may sink slowly in, and impossible to move in an emergency.
5. This type of fire throws up large quantities of carbonized dust, and personnel should therefore beware of this getting into their eyes. If eye shields are available they should be worn. Since burning bush land holds the heat for a long time, leather boots can quickly be ruined. Therefore rubber is preferable, though rubber absorbs heat and can in times burn the feet.
6. In areas where open bush, forest and similar fires are of frequent occurrence Fire Brigade Officers would be wise to arrange in advance, where possible for the use of tractors, ploughs etc.
7. Large fires in open country especially in times of drought may travel in any direction, irrespective of the wind; because of radiated heat the formation of air eddies.

Fires in Forest and woodland

Though a forest fire starts in a small way, it soon gains in momentum, the rate of travel being sometimes faster than a man can run, and in a short time great destruction may be done. These fires are potentially the most serious rural risk a firefighter has to face. Once a fire has developed to a large size, it produces eddies above the fire area sufficient to nullify to the effect of the prevailing wind. Spread may then be in any direction, and it is therefore necessary to keep open a line of retreat for men and appliances.

Appliances in rural areas often carry special items of gear and certain agriculture equipment for dealing with the problems encountered at country fires, the following are most common:

Beaters - Which are usually improvised, and many patterns may be found, as illustrated.