

MANUAL OF HOUSEHOLD REPAIRS

PLUMBING,
HOT WATER
SYSTEMS,
GAS LEAKS,
ELECTRICAL
TROUBLES
FUSES ETC.,
CHIMNEY FAULTS
FAULTY WINDOWS
LOCKS ETC.

PAINTING
PLASTERING
CONCRETE
DAMP WALLS
VERTICAL
DAMP COURSES
BLOCKED DRAINS
DRY ROT
WET ROT
FENCES ETC.

WITH A SPECIAL SECTION
TEMPORARY REPAIRS
FOR
BURST PIPES

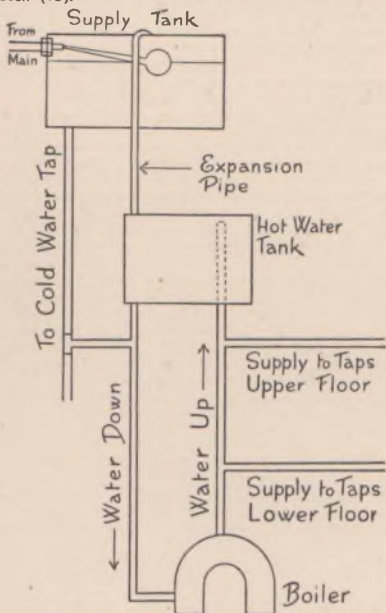


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DOMESTIC HOT WATER SYSTEMS.

In order that the householder may have an idea of how the hot water system works, a typical arrangement is shown in sketch (10).



Typical Hot Water System
Sketch 10.

The boiler may be incorporated in either a kitchen range, an open fire, or be an independent unit.

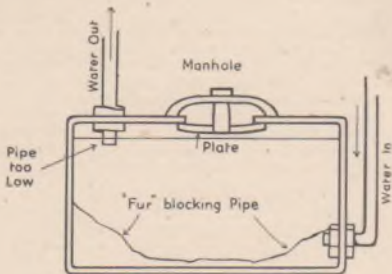
Important points to remember are that the expansion pipe must be kept open, and the cold water supply must always be on when the boiler is in use, or a closed system is created and the boiler would be likely to explode.

One common source of trouble is the boiler or pipes becoming "furred up," and if they become very bad the pipes may be blocked and the consequences of a closed system arise.

To clean out the boiler, shut off cold water supply, either at the turncock or by tying up ball-valve, then open up hot water taps and drain the system.

Sometimes a tap is fitted to the boiler itself so that it may be drained; in other systems a plug can be removed from a pipe projecting through the outer walls and emptying the system into a drain.

The next stage is to remove the manhole from the boiler (Sketch 7) by undoing bolt and loosening the plate. This should be done with care, and steps should be taken to deal with any water which may flow out. When the water ceases, the plate can be removed, taking care of the joint ring, which might be of use for replacement.



Sketch 7

Some boilers have the manhole covered with asbestos cement or fireclay, in which case it will have to be chipped off with an old knife or chisel before the manhole plate can be removed.

When the plate has been removed, the "fur" can be removed from the boiler with a chisel, and also by gently tapping on the outside of the boiler. Care must be taken not to do any damage during this operation, and the boiler must be thoroughly cleaned out, as any loose particles left may enter the pipes and cause a stoppage, with serious consequences.

The flow pipe may be cleaned by holding something firm against one side of the pipe to steady it, then hitting the other side smartly with a hammer. Work round and round the pipe for some distance up its height, and the "fur" will flake off and fall into the boiler, from which it must be removed.

To replace the plate, clean the boiler thoroughly where the plate fits. The plate itself should also be cleaned, and the joint, if usable, is well smeared with Dixon's Graphite Pipe Joint Compo., before replacing and carefully bolting up again.

When the joint is bad and a new one cannot be obtained, one can be made out of asbestos' millboard of about 1/8th-inch thickness. As it is rather brittle, care must be taken in shaping and handling it. The best way to cut it is with a fretsaw, or a wood chisel, laying the asbestos on a flat surface of wood. When shaped it should be smeared with Graphite Compo. and fitted as before.

To replace the asbestos cement, crush it and mix with water, then plaster it over the manhole so that the plate is completely protected. If it appears to be no good, obtain some asbestos cement from your builders' merchant.

Any gaps between the boiler and the firebricks should be filled with fireclay or one of the proprietary fire cements which can be bought ready mixed.

BOILER NOISY.—It sometimes happens that, when the fire is burning brightly, thumping and knocking noises are heard coming from the boiler. These noises may cause alarm, but actually they constitute no danger, being due to a fault in the fitting of the flow pipe, which can be remedied.

The fault is that the flow pipe projects too far into the boiler, and steam accumulates above the bottom of the pipe until pressure is raised to force steam and water into the pipe, with the resulting noise.

The remedy is to disconnect the boiler, which will necessitate the removal of the manhole cover as for cleaning, and fit a flanged joint instead of the back nut which will be found fitted to pipe inside the boiler.

This nut may be difficult to undo, being inside the boiler, in which case the nut on the outside must be slackened off and the pipe sawn through close to the boiler. The end of pipe and the back nut can then be withdrawn, as owing to the thinness of the boiler the pipe is not usually screwed to it.

A flange of the correct size must be obtained, as well as a washer of the same material as for manhole plate in boiler, and after the necessary holes have been drilled to take the flange, the joint is assembled. The flange washer will, of course, be well coated with pipe compound.

During frosty weather always make sure that none of the pipes are frozen up before lighting the boiler fire. If the taps do not run freely, do not light the fire, or an explosion may occur with fatal results.

Accessible pipes can be thawed out with hot wet cloths, but if you are in doubt about inaccessible pipes, be on the safe side and do not use boiler.

PLUMBING.

THE TURNCOCK.—Before most plumbing operations can be carried out, it is necessary to turn off the water from the main; therefore, the position of the turncock should be ascertained. Don't wait until you get a burst pipe before doing this, but locate it right away. Usually it will be found in the garden, about 2 feet below ground, and reached through either a small brick chamber or about a 4-inch bore pipe. Sometimes the chamber or pipe becomes partially filled with soil. See that it is cleaned out and the cover is securely fitted.

To reach and turn handle, a cleft stick will be required, and is easily made, as in Sketch 1.

Get the handle made up at once; you will need it in a hurry if you get a burst pipe.

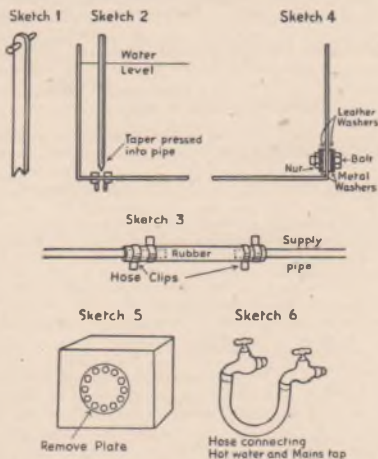
In some cases the turncock may be found inside the house where the pipe enters the building; in such cases it is quite accessible.

TEMPORARY MEASURES FOR BURST PIPES.

In the case of a burst, immediately turn off the water at the main. If the supply comes from a tank, seal the outlet pipe either with a cork or a wood plug. Incidentally, it is useful to keep by the tank a piece of wood, as in Sketch 2, for doing this job quickly.

Whilst awaiting the services of a skilled plumber, which may mean some considerable time in wartime, some temporary measures may be effected.

One is, having located burst, and with water turned off, get a hammer and gently tap the lead pipe, working round and round and gradually towards the burst until it is closed. By this means the lead is spread so as to build up over the burst, and is then gently tapped down. This will seal the hole, but remember it will not stand any pressure. As an added precaution, gently smooth the pipe with an old file, and then bind with insulating tape.



Be very careful not to pull the pipe about too much as, if it is an old one, you may open up weak spots. Never try to straighten a lead pipe for similar reasons.

When the burst is rather extensive and the above method will not do, the following method can be adopted. Secure a piece of stout hose pipe with an inside diameter the same size as the outside of the lead pipe, or a little smaller. Cut out the bad part of lead pipe and fit the hose pipe in its place as in Sketch 3.

If it is too large the lead pipe can be scraped down to suit hose. Soap, preferably soft soap, smeared on the lead will help you to fit the hose and make a good joint. Tighten clips well.

When the temporary repair has been effected, the water can be turned on from the main at low pressure, and should only be left on for sufficient periods to meet the household requirements, pending the arrival of a plumber. Naturally, it will be turned off from the main each night.

In some cases a burst occurs and it is not possible to turn the water off. In such cases, cut through the pipe, fold back about 3 inches on the supply side and gently hammer down flat until the water ceases to flow.

LEAKING TANKS.—Mark the leak, empty tank, then enlarge the hole sufficient to take a small bolt. The bolt should have nut and washers to suit, and should be galvanised. Cut two washers out of leather, or rubber, and fix according to Sketch 4.

If the area round the hole is red leaded before fixing the washer, it will assist in making an effective seal.

A number of leaks indicate a new tank is necessary.

HOT WATER TANKS.—If only one or two leaks are noticed, they may be dealt with, but do not persevere with a weak tank.

Empty tank, and if the weepings are only small, clean off the area round them and apply over the hole, on the outside of the tank, iron cement. This can be obtained from iron-mongers or builders' merchants.

With a larger leak the same method as for the ordinary tank can be used, except that it will be necessary to remove the plate (Sketch 5) in order to do it.

Before starting the work remember a new plate washer will have to be provided and red leaded before tightening down.

Air locks sometimes occur after emptying hot water tanks. These can often be dispersed by getting a small length of hose and fitting over mains tap and hot water tap. (Sketch 6).

First turn the hot water tap full on, then the main tap, and main pressure will force the water round.

FLOODING.—In all cases of flooding on upper floors there is the danger of ceilings being brought down. This risk can be reduced by making a small hole through the plaster in the centre of the wet patch, and allowing the water to come through into a receptacle placed beneath.

PREVENTION is better than cure, so see that all exposed pipes receive adequate protection, and never light the fire to a boiler until you are sure the pipes are freely circulating.

FITTING TAP WASHERS.—Turn off water at main, or plug tank. Remove tap handle by turning hexagon head or flats. Plunger or jumper types need only placing in position; a little soap smeared on pin holds it in position whilst re-assembling. With the leather type, a small nut is easily turned to remove old washer, then the new one is placed in position and nut put back. Some taps, for neatness, have a small cover over the nut; this turns and then lifts to get at the rest of tap.

OVER-FLOW RUNNING.—This indicates ballcock trouble, either in supply tank or lavatory tank. Gently lift arm holding ball; if trouble ceases indication is that the arm needs setting. This is done by gentle pressure on the arm, using both hands, so as not to strain valve, bending in a direction to give ball a lower position. Do not press on the ball itself.

If lifting the arm does not check the overflow, a new washer is needed on plunger. There are several types of valves, but all are easy to fit with new washers if care is taken to note arrangement when dismantling. Of course, water should be turned off at main before fitting washer.

Another source of trouble is that the ball float leaks and does not float. In such a case, place a piece of wood across the top of tank, and tie the arm up to it to cut off water. Remove ball and get it repaired or a new one fitted. The valve can be released for a period daily to keep tank filled.

Ball valves can also give trouble if the water in the tank is frozen; the remedy is then, thaw out the ice and protect the tank.

FLUSHING CISTERNS.—Same principle for filling as supply tanks, same remedies for troubles, except that, if chain has to be pulled several times, remedy is to raise the height of ball by bending arm.

WASTE PIPES BLOCKED.—Often blocked by greasy matter, a scalding with hot water and a stout wire pushed through will sometimes clear stoppage. If not, remove plug from bend in pipe under sink or basin, placing receptacle to catch water. Remove deposit, and flush with hot water. If plug leaks when replaced, remove again, and wind a few strands of some coarse string round the thread of plug, and smear with paint before putting back.

BLOCKED DRAINS.—Surface water drains should have the cover lifted occasionally, the gully trap should be cleaned out and two or three pails of water poured down to flush pipes.

Sanitary or "earth" drains are a separate system to those disposing rain water. On the principle that prevention is better than cure, be careful not to put stiff paper, rag, or anything likely to cause a stoppage in the lavatory. When a stoppage occurs, cease use of lavatory immediately, making arrangements with a neighbour, if necessary. If the trouble occurs in the neck of the lavatory pan, a cane or a flexible pipe cleaner may remove stoppage.

Perhaps a lift and force pump can be hired from a builder, should the other methods fail; the builder will explain the method of use. As a last resort, whatever is causing the stoppage must be removed and the pipes flushed.

When the stoppage occurs in the underground drains, the trouble is tackled from the inspection chamber. Have the covers off all the inspection chambers, and you will approximately locate seat of trouble. The chamber with the fresh air inlet is the one that discharges into the sewer and is fitted with a sewer gas interceptor. If this is filled with water the trouble lies under the road; if it is clear then the stoppage is somewhere between this and the other chamber.

When water from a chamber has to be disposed of before you can tackle the trouble, make arrangements to put it down a neighbour's inspection chamber, but don't pass anything on likely to cause them a stoppage.

The stoppage may be in the sewer gas interceptor; if so, it can be cleared with a flexible pipe. To clear the straight runs of pipe, drain rods will be needed. They can be hired from ironmongers or builders' merchants, and will include screw, scraper, plunger and brush. The screw will bite into any coarse stoppage so that it can be withdrawn; the brush is for a final cleansing.

Always flush drains well after dealing with stoppages. When the rods are being used, remember to keep them turned always towards the tightening position, including when withdrawn, as, if they are turned the opposite way, they will become disengaged and left in the pipe.

Pipes and traps which become furred can be cleaned with hydrochloric acid, which must be used with care, or you will burn your flesh or clothes.

When replacing inspection covers, smear the seal with grease.

PLASTER.—To repair plaster work on an inside wall, first remove all loose or unsound plaster. Then thoroughly moisten the brickwork and edges of patch, and spread sand and cement compost, proportions 8 x 1, or lime and sand.

4 parts sand to one of lime, on to wall, and bring up to within $\frac{1}{2}$ -inch of desired level. If any considerable thickness is required, do not try to do it in one go, or it will fail. Put one layer on and make some deep scratches in it; then, when it is hard, repeat the process until you reach the proper level. To finish off, a quarter of an inch of "Keenes," "Parian" or "Sirapite" plaster is all that is required for a smooth finish.

To repair a ceiling, or on a lath wall, the same process as for ordinary walls will do, except that hair should be added to assist binding whilst the work is hardening. Hair may not be available, in which case coarse string unravelled and cut to about 4 inches, or hay cut to shortish lengths, may be incorporated.

MIXING.—The important thing is to see that you mix the sand and cement well in the dry state, and add water gradually, so as not to make compost too wet.

OUTSIDE CEMENT WORK.—The first thing to remember about outside cement work is that, having to withstand frosts, etc., it is false economy to save on cement. The following proportions should be used.

CONCRETE.—Five parts pit ballast to one part cement.

COMPOST.—Two parts of sand to one of cement and, for preference, use sharp washed sand.

Loamy sand is not suitable except for pointing, and then the proportions should be equal parts.

When concreting, tampering down is most important. Use a straight edge or back of the shovel, and keep on beating until the face of concrete comes up nice and creamy, then smooth off.

Sand and cement compost finish to a path or work on walls, should be carefully mixed in the proportions given, and applied evenly. In hot dry weather, walls or concrete should be well soaked so as to provide suction. The importance of the work being well finished with a wood float cannot be over emphasized.

If rain falls and damages new work it can often be trowelled up again by dusting with dry cement lightly and evenly, then rubbed up again with float after spraying with water. Heavy pressure must be applied, and the operation is useless once the initial set has gone off.

In frosty weather the work should not proceed, but if done in the fine "in betweens" it should be well covered up for 4 or 5 days.

DAMP WALLS.—Before a cure can be effected, the cause must be traced, and the position of the damp parts will give the clue to this.

Faulty guttering or roofing is the usual source of trouble if the dampness appears near the top of the walls in the upper rooms. This may mean calling in help for repairs, but before doing this, the gutters should be cleaned out as the trouble may be caused merely by overflow due to obstruction.

Another cause of trouble is at ground level, where the damp course may not be effective, or soil or some other material has been allowed to come above the damp course. This is usually one course below the air brick in the outer walls, and any material above this line should be removed to one course below damp course. When this cannot be done, a vertical damp course must be provided.

If the original damp course is perished or faulty, replacement is a skilled man's job.

VERTICAL DAMP COURSE.—To make a vertical damp course, rake out the pointing of brickwork to desired height from one course below horizontal damp course. Give the brickwork a thin coat of sand and cement, for preference adding "Pudlo," then place slates against this in vertical position and tap down to bed. Repeat with another line of slates with joints staggered (i.e., not over each other) then render over with sand and cement. Get a good water-right bevel on top of work, and, as an added precaution, tar cement work when dry.

Slates may be difficult to get in wartime, so the following suggestion may be useful. Clean off the wall to the desired area, then tar it. While the tar is still wet, place a layer of paper over it and smooth it down to make it stick. Tar the paper and repeat operation two or three times. Brown paper will be best; a thinner paper will need an extra layer.

On the last layer, coat the tar with sand by throwing dry sand against it. Allow a day or two for tar to harden off a little, then render over in the same manner as for slates.

Another cause for dampness may be porous bricks or mortar. If it is the mortar, it should be raked out deeply and the brickwork pointed with sand and cement.

Porous bricks can be tarred, but this is an unsightly remedy. An alternative is to render over with sand and cement, incorporating "Pudlo," but this is a big job.

The bricks can also be treated with liquid compounds, such as "Cementone," "Protion," "Protex" Emulsion, etc., which are painted on, but have to be renewed after four or five years.

Projecting ledges, brickwork, etc., may also trap water, in which case a skilled man would fit a "flashing." Bevelling off steeply with cement would be a partial remedy.

FENCES.—In wartime wood will be either difficult or impossible to obtain, so that the hints given here will be mostly concerned with the preservation of fences. First, many fences are ruined by earth being above the gravel board. This should be avoided. Secondly, a post may work loose and be left unattended. Wind then rocks the fence, and so the trouble spreads, arris rails coming out of posts and whole panels falling to the ground. The remedy is to see that posts are upright and secure. Gravel boards should be kept as straight as possible by means of pegs driven into the ground, and all loose boards nailed up before they come right away.

When posts have rotted at ground level, concrete spurs can be bought to repair the defect.

LOCKS.—Common trouble with locks is the spring breaking, but this could often be avoided if locks were kept properly oiled. See that this is done regularly, and the smoother action will give less strain on the working parts. As there are so many types of locks it is not possible to deal with them fully in a book of this size, so in the case of trouble not cured by oiling it is suggested that the lock be removed and taken to an ironmonger or locksmith for repair. You will probably get service much quicker this way, for it is doubtful whether a firm can send out men for such a small job in war-time.

To remove lock, take screw out of handle and then handle can be removed. According to type of lock, flush or inset, etc., will be found screws, which are easily removed, and the lock either comes off, or is easily prised out of its recess.

WINDOWS.—Windows jamming or refusing to close are often a source of trouble, and may be caused as follows :—

1. Faulty hinges.
2. Frame mortices splitting or legs coming out, allowing frame to distort.
3. Wood swelling or distorting.

First examine hinges. If they have not been kept oiled they may be stiff and lifting screws as the window is moved. Oil thoroughly and work until easy, making sure screws are driven right home. If screws are loose, plug holes with small pieces of wood before putting screws back. This treatment applies to hinges generally and, if they are very stiff, they should be soaked with paraffin before applying oil.

Next, examine mortices, at the corner of the frames where legs have worked out, tap them back into position, and if they have shrunk, fit new ones ; they are easily shaped with a knife. If the corner has split, an angle iron must be obtained from the ironmonger and fitted, a little wood being removed first to allow it to bed down to proper dimensions for window.

In the case of wood swollen or distorted the high spots must be removed with a plane or spoke-shave. If neither of these are available, a saw held at right angles and used with a diagonal scraping motion will remove the bulk of the wood, which can then be scraped smooth with a piece of glass held in a pad.

ELECTRICAL.—Before attempting any adjustments affecting the electrical circuit, make sure the current is switched off from the main. Any doubt about which is the mains switch can be removed by leaving the light on, and switching off from the switch usually by the fuse box. Make sure you know before you get any trouble.

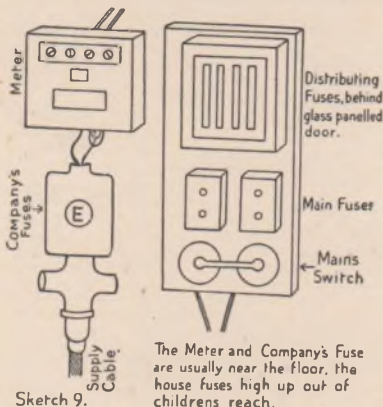
FUSES.—When the fuse goes it is usually caused by a short circuit, temporary or otherwise, such as by a lamp bulb giving out, a faulty switch, or flex becoming worn and wires bared.

A lamp bulb usually flickers before going out, so that the fault is generally quickly remedied. As a rule there are three sets of fuses to a household supply, the Company's fuse, which is sealed and must not be touched, the main fuse, and the distributing fuses. The latter is the usual one to go, and with current switched off, remove the porcelain fuse carriers one by one until you find the fault, then fit a new fuse wire in the same manner as the sound ones you have. You will see that it is a simple job, the important thing being not to have loose ends of wire to cause a short circuit. Usually this fuse wire is 5-amp. for lighting, and 15-amp. for power. In a separate box the mains fuses are of a similar kind, usually taking 15-amp. wire. The Company's fuses must be attended to by their own men.

SHORT CIRCUITS.—May be caused by worn flex, faulty switches, or straying wire ends in connections. Examine the flex, giving particular attention to the points where it leaves the rose in the ceiling and enters the lamp holder. Should the flex be worn, either shorten the flex to a sound part or fit new flex.

FAULTY SWITCHES.—With metal covers you may get a shock, or notice a slight sparking. Turn off current at main and remove cover and look for loose parts or frayed or straying wire ends, and remedy. If the make and break does not function the receiving parts may be squeezed up a little, but generally speaking, if they are worn, other parts are too, and a new switch is called for.

ELECTRIC IRONS.—When the iron gives out it may be a short in flex, a faulty adaptor, or a burnt out element.



The Meter and Company's Fuse are usually near the floor, the house fuses high up out of childrens reach.

Examine the flex (which should always be either very good quality or, for preference, cotton sheathed twin cable) and if worn, shorten to a sound part or fit a new one. If the adaptor and plug both prove to be all right, the trouble is probably the element. This sometimes burns through at a point where the broken ends can be twisted together again, thus saving a new element. Soldering is useless.

To inspect or renew element, undo the bolts between the handle of iron, then gently prise the cover off. Inside will be found the heating element sandwiched between two mica sheets, with an iron plate on top. Take off the nuts holding plate, remove plate, and the element is accessible for renewal or repair. In re-assembling tighten everything up firmly, or the element will quickly burn out.

SOME DONT'S.

Don't work with a live wire.

Don't stand on concrete or anything damp; use a dry board.

Don't fit a switch or electrical fitting within reach of a bath.

Don't rely on the room switch, but switch off from the mains when carrying out repairs.

GAS ESCAPES.

Gas escapes may arise from a number of causes, chief of which are rusting of pipes, wear, accidental breakages, displacement of pipes by traffic vibration, frost and, of course, carelessness. To these normal causes we must to-day add bomb damage.

When an escape of gas occurs, full ventilation must be secured before searching for the leakage point, doors and windows being opened. Of course, a naked light must not be used during any operation connected with gas escapes.

As soon as it is safe to enter the room or house, turn off all taps and also the main tap by the meter, then wait until the air from the opened windows and doors has cleared all foul air away.

The next thing is to make sure whether the escape is due to carelessness or a leak somewhere. This can be ascertained by making sure all taps are turned off, then turning on the gas again from the meter. At the top of the meter is a small dial which registers very small quantities of gas, usually either 2 or 5 cubic feet per revolution. If this dial registers a consumption of gas whilst the test is being made, there is a leak somewhere in the house pipes, whilst, assuming that the meter is in order, if the dial does not register, there is no leak, and the escape was no doubt due to a tap left on accidentally.

When a leak is indicated, examine all joints and bends, and if the leak is of any size a hissing sound will be heard. The escape may be due to a very small leak, however, and this may be difficult to locate. A good plan is to prepare a thick solution of soft soap and water, and pour over the pipe in all suspected places. The escaping gas will then form bubbles and show up the leak. A temporary repair can then be effected by smearing over the leak with soap, tallow, or any stiff grease or fat, and then binding with rag. The treatment will be quite effective until a proper repair can be carried out.

If the escape cannot be traced in the house, then it is probably in the service pipe, but it may also occur in the meter. In both cases immediately notify the Gas Company; keep the affected part of the house well ventilated, regardless of the weather, and cease use of gas.

When these tests or precautions have been taken and gas again leaks when the service is used again, the escape is in either extension pipes, fittings, etc., and these should be carefully inspected. The leak is usually easily detected by sniffing, but if this method fails, the exception to the rule about naked lights being used comes into force. The leak being so small, a lighted match can be held to all suspected parts, and the escape will be located. It must be done in a well ventilated room, not in a gas-charged atmosphere.

A further point to remember is that, although opened windows may have cleared the gas from the room, there may still be an accumulation under the floor, so extreme care is still necessary when using a naked light.

A slight but unpleasant escape can be caused by the by-pass blowing out, so of course this should be watched in windy weather.

Often a suspected gas escape turns out to be fumes from the stove, caused by imperfect combustion. Keep all burners and taps clean, and see that the mixture of air and gas are correct.

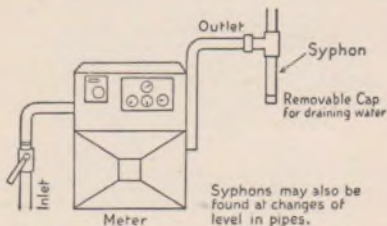
DEFECTS TO THE SUPPLY.

When trouble arises with the supply, the Company should be informed, but it is possible that, pending the arrival of the Company's men, some faults can be remedied.

Should the fault be on the supply side of the meter, there is nothing the householder can do, but usually the trouble is caused by condensation and can be remedied as follows:—

On the outlet side of the meter will be found a short length of pipe, usually called a syphon (Sketch 8). This is where the water caused by condensation collects and, by opening the stopcock or removing the cap, according to which is fitted, the water can be cleared.

If the pipes happen to be in an exposed position, frost may freeze up the condensation and stop the supply. The remedy, of course, will be to thaw out the pipes and this can be done by pouring hot water over them.



Sketch 8.

Small pipes, defective meters, etc., may be a source of trouble, but these matters must be dealt with by the Company's men.

PAINTING.

The most important thing to bear in mind when attempting to paint any kind of work, is that it is no good applying the paint on a dirty surface. According to the degree of dilapidations, the work may have to have the old paint burnt off by blow lamp, either over the whole area or locally, or it may be washed down with a special preparation such as "Manger's Sugar Soap."

When a blow lamp and scraper is used, care must be taken to keep the flame on the move, or unnecessary scorching of the wood may take place. Extra caution is needed when working round glass, as it is very easy to crack glass with the sudden application of heat.

In washing down, mix the sugar soap according to the directions, and then coat the whole of a door, window, etc., with the solution, using a fairly stubby distemper brush. When the whole of the area has been coated, go back over it with the same brush and solution, and well scrub it, giving full attention to the crevices and mouldings. After scrubbing, and before the work dries, the brush should be rinsed in clean water, and then the work should be well rinsed down, using water liberally. Precautions will have to be taken against water collecting on the floor, particularly in upper rooms, or the water may percolate and damage or mark ceilings.

When the work has been rinsed off, it should be dried off with leather or sponge.

When the work has been cleaned, it should be sand-papered, and from this stage on a "dusting brush" should always be at hand to keep the work clean.

Sandpaper until a nice surface is obtained; the glossy parts must be rubbed down, too, to make a key for the new paint.

Any hollows or irregularities left must then be dealt with, in the following manner. First paint the hollow and allow to dry, then level up with filling.

Fillers can be made as follows :—Mix white lead, gold size and American turpentine, to form a stiff paste for large hollows and a more fluid paste for small hollows.

Apply the filler with a filling or broad knife, allow it to set, then rub or scrape down smooth.

On new wood, knots, resinous or sappy places should be coated sparingly with "knotting," which can be obtained ready mixed from builders' merchants, etc. Bad knots may require two coats.

New work must also receive a coat of "priming," a mixture of white lead, linseed oil and turps. Sometimes red lead is used, as on iron work, but it should not be used when an enamel finish is intended. The priming should be very fluid, as it is intended to penetrate the material and form a key for the subsequent coats.

In the re-painting of windows, etc., all loose putty should be removed, the woodwork underneath cleaned and painted. When dry, new putty should be placed, and when firm given a coat of paint before the main job commences.

Putty can also be used as a filler for deep cracks, nail holes, gaps in mortices, etc., but always remember to paint the part first to make a key.

When the work of cleaning and preparing has been completed, the next stage is to apply the undercoat. All paints used for undercoating should be flat, that is, they should not have a glossy surface. Too much linseed oil will produce a glossy finish, which is not desired. The remedy is to add more turpentine, and there is no need to worry about over-thinning, as it is much better to have two thin coats of undercoating than one thick one.

If a super finish is required, or on new outside work, two or more undercoats may be necessary, but it is essential to sandpaper each coat to get rid of brush marks before applying the next one.

Finally, the finishing coat is applied, and if it needs chinning, linseed oil should be used to preserve the gloss. Always brush in one direction, and spread the paint well, as opposed to finishing varnish or enamel, in which case a thick coat is required, but not so thick that it will run.

The sequence of painting the work varies, but as a general rule it will be found best to do all mouldings, frames, etc., first and the big areas and panels last.

WET AND DRY ROT.

Wet rot, as its name implies, is caused by dampness attacking the wood, which turns brown and is easily crumbled. Soft woods are more prone to this disease than hard woods like oak or teak. In some cases the dampness is unavoidable, as in outdoor structures, fences, etc., but if it appears in the house the dampness must be cured before replacing the affected wood.

When the dampness has to be resisted rather than cured a preservative of some kind must be used. Creosote, tar or Solignum are good and inexpensive for outside work, paint being more expensive and of little use below ground, as for fence posts. It is a good plan with all posts that go in the ground to char them by burning, so that a skin of charcoal covers the foot of the post to about six inches above ground level.

For inside work, paint or interior Solignum are good mediums, but always make sure the wood is dry before applying paint.

DRY ROT is a very destructive and infectious disease which may be caused by local conditions, or imported in infected timber. It can be recognised by the thick layer of fungus and a very unpleasant pungent odour. Even if the fungus is removed a discolouring of the timber with red and black stripes will provide the clue to infected timber, and the smell will remain.

Dry Rot will not thrive in a dry and well ventilated atmosphere, so see that all causes for dampness are removed, and that air bricks and vents are clean. In damp and stagnant atmospheres the disease spreads rapidly, even spreading to other houses through brickwork joints.

In attempting a cure, all infected wood must be removed and burnt; do not take chances and leave any doubtful timber, or the trouble may set in again in a few months' time and cause endless expense. All brickwork should be gone over with a blow lamp to kill any spores that may be in the joints, and then the sound remaining timbers must be treated.

This can be carried out by coating with either hot lime, sulphate of copper, creosote or one of the proprietary preparations such as Solignum, Peteriineum, etc.

On ground floors the oversite should be cleaned of all rubbish, and if earth is present, it should be concreted over. New air bricks or inlets may have to be fitted to provide a proper circulation of air. All tools used on the work must be cleaned and disinfected when completion is reached.

Since dampness may arise from faulty dampcourses or damp walls due to earth being above the dampcourse, the section on these matters should be studied.

SMOKING CHIMNEYS.—First, the cause must be traced. In new houses or in rooms where a fire is infrequently lit, the fireplace may smoke badly when the fire is first lit. This may be caused by the cold walls sending down cold air to beat down the smoke. The remedy is to air the chimney with a good blazing fire of wood or paper (not a big fire) before adding coal. When the fire burns up brightly the trouble will cease.

A main source of trouble with chimneys is the faulty placing of the chimney pot, with the result that air eddies are forced down the flue. This cause can be identified by the smoke nuisance occurring on windy days, and the remedy is to fit either a taller pot or a Down Draught Preventing Pot. There are several types of the latter, and the local builders' merchant will be able to recommend one suitable for your requirements.

Sluggish flues are denoted by swirls of smoke eddying into the room at the least disturbance of the air, such as when a door is opened or shut. This may be due to faulty construction of the flue or a blockage, and a reputable chimney sweep will either be able to remove the obstruction or advise you whether the services of a builder are necessary.

Sometimes the fire may burn dull because sufficient air is not present to enable the fire to "draw" properly. This can be tested by leaving a door or window open for a little while, and then, if the fire burns brightly, it is obvious the flue is in order, and the remedy is to allow a little more air to enter the room.

To avoid unpleasant draughts to people using the room, a special type of inlet can be made, allowing air to be drawn from below the floor and emerging close by the fireplace, but because of constructional and safety problems, professional advice should be sought.

HOUSEHOLD STEPS.—Many jobs have to be carried out with the aid of the household steps. If the steps are not in good order, life or limb may be endangered. Make sure of the following points :—

The Cords.—They should be of equal length ; any variation puts unequal tension on the legs and makes the steps rickety. The cord must, of course, be sound, and the knots sufficiently large so that they cannot pass through the holes in the wood frame.

The Hinges.—They must be sound, and the screws tight. If the latter have worked loose, remove the screws, plug holes with wood, and refit hinges.

Mortices may have the wedges loosened ; if so, drive them back, or fit new ones if they do not tighten up sufficiently

AMOUNT OF WALLPAPER REQUIRED FOR PAPERING A ROOM.

Length of Picture Rail, in feet.	Height of Wall to be covered with Paper, in feet.										
	7	7½	8	8½	9	9½	10	10½	11	11½	12
28	4	4	4	4	4	5	5	5	5	6	7
32	4	4	5	5	5	5	5	6	6	7	7
36	5	5	5	5	6	6	6	7	7	8	8
40	5	5	6	6	6	7	7	7	8	8	9
44	6	6	6	6	7	7	8	8	8	9	10
48	6	6	7	7	7	8	8	9	9	10	10
52	7	7	7	8	8	9	9	9	10	10	11
56	7	8	8	8	9	9	10	10	10	11	12
60	8	8	8	9	9	10	10	11	11	12	12
64	8	9	9	9	10	10	11	11	12	12	13
68	9	9	9	10	10	11	12	12	13	13	14
72	9	10	10	11	11	12	12	13	13	14	15

To use this Table.—Find the appropriate line in the left-hand column which indicates the length of the picture rail, in feet. Then move horizontally along this line and stop when the figure at the top of the column gives the height of the room. The figure in the space where you stop tells the number of rolls of paper needed for covering the walls. The calculations have been made for rolls 12 yards long and 21 inches wide.



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