



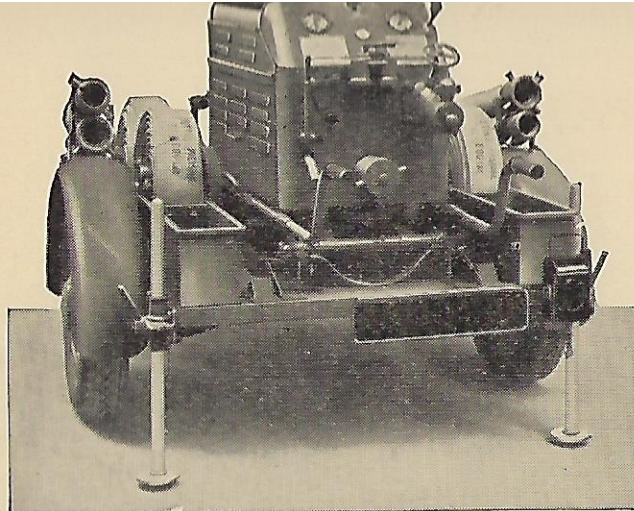
THE JET

Bristol's **AFS** Magazine



3d

APRIL

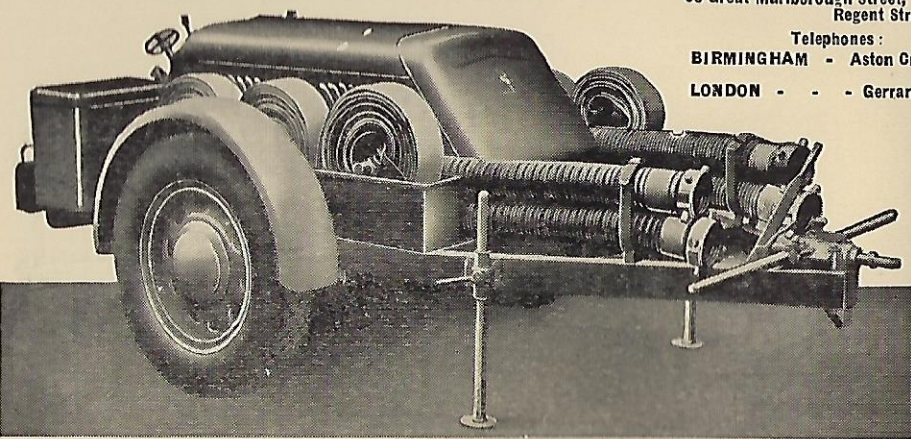


LIGHT Trailer Pump, 120/205 g.p.m. Austin 4 cylinder 8 H.P. engine ensures running of exceptional smoothness.
Send for List P 56

JET DATA at 10 ft. positional lift, assuming level runs of 2 1/4 in. canvas delivery hose—500 ft. length.
Light Pump throws two 1/4 in. jets over 80 ft. high.
(normal min. duty 120 g.p.m. at 80 lb. per sq. in.)
Large Pump throws two 1 1/4 in. jets over 80 ft. high.

BERESFORD - STORK TRAILER Fire PUMPS

LARGE Trailer Pump, 350/500 g.p.m. with Ford V-8 30 H.P. engine for outstanding sweetness of running and long life.
Send for List P 57



**First Choice
for Reliability**

**Over 6000 ordered
in the past two years**

**SIMPLICITY ITSELF IN STARTING
RUNNING AND MAINTENANCE**

SPECIAL FEATURES

**WATER - COOLED OIL
SUMP** gives long life to engine and maintains tune.

**BERESFORD Patent Light-
ing Engine EXHAUST**
Vacuum **PRIMER** produces rapid priming and has no moving parts.

"Armour-chromed" shaft, which resists gland wear and corrosion.

Ease of starting.

All-steel trailer with automatic over-run brakes, jacks, toolbox and hose carriers.

Engine and pump rubber insulated from tubular frame, which is fitted with 2 rubber-tired wheels.

All bronze pump (will deal with sea water if required).

Will prime and pump at 24 ft. positional suction lift.

Can be serviced everywhere.

Spare parts interchangeable.

JAMES BERESFORD & Son, Ltd.

Largest British Manufacturers
of Trailer Pumps

Gato Street Works, Birmingham, 7

London Office:

53 Great Marlborough Street,
Regent Street, W.1

Telephones:

BIRMINGHAM - Aston Cross 3256

(7 lines)

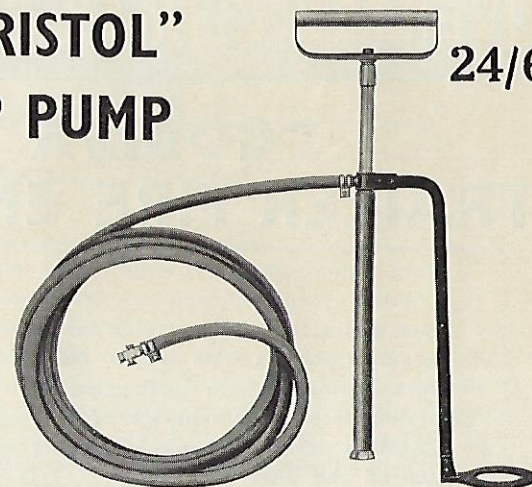
LONDON - - - Gerrard 4223-4

THE "BRISTOL" STIRRUP PUMP

24/6

For dealing with
small fires and
incendiary bombs

Can also be used
for car washing
and lime washing



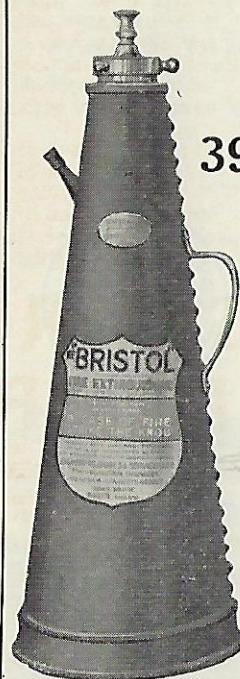
Actual Manufacturers of all
types of

**39/- Fire Appliances
and Fire Brigade
Fittings**

**All A.R.P.
Requirements**
in stock

Stirrups Pumps

Manufactured in our own
Works from Highest Grade
Materials and by First-class
Workmanship to Home Office
Specifications.



60/-

ENGINEERING STORES & SERVICES LTD.

FIRE PROTECTION ENGINEERS

Essl Works, Ashton Gate, Bristol, 3

Phone 63019 (2 Lines)

COVENTRY CLIMAX ENGINES LTD

"GODIVA" TRAILER FIRE ENGINES

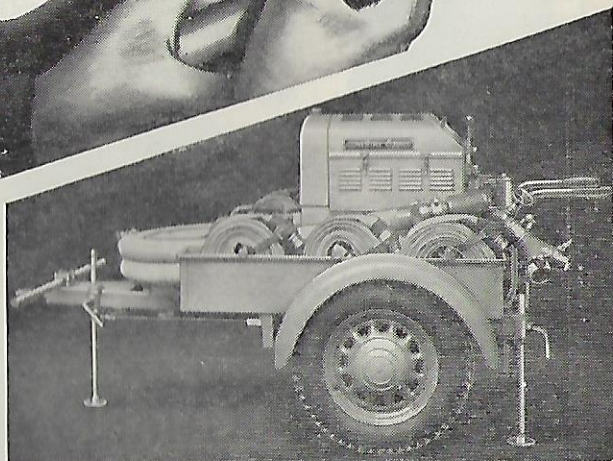
were among the first supplied to Brigades to augment existing equipment, and they have been subjected to every type of test in actual service for many months. The conspicuous success with which they have withstood heavy duty, pumping with unflagging efficiency for prolonged periods is striking evidence of the quality of COVENTRY CLIMAX design and manufacturing methods. In the opinion of the Fire Service . . . COVENTRY CLIMAX ENGINES Ltd. set the standard of efficiency in the Trailer Fire Engine field. They come out

*on top in
all tests*

Particulars of all models
obtainable on request from
COVENTRY CLIMAX
ENGINES Ltd. Coventry
Telephone 5051



The 120 220 G.P.M.
Model illustrated on
the right is well known
in the Fire Service for
its outstanding per-
formance & reliability



H.P.

THE JET

Bristol's A.F.S. Magazine

VOL. I. No. 4.

APRIL, 1940

THE principal event of last month was the Regional Exercise, a report of which is given on page 86. The exercise was the first of its kind in this Region, and proved how A.F.S. and other A.R.P. units from surrounding districts are available to assist in the defence of Bristol from air raid attack if required. Auxiliary Fire Service units from centres as far afield as Cheltenham, Swindon and Wellington took part in extinguishing fires in all parts of the city. Personnel gained considerable practical experience, and a fitting climax to the activities was the inspection by General Sir Hugh Elles on Durdham Down.

Readers will notice that this month four pages have been added to *The Jet*. It is only possible to continue publication at this standard providing the present circulation figure of over 3,000 is maintained. But there is still room for improvement. Last month over 1,100 copies were sold in Bedminster Division alone. Why not in other Divisions?

An announcement regarding binding covers will be made next month, and with this in view I would remind readers to keep their copies clean and intact. A very limited number of back numbers are still available.

A word about the A.F.S. Knitting Fund. The scheme is outlined on page 88, and I hope you will all help to make this venture an unqualified success. The formation of new parties is urgently required.

In conclusion, I take this opportunity to wish good luck to all those Auxiliary Firemen who have been called to the colours, or who are about to join up, and to thank them for their services to Bristol. I should like them to feel that their period of duty with the A.F.S. has not been a wasted effort, and hope they will continue to serve their country, although in a different sphere, with the same zeal and efficiency as they have shown whilst with us.

J. Y. Kirkup

EDITOR

REGIONAL EXERCISE

How A.R.P. Services from Gloucestershire, Somersetshire and Wiltshire helped to defend Bristol from an imaginary Air Raid

General Sir Hugh Elles inspects West Country Civil Defence Forces on Durdham Down

"ONE of the first exercises carried out in the country on these lines, and certainly the first in this Region." This was how General Sir Hugh Elles described the large-scale A.R.P. activities of March 17th, 1940, which culminated in an inspection on Durdham Down.

For the purpose of this exercise it was assumed that during an air raid Bristol had been attacked by thirty-six planes, one of which had been brought down in flames at Avonmouth. Many bombs had been dropped, resulting in extensive fires and hundreds of casualties all over the city. Bristol's A.R.P. Defence Services had been severely taxed by the raid, and reinforcements were urgently needed.

The request for assistance was sent by Bristol's A.R.P. Controller, Mr. H. M. Webb, to the Chief Regional Officer, Mr. Eardley Wilmot, and over 1,000 A.R.P. personnel, representing Defence Services from Gloucestershire, Somersetshire and Wiltshire, responded.

Altogether 150 parties took part in the operations, comprising A.F.S., Casualty Services, Decontamination Squads, Ambulance Units, Light and Heavy Rescue Parties, etc., which were drawn from the following centres :

Gloucester	Cheltenham	Mangotsfield
Stroud	Thornbury	Kingswood
Sodbury	Portishead	Clevedon
Bath	Keynsham	Weston-super-Mare
Wells	Taunton	Norton Radstock
Burnham	Wellington	Long Ashton
Bridgwater	Axbridge	Swindon
Trowbridge	Chippenham	

Upon arrival the various units were guided to Action Depots and Auxiliary Fire Stations, and then to incidents which had been previously planned in different parts of the city. In many instances actual fires added to the realism, materials used for the conflagrations including old pianos and organs (gift of Mr. A. E. Mickleburgh), old motor tyres and rubbish of all kinds. There were also casualties awaiting attention and gas concentrations to be dispersed.

Superintendent Maunder, District Officer (No. 2 District), was in charge of all fire operations throughout the city, having placed an incident officer to supervise the control of Services at each incident.

Main scenes of activity were Filwood Farm, Knowle ; Old Lead Mills, Blackswarth Road ; Crew's Hole, St. George ; Hung Road Cottages, Shirehampton ; Philadelphia Street ; Ashton Vale Brickworks, Bedminster ; Queen Square, and Oldbury Court, Fishponds.

The purpose of any exercise is to show up any flaws in the organization by putting into practice operations which had previously existed

Regional Exercise

only in theory. For this reason umpires were stationed at every incident to report for future correction any mistakes in the action taken.

In the afternoon personnel who had taken part in the exercise assembled on Durdham Down for an inspection by General Sir Hugh Elles, Regional Commissioner, who was accompanied by Mr. Barter, Principal Officer of Civil Defence for the South-Western Region ; Colonel Carlisle, Regional Training Officer ; Alderman Frank Sheppard, Chairman of Bristol A.R.P. Committee ; Mr. Webb and Mr. Wilmot. Many other prominent West Country A.R.P. officers were also present.

General Elles, who had previously toured sites of the various incidents while operations were in progress, told the large gathering that the personnel present represented almost half the West of England.

"The Civil Defence Services are enlarging their scope. When we started, the idea was for each small section of the community to defend itself, but now we think in terms of one borough or county as one part of a region, so that they can reinforce one another as they are doing to-day. In this particular exercise certain theories were brought into practice and a great deal of instruction and experience obtained."

He congratulated those concerned in the preparatory organization—the Bristol Controller and A.R.P. Committee, Chief Constable and officials in charge of the outside parties.

"I asked a lady before the exercise started," said Sir Hugh, "what I should say to you. She said : 'Tell them they are doing a rather dull job magnificently.' Well, I do not know if it is such a dull job after all, but you are doing it frightfully well. The day may come when upon the efficiency of the Civil Defence Forces of the Crown may turn the issue of very critical events."



General Sir Hugh Elles, Regional Commissioner, inspecting Auxiliary Fire Service detachments on Durdham Down following the large-scale Regional Exercise on March 17th.

Photo : Bristol Evening World

Fireside Corner

A.R.P. MUSHROOMS

Already people who hate waste are thinking of a use to which air-raid shelters can be put without interfering with their original intention. One of these is mushroom growing, and it can be carried out very successfully in those underground shelters which are not too damp and not too dry. It is not even necessary to have a proper mushroom bed, as they can be grown in boxes. There should be a foundation of rotted leaves, covered with about six inches of horse manure mixed with good fibrous loam. This should be moistened with luke-warm water and left for a day, after which pieces of mushroom spawn should be inserted to a depth of about two inches. Then the soil must be pressed down and kept always in the same state of moisture—not too wet. Water added must be luke-warm. The boxes should be covered with cloths or blankets, and if possible the temperature kept at about 55 deg. F.

THE EDITOR REGRETS—

The Editor he scratched his head,
Material he must get,
Or leave a score of pages blank
Upon the next month's *Jer*.

With ruffled hair—slumped in his chair,
He closed his eyes to think,
The room all full of 'baccy smoke,
His collar splashed with ink.

Then suddenly his face lit up,
He thumped his desk with glee,
Surely among a thousand men
A poet there must be.

With frantic haste he grabbed the 'phone,
And in a voice so terse
Said, "Never mind the fires, boys,
What I really need is verse."

So I, for one, responded,
The result is plainly seen.
Instead of twenty pages blank
He'll only have nineteen!
"DOT."

A.F.S. KNITTING FUND

Once again we have to thank Bedminster Division (South Central A.F.S. on this occasion) for the most welcome amount of £5 13s. 6d., the proceeds of a Dance held in St. Dunstan's Hall. This is a praiseworthy effort, but when Mr. Duggan calls also upon his friends for help, we are exceptionally grateful. Mr. Ernest Olivier, of Windsor, responded magnificently to Mr. Duggan's appeal with a cheque for £5. This brings Bedminster's total to £16 15s. 6d. What about it, other Divisions?

Our aim is to provide as many as possible of the A.F.S. men who are being called up with a complete set of knitted comforts. This is a huge task, but we have made a brave start and shortly after Easter we hope to have some of these parcels ready. Will Divisional Officers please submit names of those men who will shortly be called up; they will then be given the garments already finished.

Two Knitting Parties only are in existence—at Central and Bedminster. Surely there are many more wives and relatives of Auxiliaries who would be willing to knit for their "men folk." If there are, please submit your names and arrangements will be made.

DO YOU PLAY AN INSTRUMENT?

If so, you may be interested in the formation of an A.F.S. Light Orchestra.

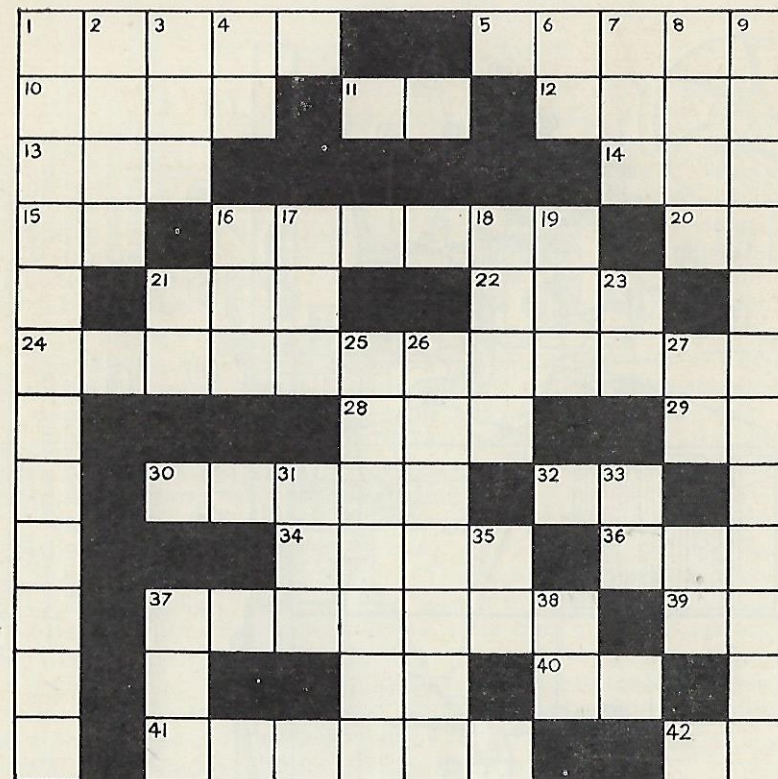
Will any members of the Service who are able to play an instrument please submit their names to their Divisional Officers as soon as possible.

TIME WILL TELL

A car goes one mile uphill at 30 m.p.h. At what speed must it go one mile down the other side to average 60 m.p.h. over the two miles?

(Answer on page 99)

A.F.S. CROSSWORD



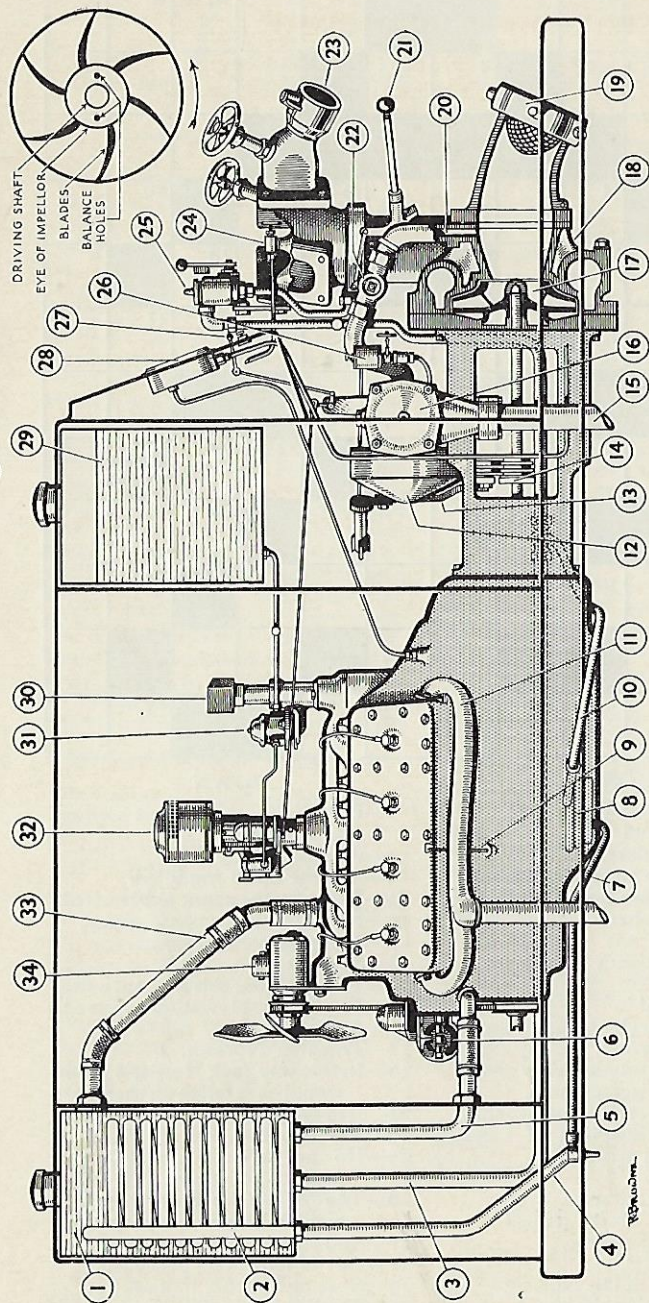
ACROSS

- 1—These stop water flow.
- 5—A diver would keep dry if he remained here.
- 10—Pertaining to an eastern empire.
- 11—Likewise a fire cock.
- 12—An extinguisher.
- 13—This metal has received the same treatment as 3 down.
- 14—Fixed.
- 15—Be 17 down!
- 16—People adore the London ones.
- 20—Chinese measure.
- 21—In proper formation they shoot down Messerschmitts.
- 22—Officers won't stand much of this.
- 24—Negative description of valve hydrant (4 words).
- 28—Negation.
- 29—Make of carburettor.
- 30—Sadness.
- 32—Ecclesiastical degree.
- 34— — and crafts.
- 36—Staring you in the face.
- 37—Keeping back rubbish.
- 39—Enter, but not in uniform.
- 40—32 across tells you about this.
- 41—Mould anew.
- 42—First word in 1 down.

DOWN

- 1—Bristol's most welcome visitors in February.
- 2—Preposition.
- 3—A great noise muddled.
- 4—Down for the count abbreviated.
- 6—Not affected by conscription.
- 7—Make of motor bicycle.
- 8—Scottish Celt.
- 9—You don't use this without a fire.
- 16—Familiar abbreviation reversed.
- 17—Away.
- 18—Town in Norfolk.
- 19—In this way Jack Horner's plum would have fallen on the floor.
- 21—Headgear minus aspirate.
- 23—Boy Scout rank.
- 25—No fire brigade can ever be accused of this.
- 26—The R.A.F. begins these essential home supports.
- 27—And so say all of —.
- 31—Part of telephone beheaded.
- 33—Nose and throat irritant.
- 35—English transport system.
- 37—Body covering.
- 38—Two narrow and a broad.

(Solution will appear next month)



- 1—Water Tank.
- 2—Cooling Coil.
- 3—Cooling Coil Inlet Pipe.
- 4—Cooling Coil Waste Pipe.
- 5—Engine Cooling System, Inlet Pipe
- 6—Distributor.
- 7—Oil Sump Cooling Coil, Waste Pipe.
- 8—Oil Sump Cooling Coil.
- 9—Dipstick.

- 10—Oil Sump Cooling Coil, Inlet Pipe.
- 11—Exhaust Manifold.
- 12—Exhaust Pump Friction Drive.
- 13—Ditto, Operating Lever.
- 14—Ditto, on Pump Shaft.
- 15—Exhaust Pump, Outlet
- 16—Exhaust Pump, (Pipe.
- 17—Impeller.
- 18—Delivery Channel Ways.

- 19—Suction Inlet.
- 20—Exhaust Pump Suction
- 21—Priming Lever. (Inlet.
- 22—Valve Connecting Exhauster Pump to Suction Inlet.
- 23—Delivery Valves (only two of four shown).
- 24—Supply to Pressure Gauge (not shown).
- 25—Dual Filters on Inter-cooling System.

- 26—Oiling Pump for Exhauster
- 27—Throttle Lever. (Pump-
- 28—Compound Gauge.
- 29—Petrol Tank.
- 30—Oil Filler and Crankcase Air-intake.
- 31—Petrol Pump.
- 32—Carburettor.
- 33—Engine Cooling System, Outlet Pipe.
- 34—Generator and Fan.

TANGYE HEAVY PUMP UNIT

By Transport Officer Powell

THE Tangye is driven by a 30 h.p. Ford V-8 engine, similar to that of the Beresford-Stork (described in last month's issue), but the pump is designed to run at a higher speed to give greater output. The engine has no governor on the carburettor; instead there is a spring-loaded clip on the rotor of the Lucas magneto, which rises when a certain speed is attained by the engine and so "shorts" or "cuts out" the firing until the engine speed falls. It is impossible to overstress the need for caution when using the choke.

Like the Beresford, the usual system of inter-cooling is employed. Water from the delivery is passed through a coil in the oil sump to the engine cooling tank, and from thence discharged to waste. When draining the cooling system, the two unions on the oil sump must be disconnected to allow water to escape from the coil in the sump: if water is left in this coil it may burst in frosty weather, and the first time the pump is used the oil sump will get filled with water escaping from the burst coil, with disastrous results.

The Tangye differs from other pumps in the method of priming. Instead of the exhaust priming system, a two-cylinder reciprocating pump is used to obtain a vacuum. This exhauster pump is driven by a friction pulley, which is forced against the main shaft when the priming lever is pulled down. At the same time a valve is opened, allowing the pump to exhaust air from the casing of the main pump. When the main pump has been primed, you will see water issuing from each end of this exhauster pump: the lever should then be returned to its normal position and the throttle slightly opened, supply to the cooling coil turned on and the pump is ready for action.

The greatest care must be taken to see that the engine is running at a low speed when priming, as excessive speed of the exhauster will cause considerable damage. The exhauster pump has a rubber automatic inlet valve and a bronze delivery valve working on a leather seat. There are two lubricators for this exhauster, and both should be filled with engine oil and the one with the "Tee" handle should be given a couple of strokes every day.

The main pump is a single-stage centrifugal with four deliveries. With a 10-ft. lift the pump delivers 700 g.p.m. at 100 lb. pressure.

When giving a Tangye the usual routine start and run, it is advisable to open the delivery valves and remove the blank caps: cases have been known of pressure being built up, so that when one of the catches was released the blank cap has been blown out with considerable force.

There are eight grease nipples which need attention: two for the main bearings of the pump spindle, two on the friction pulley bearings, one on the priming cock, one on the priming lever fulcrum or bearing, one on the starting handle shaft and another on the jockey pulley on the belt drive at the top and front of the engine.

The firm of Tangye, Ltd., is one of the oldest engineering firms in the country, and these heavy pumps have proved themselves to be extremely efficient, especially as relaying units.

Letters to the Editor

(All correspondence in connection with this Magazine should be addressed to the Editor, A.F.S. Headquarters, Rupert Street, Bristol, 1.)

SIR,—“I am sure that many Auxiliary Firemen must be interested to know their position regarding conscription. According to the latest Government decision only Whole Time men over the age of 30 years are reserved. In that case what is going to happen to the thousands of Part Time men and those under thirty?”

It seems that we spent months in training and gave up a lot of our time before and since war was declared, and it is to be of no avail.

It is short-sighted policy to train men for vital work in the case of air raids and then not to place any reservation on them, besides not playing the game with the men.

The opinions of the men should be voiced and representation made to the right authority, so that we might know how we stand.

Yours faithfully,

M. H. JONES, A/F 1181.”

The position of Auxiliary Firemen regarding Military Service has been fully explained by general orders issued from time to time by the Chief Constable. Briefly it is this:

Whole time members of the Auxiliary Fire Service are in a reserved occupation from the age of 30 years, and are thus exempt from Military Service. Exemption may be claimed for a limited number between the age of 25 and 30 years if they are classified as heavy goods drivers. The calling up for Military Service of other Whole Time personnel between the age of 25 and 30 years may be deferred for a period of six months.

Part Time members of the A.F.S. are not exempted from Military Service on the assumption that they are already in Reserved Occupations, and therefore not eligible for Whole Time service as Auxiliary Firemen.

There are still vacancies for Whole Time members, and any Part Time member over the age of 30

years who is not at present in a reserved occupation and wishes to transfer, should submit his name as early as possible.—EDITOR.

SIR,—“I should like through the medium of *The Jet* to thank all the officers, W.A.F.S., and men of the St. George Division for their practical expression of sympathy shown to my wife and I in the loss of our beloved child.

It has been a great help to us during this hour of trial to think that we have such gracious friends around us.

Again, asking them to accept our heartfelt thanks,

Yours faithfully,

L. S. LOBLEY, A/F 563.”

SIR,—“Reading my husband’s copy of *The Jet* the other night I came across an article on “First Aid,” dealing with fractures.

The writer describes the signs and symptoms of a fracture as:—pain, loss of power, swelling, deformity and irregularity. Also unnatural movement at the seat of fracture and crepitus. I hope he does not inspire budding ‘first-aiders’ to look for these signs. My St. John’s textbook states very emphatically in heavy type that ‘The last two signs should be sought only by a doctor.’

Yours truly,

B. NOTTON (Mrs.)

The reader is quite correct when she says that signs of unnatural mobility and crepitus should not be sought, especially by moving the broken ends when dealing with a fracture. But sometimes they are so apparent that they cannot be overlooked, e.g., often when a human body lies fallen from a great height it is impossible to forget the sound of creaking and grating, and when a limb is seen to be projecting at right angles from its normal position, at a point where there is no joint, the signs of unnatural mobility cannot be overlooked. Therefore these two signs were given as signs of fracture.

S/O ELSON.

• Sport & Social •

CENTRAL.—Association Football.—Result of the match against Redland D.H.Q. “B” Platoon will be found under that Division.

Table Tennis.—Two matches were played during March against Bedminster D.H.Q., in both of which Central were victorious after very exciting games. At Bedminster the score was 17 games to 8, and at Rupert Street 16 games to 9.

Henleys, Bath Buildings, played a Table Tennis match against North Bristol A.F.S. at Horfield on March 28th. The result was a win for Henleys by 18 games to 7.

REDLAND.—Association Football.—Central Division repeated a previous success by defeating Redland D.H.Q. “B” Platoon by 4 goals to 1. The match, was played on the Downs on Easter Tuesday.

“A” Platoon, Redland D.H.Q., played a very enjoyable match on March 6th, against King’s College, London, on the University Ground, Coombe Dingle.

The students proved themselves strong opponents, the result being 9 goals to 1 in their favour.

A further match was arranged by “A” Platoon, Redland D.H.Q., against the A.A. Signals, on the Downs. Played on March 13th, the result was a win for the A.F.S. by 5 goals to nil.

BEDMINSTER.—At the invitation of the President, Mr. H. C. White, various A.R.P. and sports organizations attended service at the Bedminster Brotherhood, Ebenezer Methodist Church, on March 10th.

Bedminster Division of the Bristol Auxiliary Fire Service, under the command of Chief Inspector J. Y. Kirkup, paraded in Charlotte Street, and led by the band of the St. John Ambulance, marched to the Church via East Street and British Road.

The Lord Mayor, Lady Mayoress, Alderman F. F. Clothier, Alderman T. H. J. Underdown, Councillors A. G. Farmer, W. H. Davis, H. L. Cook, T. T. Clothier and A. L. Duggan (Divisional Officer, Bed-

minster A.F.S.) attended the service, the Lord Mayor presiding.

Organ accompaniment was augmented by the Brotherhood Orchestra, conducted by Captain Plucknett, O.B.E., and the Orchestra selections were highly appreciated, also songs by Mr. John Rorke (by kind permission of the B.B.C.). The lesson was read by Divisional Officer Duggan.

In his remarks as Chairman, the Lord Mayor thanked the Aldermen, Councillors and representatives of various organizations for their attendance, and paid a special tribute to the members of Bedminster A.F.S. for turning out in such large numbers. He then referred to the excellent work being executed in this City by the Hospitals, and appealed for a good collection on behalf of the Hospital Fund.

A well-delivered address was given by the Rev. E. V. Rees, Vicar of St. Thomas’s, Eastville. The President expressed thanks to the Lord Mayor, Civic representatives, and all present for having contributed to make the service such a success.

Afterwards the Bedminster Division of Bristol Auxiliary Fire Service was inspected by the Lord Mayor, accompanied by the Lady Mayoress and Chief Inspector Kirkup.

A photograph of this inspection appears on page 97.

A Dance in aid of the A.F.S. Wool Fund was held at St. Dunstan’s Church Hall on March 9th. The Dance was organized by S/O Heal and members of South Central A.F.S. and approximately 170 persons were present, D/O Duggan and S/O Stallard being guests of honour.

During the evening Mr. Duggan made an appeal for a further collection for the above Fund, which realized the sum of 2 guineas, making a total of £5 13s. 6d. with the proceeds of the Dance. Music was provided by the A.F.S. Dance Band.

Bedminster Division wish to thank Councillor A. G. Farmer for material he has supplied on many occasions to enable fires to be built for Practice Exercises.

HOW FIRE BRIGADES BEGAN

By Geoffrey Bennett

Believe it or not, Fire Fighting was a Reserved Occupation in the days of Queen Anne !

THE earliest step in the establishment of an organized fire fighting brigade appears to date from the days of the parish fire engine, but the Act of 1707 in no way provided for a regularly trained brigade of men, or stipulated as to their proficiency.

After the Great Fire people began to realize the necessity for some measure of protection against the risk of fire. The first scheme of fire insurance underwriting was drawn up as early as 1667 by a certain Dr. Nicolas Barbon. This began as a personal venture, but in 1680 an association was formed which became known as "The Fire Office"—the first fire insurance office in the world. Policies were issued for a minimum of seven years, and premiums were calculated on the annual rent of the house on which the policy was required. Competition of rival insurance companies, such as the Corporation of the City of London's Scheme of Mutual Fire Insurance (1681) and the Friendly Society (1683), caused the Fire Office to adjust its rates and conditions. In 1688 the company was incorporated by Royal Charter, and later became known as the "Phoenix Office."

Compared with the present rates of insurance, it is interesting to note that in 1700 the annual rate of premium, calculated on the value of the house, was 6/- per cent., with a special rate of 30/- for seven years, or five times the annual rate. These rates applied to brick houses—in the case of timber-built structures they were doubled.

Another famous office was the "Hand-in-Hand," established in 1696 at Tom's Coffee House, St. Martin's Lane. It was then known as "The Contributors for Insuring Houses, Chambers or Rooms from Loss by Fire by Amicable Contribution"—imagine that at the head of your policy ! Insurance of contents was not started until the year 1805.

Many other companies made their appearance, both in London and the provinces, and keen competition existed between the various concerns. Apparently these fire insurance offices did not place much reliance on the early parish engines, with their untrained crews, and at an early date decided to form their own brigades. The main idea was to reduce fire losses and offer some measure of service to their insured. During the first year of its existence the Fire Office employed a number of watermen with livery and badges, and this was the first private insurance brigade.

The formation of the fire insurance brigades provided an added incentive to the public. The various companies possessing fire brigades were quick to realize that the gaily-coloured engine and smartly-designed uniforms caught the public eye, and played an important part in advertising the company.

When a call of fire was received, the various brigades proceeded through the streets in great ceremony, taking with them their manual

How Fire Brigades Began

fire engines, which were either dragged by man-power or horse-drawn. One of these horse-drawn engines, once the property of the Imperial Fire Office, Corn Street, is in the Bristol Museum.

There was great competition between the brigades to be first on the scene, for a smart turn-out was good publicity. Nevertheless, a report in *The Times* of the Custom House fire of 1814, which broke out at 6 a.m., states : "*the fire engines arrived soon after seven*" !

Many humorous and tragic situations occurred when rival fire office brigades arrived at the fire. A brigade would not dream of tackling a fire involving premises which were not insured by their particular company, and would stand aside to watch the frantic efforts of their rivals to extinguish the flames. Imagine a house on fire, and the owner vainly imploring a fire brigade to save the property—his own insurance brigade having failed to turn up !

These early firemen were recruited from Thames watermen, and received a retaining fee from the various companies by whom they were employed. "Reserved occupations" existed even in the reign of Queen Anne : by an Act of 1707 watermen were not obliged "*to go to sea or serve as marines or as soldiers on land*," provided they were registered in the service of their respective fire offices.

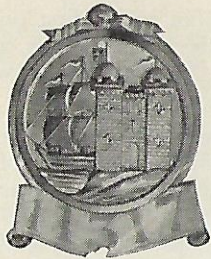
Members of the various brigades wore distinctive uniforms, generally consisting of double-breasted jackets, knee breeches and top boots. A top hat was part of the full-dress uniform, but at fires a helmet of metal and hide was worn as a protection against falling debris. Each fireman bore a large brass badge on his left arm, indicating the name of the company by whom he was employed. The picture at the foot of page 96 is taken from a contemporary engraving, and shows a "Sun" engine proceeding to a fire, manned by its crew wearing top hats.

Fire badges, or marks, were also used by the different insurance companies to indicate buildings which were covered by their policies. Like the uniforms of the firemen and the engines themselves, they were generally well designed and brightly coloured, for the directors of the companies were not slow to realize that distinctive marks on buildings all over the city was good publicity. Another reason for fixing fire marks was to prevent fraud. In those days houses situated in alleys or side streets were un-numbered : consequently a fire mark was the only effective method of keeping a check on policy-holders, and one was fixed directly a policy was taken out.

Fire marks were made of metal for durability, and were fastened on the outsides of buildings at a height beyond the reach of pilferers. The earliest marks were of lead, but later copper, iron and even terracotta were used. Sometimes the mark was stamped with the number of the policy. Many buildings bore a collection of marks, and this was often due to the fact that companies did not bother to remove the marks when policies lapsed. A fine collection of ancient fire marks may be seen above the entrance to the Bristol Photo-Engraving Co., Ltd. Offices in Broad Street, the companies represented being

How Fire Brigades Began

the West of England, Royal, Liverpool & London & Globe, Bristol Union and Sun.



Bristol, a centre of business and commerce saw the establishment of a number of insurance companies. The Bristol Crown traces its foundation to the year 1718, but was absorbed by the Sun in 1837; the Bristol Fire was founded in 1769, and is generally supposed to have been taken over by the Bristol Imperial about 1840. The accompanying illustration shows a fire mark used by this company.

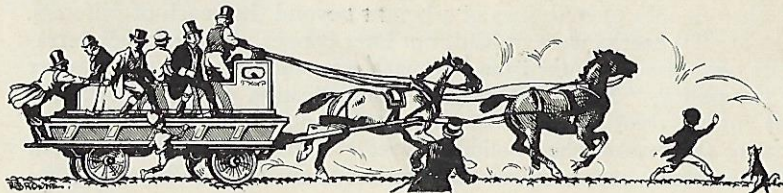
In the early days of the fire mark, ignorant people believed that a house bearing one would not burn! Cases also occurred where fire marks actually served as a protection against rioters, who would pass by a house bearing an insurance mark knowing that incendiarism would not affect the owner financially.

Although competition between companies tended to improve fire fighting technique, it soon became obvious that real efficiency was only possible through co-operation. In 1791 the Sun, Phoenix and Royal Exchange established a *"nocturnal fire patrol who, by patrolling different streets from their various stations, may be considered as an aid to the Police and likewise a protection to the inhabitants in general."* This was a step in the right direction, but rivalry between the brigades persisted until 1825, when the Sun, Union and Royal Exchange established a joint brigade, later joined by the Atlas and Phoenix.

1833 saw the formation of the London Fire Engine Establishment from the combined resources of the various fire office brigades. The whole of London was covered by this new brigade, and representatives from each office established joint control.

In January, 1866, the London Fire Engine Establishment was taken over by the Metropolitan Board of Works, and in 1889 was transferred to the London County Council under its present title.

To sum up, it is as well to remember that the modern Fire Brigade, one of the most vital public services in this country, was the direct outcome of the early insurance office brigades—private concerns founded purely in the interests of their insured. Until the formation of the London Fire Brigade, which to-day is one of the most up-to-date and efficient fire-fighting organizations in the world, insurance companies for nearly 200 years provided the city with the only effective method of protection against the ravages of fire.



KINGSWOOD A.F.S. SOCIAL CLUB

FIRE STATION, KINGSWOOD,
20th March, 1940.

Dear Readers,

The opportunity has most graciously been afforded by Chief Inspector J. Y. Kirkup for the inclusion in this issue of an article which could not take any other form than that of an introduction.

In the first place, we do not wish to make any intrusion on the sanctity of a magazine catering mostly for the Bristol A.F.S., without making some remarks regarding our reasons for doing so.

On commencing we must, therefore, make it known that one of our most desired ideals is sociability, which can be defined, generally, as fostering friendly atmosphere between various groups of people. It is essential that, although a spirit of rivalry may exist between two brigades, the actual relationship should be of a genial and cordial character.

It is with this in mind that we wish to say how very pleased we should be to arrange games such as Darts, Table Tennis, Bagatelle, etc., between any of your Stations, and you can be assured that anything arranged in this manner would be more than welcome.

In concluding, we wish to express our appreciation for the reception given to members of our Brigade during the Regional Exercise on March 17th, from which valuable experience was gained. It is earnestly hoped that we shall be able to take part in more exercises of this type in the near future.

Yours sincerely,

G. E. SMITH, Hon. Sec.

BEDMINSTER CHURCH PARADE



The Lord Mayor, accompanied by Chief Inspector J. Y. Kirkup, inspecting Auxiliary Firemen from Bedminster Division after they had attended Service at the Bedminster Brotherhood, Ebenezer Methodist Church, on March 10th. (Full report will be found on page 93.)

Photo: Western Daily Press

ROBB WILTON

Officer-in-Chief of Netherbackwash A.F.S.



A.F.S., A.R.P.

*Hi diddle diddle, I'm a fireman, see?
We haven't got an engine,
We haven't got a hose,
Still I've joined for the duration,
So I don't care if it snows.*

*Ha ha ha, He he he,
They'll soon be promoting me,
Ha ha ha, He he he,
From an A.F.S. to an N.B.G.!*

This A.R.P. version of *Little Brown Jug* is one of the many outstanding hits from Robb Wilton's latest comedy sketch, "A.F.S.," which topped Bristol Hippodrome's variety bill recently.

In this rollicking burlesque Mr. Wilton gives a number of rules for firemen:

- "Before proceeding to a fire, be sure to find out where it is."*
- "Always keep a cool head—unless it's a big fire."*
- "Always look before you leap—that is, if you're going to leap, otherwise it doesn't matter."*
- "When on the way to a fire, should anyone ask you for a lift, be sure you won't be taken out of your way, as time's important."*
- "Never go without your helmet: there are many ways of getting a headache apart from listening to the wireless."*

Incidentally, Mr. Wilton told me in a backstage interview that on several occasions he forgot his helmet, when he was giving his first fireman's sketch and a brass helmet was necessary. "But whenever this has happened, I have never had any difficulty in borrowing one from the local brigade," said Mr. Wilton.

He told me that the scenery used in his sketch, which depicts the interior of a fire station, actually caught fire. This occurred while he was appearing on another stage before visiting Bristol. The trained fireman whose duty it was to check up on stage property and scenery to make certain that it was not highly inflammable, struck a match and applied it to the back-cloth to test if it had been fire-proofed.

"You see," he said, turning to Robb, "we have to be very careful or there might be a serious fire."

Officer-in-Chief of Netherbackwash A.F.S.

"Yes, but . . ." began Robb.

"Oh, I know it's expensive to have it proofed," said the fireman, "but it's better to spend the money and be safe."

"Yes, but don't you see . . ." began Robb.

"It's alright," said the fireman, "only I had to make this test just to be on the safe side."

"Yes, but the darned thing's on fire!" yelled Robb.

It was. The scenery he thought was safe had a long tongue of flame licking up it.

"Great scot!" said the fireman (or words to that effect!) and the next few minutes were taken up by he and Robb putting out a real fire on the scenic fire station!

Fortunately a major fire report was unnecessary.

Robb Wilton has had considerable experience of firemen and fire brigades, and has visited stations all over this country and in Australia.

He chatted to me about his early stage career, and recalled how years ago he appeared with his wife in a melodrama of the days of the old-fashioned horse-drawn steam fire engines, entitled "The Still Alarm."

In this particular play horses were actually brought on the stage to draw the engine—not a real one: it was made of three-ply—and the hero of the brigade staged a lightning turn-out to rescue his beloved from the flames—kindly supplied by the villain.

It is difficult to imagine Mr. Wilton in a serious part when listening to him rattling off jokes by the score in his latest sketch.

By the way, the agitated householder whose house is on fire in the sketch is the comedian's son.

Robb Wilton has achieved enormous popularity as a broadcasting artist, undoubtedly his most successful role being that of "Mr. Muddlecombe, J.P." He told me that his new broadcast series features the formation of an A.F.S. by the local Rural District Council of Netherbackwash, and the election of himself as Officer-in-Chief!

As I took my departure, Mr. Wilton gave me a final word of advice:

"If on arrival the fire is out, don't bother about it."

And don't forget, Robb Wilton's advice is not to be sneezed—sorry, squirted at!

GEOFFREY BENNETT

ANSWER TO PROBLEM ON PAGE 88

It can't be done. In order to average 60 m.p.h. over two miles they must be traversed in two minutes, but these have already been taken up to do the first mile.



Odd man aloft!

1st Auxiliary: "What do you do with your boots when you wear them out?"

2nd Auxiliary: "Wear them home again."

Insurance Agent: "Please don't get the impression that we are trying to sell you anything."

The latest Nazi slogan is: "German meals for German people."

We wonder if the menu includes Reich pudding.

And Tet I don't know

"The amount of money spent in public houses annually would pay the National Debt."

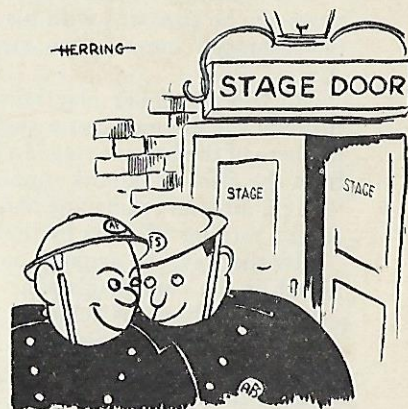
But who will pay for the drinks?

* * *

It is extremely disconcerting when a small boy passes the entrance to an Auxiliary Fire Station whistling "Keep the home fires burning."

* * *

News of a wonderful invention has reached our ears. It is a revolving glass bowl for lackadaisical gold-fish.



Do you smell smoke?

"Dreadful weather we're having lately."
"Yes. Last week there was a river at the bottom of my garden, but now the garden's at the bottom of the river."

* * *

Menus are being printed in English at fashionable London hotels in order to help Frenchmen to understand them.



I carried the dummy nearly all the way down once!



Hi!!
Yes, is'nt it.

According to a music-hall star, it is hard for comedians to keep brand-new gags a secret.

Nevertheless, they continue to do so.

* * *

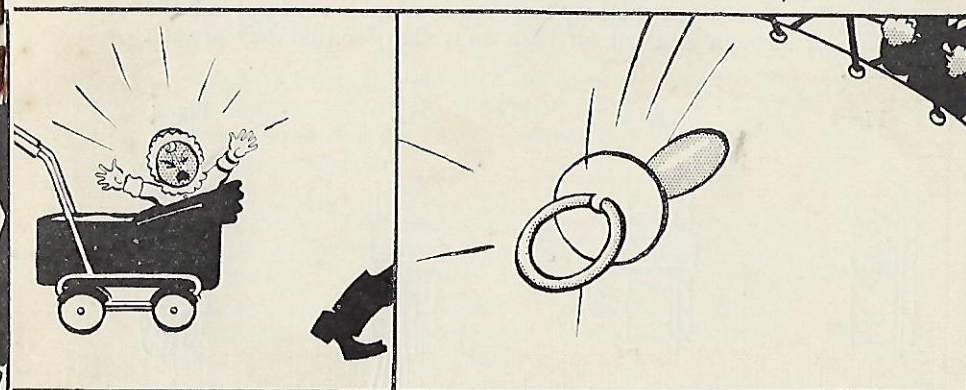
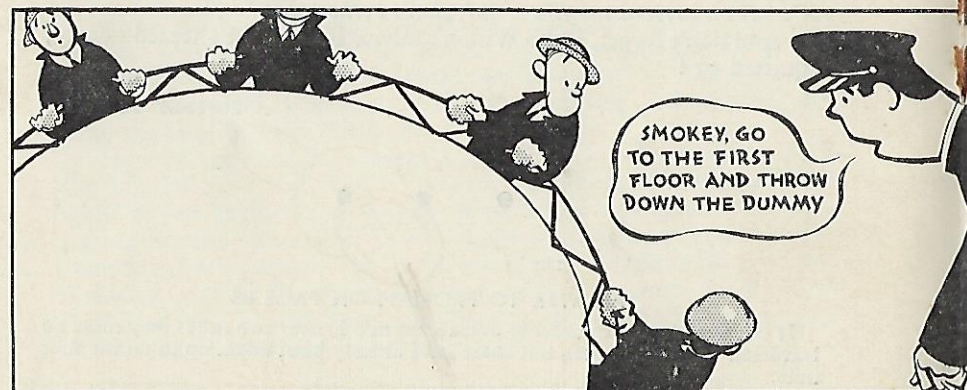
Auxiliary firemen are models of courtesy. They always stand in buses to give a seat to ladies because their axes make it quite impossible to sit down.

* * *

Smoking is liable to make young girls age quickly.

Girls in their nicoteens should remember this.

ADVENTURES OF "SMOKEY"



By Allan Baird

ROPE S are among the most useful items of fire brigade equipment, and it is essential that every fireman should acquire a thorough knowledge of ropes and their uses. It is the purpose of this article to give the reader a few hints and tips on ropes and knots, including explanations of the various technical terms in use and descriptions of the various knots which firemen are expected to know.

Even if you are acquainted with these, they should be continually practised in order that they can be tied correctly, tightly and without hesitation—especially in the dark. Remember that in lowering persons from buildings a human life may depend on the speed and skill with which a knot is tied.

Ropes are made from a number of materials, the principle fibres being manilla, coir, sisal, cotton, and various wire ropes of steel, copper, etc. Manilla ropes are used principally by the fire brigade. Strength varies according to the length of the fibres used, but generally speaking manilla ropes are among the strongest—excepting, of course, wire ropes.

Most ropes in use by the A.F.S. are either "hawser-laid" or "shroud-laid." If you hold a hawser-laid rope up in front of you, you will notice that it is composed of three strands twisted or laid up from left to right. A shroud-laid rope is also laid up right-handed, but consists of four strands with a heart in the centre. Thicker and heavier ropes are generally formed by three hawser-laid ropes laid up in the same way as the single strands previously mentioned.

In the manufacture of ropes, fibres are first twisted into yarns, which are then laid up into strands. These strands are then twisted into ropes. It is obvious that a rope composed of a number of small fibres will eventually become frayed or untwisted at the ends. *Whipping* is the common method used to prevent this, and is carried out in the following manner:

A piece of twine is laid along the end of the rope to be whipped (Fig. 1), and is then bound tightly around the rope and the twine end itself about half-a-dozen times (Fig. 2). Fig 3 shows how the twine is then formed into a loop: turns are then taken over both returns of the twine (Fig. 4). When the loop has been practically used up, pull the remainder through and cut off both ends short so that they are not visible.

Fig. 1

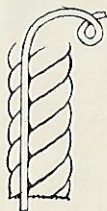


Fig. 2

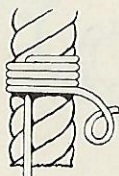


Fig. 3



Fig. 4



Fig. 5

When a rope has not been whipped, an Overhand Knot or Thumb Knot (Fig. 5) is frequently used to finish off the ends temporarily. In the fire brigade this knot is always tied in a damaged length of hose. Another finishing or *stopper* knot is the Figure of Eight (Fig. 6), which is somewhat stronger. These two knots can also be used to prevent a rope running through a ring or pulley block.

Sailors have always been the greatest artists in the use of rope, and most of the terms used in connection with ropes and knots savour of the sea. The following are a few of the elementary terms used in knotting:—

The fixed part of a rope, which is not available for knotting, is called the *standing part* or *standing end*. The *running end* is the free end.

Paying out or easing a rope is slackening it.

The *bight* is that part of a loop between the standing part and the running end. The word means a small bay. Knots made on the bight are those which are formed without utilizing the ends of a rope.

A *bend* is a knot fastening two ropes together, and this term is also used as a verb (e.g., to bend one rope to another).

A *hitch* is generally a temporary knot used to fasten a rope on to a spar or pole, etc. A common example is the Half Hitch (Fig. 7).

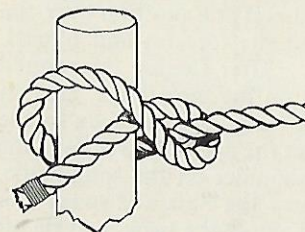


Fig. 7

A *round turn* is a complete turn around a pole or similar object. Fig. 8 shows a Round Turn and Two Half Hitches, which is frequently used to make a rope fast. It will be seen that the two hitches actually form a Clove Hitch.

Seizing or *stopping* means connecting two ropes together with a small lashing of twine. In Fig. 8 the end is stopped back or seized for extra security.

Before being put into use, new ropes should be stretched. This is usually done by securing one end of the rope to a fixed object and putting a strain upon it by the combined pulling of two or three men, or other arrangement.

When using ropes for lowering or pulling heavy loads, care should be taken to prevent them from chafing on sharp edges.

Keep ropes as dry as possible, and when not actually in use they should be neatly coiled ready for instant use again.

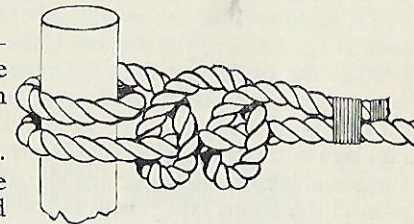


Fig. 8



Fig. 6

FIRST AID TO THE INJURED

CONTINUED

By Section Officer Elson

THE TRIANGULAR BANDAGE APPLIED TO WOUND AND FRACTURE

TRIANGULAR bandages are generally of calico or cotton, and are made by cutting diagonally across a piece of fabric 36 to 40 ins. square. The base of the triangle is known as the lower border, the sides are called side borders, while the right-angle opposite the base is known as the apex; the two remaining angles form the ends. The bandage may be used open as a broad bandage by folding the apex to the middle of the base, and folding again, while a narrow bandage is made by folding the broad once again to the base. When using any bandage the knot tied must be a reef. The purposes for which bandages are used are:

1. To give support to injured upper limbs—as slings.
2. To keep dressings in place.
3. To affix splints or support fractures.

1. There are three types of slings—small-arm, large-arm, and St. John's. Small-arm slings are formed by taking the centre of a broad bandage and placing in it the injured wrist. The ends of the bandage are passed around the neck and tied with a knot on the injured side over the clavicle, supporting the wrist at a level just above that of the elbow. Large-arm slings are used to support the whole forearm, and are made by placing one end of the bandage over the sound shoulder, the apex being placed under the injured elbow; the forearm is then brought across the bandage at right angles to the arm and the other end of the bandage taken up to the shoulder on the injured side, where it is tied to the original end at a position over the clavicle. The apex is then brought round the forearm and pinned. The St. John's sling is the neatest of all. After flexing the injured arm and placing it across the chest to rest on the breastbone, take an unfolded bandage, holding one end in one hand and the apex in the other, placing it flat over the forearm so that the apex lies well over the injured elbow and an end well over the shoulder on the sound side. Then, supporting the injured forearm, carry the base and lower end under the hand and forearm, take this end across the back, and tie off with the other end on the good shoulder. Lastly, pin the apex of the bandage behind the elbow.

2. When using bandages for the purpose of keeping dressings in place, the triangular bandage can be utilized for any part of the anatomy. For a scalp wound the middle of the base with a hem of about one inch is placed over the forehead, the apex taken over the back of the head to the neck, and the ends taken round the head crossing at the nape of the neck, and tied off on the forehead. Next the apex is pinned off on top of the head. To keep a dressing on the chest, an unfolded bandage with its centre across the front of the chest and its apex over the shoulder on the injured side is fixed by carrying the two ends around the chest, tying them at the back, leaving one end longer than the other. The longer end is then tied to the apex. To keep dressings

First Aid to the Injured

on the back, the above bandage is reversed, the centre being placed over the back, tying off on the chest. For injury to the shoulder, elbow or knee, the method adopted to keep a dressing in place is governed by the rule to keep the apex of a bandage pointing upwards.

The base is placed below the joint, and the ends crossed behind the limb, and tied off in front of the limb above the joint: the apex is then brought down and pinned.



3. To define the use of bandages in this group we will deal with the most common fractures irrespective of whether splints are required or not. Owing to the proximity of the brain, fractures of the skull are always serious and are most often compound: concussion or stunning, laceration, etc. generally follow. The treatment is to apply a sterile gauze or lint dressing, keeping it in place by a triangular bandage, lay the patient down in a recumbent position with the head slightly raised. It is

always necessary to treat for shock, which will be described in a later article.

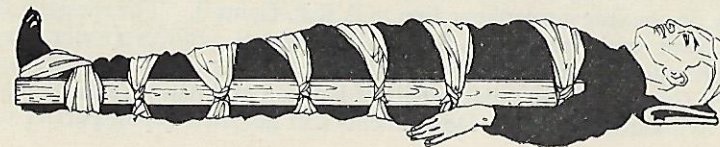
FRACTURED CLAVICLE (Collar Bone).—Place a pad under the arm-pit, and support the injured arm in a St. John's sling. Apply the centre of a broad bandage to the elbow, and tie off on the opposite side of the chest as shown in the illustration. Always take the pulse at the radial artery on the injured arm to ensure that the pad placed under the arm is not acting as a constriction (see illustration).

FRACTURED FEMUR.—Extension, or the act of attempting to overcome the shortening that will occur, and the restoration of the outside of the foot from a horizontal to a perpendicular position parallel to its fellow, must not be applied too vigorously, and never applied if the fracture is compound. When the foot is restored to as near a natural position as possible, a figure of eight bandage is tied round both feet, and seven bandages in the following order:—

- | | |
|--|-------------------------------|
| (1) Broad round the chest | (4) Narrow above the fracture |
| (2) Broad round the hips | (5) Narrow below the fracture |
| (3) Another figure of eight round the feet | (6) Narrow below the knees |
| | (7) Broad around the knees |

The splint, which is placed along the injured side, should be padded to fit snugly to the body (see illustration). Should the fracture be compound or complicated, follow the above procedure as fully as the fracture will allow, after dressing any wound with a sterile dressing.

Other fractures, together with dressings and the treatment of shock, will be dealt with in next month's issue.



A.R.P. COMMUNICATIONS

A BRIEF SUMMARY OF THE RESPONSIBILITIES OF A.R.P. CONTROL AND REPORT CENTRES

By R. H. Hopkins, A.R.P. Officer

A great deal more space than can be spared would be necessary to describe A.R.P. Control and Report Centres and the procedure by which they operate. Not that the procedure has been made unduly complicated—on the contrary routine has been simplified very considerably. A great deal of important and varied information has to pass from the scene of damage to the Controller, and beyond, and in these brief paragraphs, some attempt will be made to outline the very active part taken by A.R.P. Control, the “hub” of the A.R.P. organization, and the six Divisional Report Centres, in an imaginary air raid on Bristol.

A preliminary warning received direct at A.R.P. Control is immediately “fanned out” to Report Centres, and by them to Action Depots and Divisional Wardens. Without unnecessary words, the call to action is known throughout the Centre. Visual signals on the walls in each room indicate the stages between the “preliminary warning” and the “all clear,” and buzzers call the staff quickly and quietly in from rest or recreation rooms, ready for immediate action.

In the Message Room there are perhaps eight or ten telephonists, covering “in” and “out” telephones and the message supervisor responsible for its efficiency. Very little happens during the raid, however, but probably before the “all clear” is received reports begin to come in from Wardens or Police. Slowly at first, but soon coming almost all at once, messages of air raid damage or casualties buzz around the room as telephonists repeat the important facts they are taking down. Strangely enough, the girls are not scribbling for dear life. They know that upon accuracy and legibility may depend human lives, and that seconds gained by scribbling may mean much delay in subsequent confirmation or correction of reports.

The message, with its several carbon copies, is transferred rapidly via the message supervisor to the Plotting Officer in the map room—a matter of seconds. On a wall in front of the Plotting Officer and in full view of the Officer-in-Charge is the large-scale map of the Division. Chosen for his knowledge of the Division, this officer rapidly locates the site on the map and, if it is a new occurrence, marks it clearly with a numbered “bomb site” pin. This number he writes on the message form (and automatically on the carbon copies) and the forms pass immediately to the Officer-in-Charge at the Control Table. Meanwhile the Liaison Officer, sitting beside the Plotting Officer, has been busy on the direct telephone line to A.R.P. Control. The message he has dealt with indicated damage to essential services (water, gas, electricity, telephones, sewers, in that order of priority) and he has given Control the essential details of location and nature of damage, so that without delay these Departments can get their repair parties on

the spot. The Liaison Officer then notes brief details on his chart and is ready to deal with the next message.

With the Officer-in-Charge at the Control Table are representatives of Medical and Engineering Services, a Liaison Officer of Police and Fire Brigade, and the Divisional Warden. Each receives a copy of the message and in consultation they decide the action necessary. The Officer-in-Charge does not act immediately, however. By this time, if the raid is heavy, many messages have been received, and in a few minutes there are upwards of six to be studied together, and these enable the officers to gain a fairly accurate appreciation of the general situation in relation to the action parties available to deal with it.

Parties are ordered to most urgent incidents first, and attention to less important damage follows. The number of parties available is, of course, *not* unlimited, and they must be employed to the best advantage. Placed on the wall is a visual indicator upon which coloured pins assembled in squares represent the exact number of parties, ambulances, etc., which are available in the Action Depot ready for immediate duty. A copy of the message ordering out Action Parties goes to the Plotting Officer, who thereupon transfers appropriate pins from “depot” square to “incident” square. Thus at all times the Officer-in-Charge is aware of his resources, and can plan his action accordingly. The action message has meanwhile passed to the Message Room, where a telephonist on a direct line to her opposite number at Action Depot has dictated the instructions calling for despatch of parties. This done, the message is repeated by a colleague at her side to A.R.P. Control, to keep them in touch with events.

The whole process, from the time the Warden gets through to Report Centre until Action Depot receives instructions to send assistance, takes from five to eight minutes. This to A.F.S. members may seem unduly long by comparison, and it may be of interest to examine the relative positions. Six Report Centres deal with an area served by 30 A.F.S. Stations. For every incident involving fire, there may be at least one other without that danger, so that probably ten messages are received at each Centre to each one at a Fire Station. Again, each Action Depot has more than 50 vehicles, used for varying purposes, whilst the A.F.S. Station has perhaps five designed for one service. In every case, because of this complexity and the necessity of getting several services away together to the same incident, a *second message* must be written and telephoned after careful consideration, and this message may order vehicles to a place two or more miles away, whereas it is probably true to say that there is a fire pump within half-a-mile of any part of the City—but to get back to the raid.

Whilst Report Centres are actively engaged, A.R.P. Control are being kept posted of all damage reported, and action taken. These messages are received, again in a Message Room, and passed on to the Map Room, where the Plotting Officer (this time on a large-scale map of the whole City) indicates occurrences and parties sent out. His visual indicator, counterpart of each Divisional indicator, shows at all

times the parties ordered out to render assistance and, of course, is a complete guide to the Controller of the Divisions which are heavily engaged, and those which are possibly untouched. This is essential information, as presently there may come from a Division whose action parties are insufficient to cope with the whole of its troubles, a request for reinforcements. For this contact the direct lines are used, the Officer-in-Charge at the Report Centre giving roughly the details of parties required to the Officer-in-Charge at A.R.P. Control. This is followed by another direct line talk with a Centre which appears to have available parties, and arrangements are quickly made for their transfer to a suitable rendezvous point in the damaged Division. All these verbal arrangements are then confirmed in writing. The parties move meanwhile to the rendezvous, and the Receiving Division sends a motor-cycle guide to conduct them to the incident, or wherever else they are required. If the Controller finds that reinforcements called for are not available in the City, he follows the same procedure in contact with neighbouring A.R.P. organizations on the fringe of the City, and in addition he can, through the Regional Commissioner, call for assistance from areas perhaps 30 miles away. Rendezvous points and guides then become of extreme importance.

In his task of directing the fullest use of his resources, the Controller and his Officer-in-Charge are assisted in the Map Room by representatives of the Engineering and Medical Services, Police and Fire Brigade Liaison Officer, and Chief Warden, whilst in a room adjoining are representatives of the essential services (water, etc.). These latter are of the utmost importance. They keep constantly in touch with their departmental Headquarters and receive almost continuously from operators in the Map Room messages from Report Centres reporting damage to services. Centres use direct lines for these vital messages. Minutes wasted in reporting fractured water mains may mean no supplies for the Fire Brigade, or a broken gas main may cause great loss of life. Continuously, too, over these direct lines come reports of location of unexploded bombs, fall of hostile aircraft, damage to important buildings and factories, all of which require separate special attention. All the while the Liaison Officer is building up the essential information on a chart which every half-hour becomes a situation report from Controller to Regional Commissioner.

Heavy raiding may mean complete failure of telephone communications. To cover this eventuality a "second line" of communication is available. Selected Wardens' Posts have their cyclists, whilst at Report Centres and A.R.P. Control, and at Actoin Depots, will be stationed motor-cyclists to undertake the dual duty of message carrying and guiding action parties.

A great deal more could be told of this hardworking organization. The number of men, women and youths now engaged whole or part-time in this Service is somewhere about 1,000 because of the vital importance of the Communications Service. The personnel are satisfied to work quietly and shielded from publicity, knowing full well that upon them will rest a great responsibility if the testing time should come.

With the W.A.F.S.

"IF—"

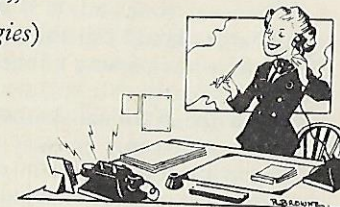
IF you can keep your head when all about you
The 'phones are ringing with a sick'ning drone ;
If you can trust yourself when D.O.'s doubt you,
And be quite sure the right Patrol has gone ;
IF you can wait, and not be tired by waiting
To take that message "Pumps and crews returned,"
And, exercises over, not start hating
For his delay, the Officer concerned :

IF you can cook a meal which pleases all men,
Whether 'tis rabbit stew or apple tart,
Remembering that through the stomach often
The pathway lies to every Fireman's heart ;
IF you can stand the heat of any kitchen
And keep your temper and your smile still sweet,
A shiny nose will seem almost bewitching,
And soon you'll have the Service at your feet :

IF your occurrence book is neat and tidy,
Your fire reports correct and up-to-date,
Your food chits sent to D.H.Q. each Friday
Received on time and never, *never* late ;
IF you can keep your biscuit ration sheets right,
And *not* end up with more than you begin ;
IF you can learn from any error you might
Make, and profit from the lesson learned therein :

IF you can use your make-up box discreetly,
Yet still in uniform preserve that touch
Of feminine appeal, combining neatly
A bit of this and that, but not too much :
IF you are punctual, knowing that each minute
Is precious, though the sirens make you whirl ;
The Station's yours, and everything that's in it,
And—which is more—you'll be a W.A.F., my girl !

"PHOENIX"
(with apologies)



• Your Queries •

A.F.S. ETIQUETTE

A NUMBER of letters have been received asking what is the correct behaviour for members of the Auxiliary Fire Service under different circumstances. It is hoped that the following notes will be found useful and settle any arguments on the subject.

SALUTING.—The rule to be observed is “longest way up, shortest way down.” With fingers stretched, the *right* hand is raised smartly to the peak of the cap or edge of the steel helmet, so that the third finger nearly touches.

The following personages are entitled to a salute from members of the A.F.S. :—

Lord Mayor and City Councillors.

Chief Constable.

Police and Fire Brigade Superintendents.

Police and Fire Brigade Inspectors.

Divisional and Section Officers.

A hand salute should be given if headgear (cap or steel helmet) is worn; otherwise stand to attention.

Always remember that in the act of saluting you are actually paying respect to a rank in your own Service.

When approaching a superior officer, with whom you wish to speak, advance to within two paces of him and salute, at the same time bringing the heels together smartly. Then, when the officer returns your salute, take a step forward, “say your little piece,” and take a step backward. Salute again, turn on the heels smartly, and walk away.

On being dismissed from parade by a Divisional or Section Officer, platoon should salute.

On arrival at a fire, the officer in charge of a pump unit should report to the Superintendent or Officer-in-Charge of the Regular Fire Brigade immediately. Salute, then give details of Station and number of pump unit reporting in the following manner :

“Central No. 00 Pump Unit Reporting, Sir.”

When driving a car or riding a motor or pedal cycle, turn the head smartly in the direction of the person it is intended to salute, without taking the hands off the steering wheel or handlebars.

Whenever your station is visited by an important person, whoever is in charge should call the squad to attention.

Salute when passing a funeral on foot, but if driving or riding, turn the head smartly as explained above.

When the National Anthem is played, stand to attention without removing your cap.

If you meet a person in the street to whom you would normally raise your hat, a salute should be given as a matter of courtesy.

“TOUR FOR TWO”

By Mervyn Millward

I FULLY realize that the arrest of a well-known Police Officer, on a charge of wilful murder, will create a *cause celebre*. I fully realize that anything I write may be taken up and used as evidence. But, on Sunday night, when Daphne's cousin Alfred returns, I shall murder him with malice aforethought, with the utmost barbarity and with the greatest of pleasure!

“What shall we do, darling?” asked Daphne, when I told her that I was taking a week of my annual leave at Easter.

“Let's tour,” I suggested. “Just push a few things in the back of the car and go. I've saved enough coupons for three hundred miles.”

Secretly, I mapped out a route—and then, like the gates of Paradise being rudely slammed in our faces, Alfred's telegram arrived at 8 o'clock on Saturday morning :—

“Decided to accept invitation. Arrive 9 a.m. Can only stay one week. ALFRED.”

Daphne turned pale. I became red—at the back of the neck.

“What's the idea?” I demanded, wildly waving the wire. “Accept what invitation?”

“It was at Christmas, darling,” said Daphne weakly, “when we met Cousin Alfred at Uncle Robert's party. I just tentatively suggested that he might like to come up and see us sometime. It was only a casual invitation; just a formal politeness.”

“Well, if that's the result of being polite to your cousin Alfred,” I replied firmly, “someone must be rude to him. When he arrives, I shall tell him that we are just going off for a week's tour.”

“Ye-ee-s, dear,” agreed Daphne, “but what if he suggests coming with us?”

“What!” I shrieked. “You don't think he'd have the nerve, do you? He might, though,” I added, “he's one of your relations!”

“Ah! I've got it!” I shouted suddenly. “We'll tell him we are going to stay with the Horwood's at Wotton-under-Edge. He doesn't even know them, so he can't suggest coming there, can he?”

“So you see how we're fixed, old man,” I explained, with an expression of profound regret. “If only you'd let us know before—”

Alfred looked decidedly peeved as he explained how dozens of his friends had begged him, with tear-filled eyes, to honour them with his company and how he had refused them all in order not to disappoint us. I made a series of noises, intended to indicate intense sympathy, and then, realizing that time was flying, I picked up his suitcase and shook him warmly by the hand.

“Don't let this dissuade you from coming again,” I begged. “Any other time, old man. So sorry we cannot stop now; our train goes at a quarter to ten.”

He gazed abstractedly at the one small suitcase we had placed in the hall for effect. The remainder of our luggage was in the dicky.

“Will you be away for the whole week?” he asked suspiciously.

“Oh, yes, rather,” I said with emphasis. “Until next Sunday

night. Come on, dear," I said to Daphne, "or we shall be late."
"Well, good-bye, Alfred," I concluded, giving him another farewell handshake and nudging him towards the front door.

"Aren't you taking the car?" he inquired.

"Oh no," I replied readily, "it isn't worth it—petrol's short, you know, and it's only a short train journey to Wotton."

"Oh well, I might as well walk to the station with you," said Alfred moodily. "I can see you off. My next train back doesn't go until eleven-thirty."

"Er—um—oh yes, do!" I agreed, swallowing hard and giving Daphne a look which clearly conveyed my opinion of her relatives.

We tried to lose him in the crowd at the station, but he stuck tighter than a small boy whose sister has invited her *fiance* into the sitting-room for a quiet chat. With anguished heart I took two return tickets to Wotton and, as Daphne and I entered a carriage, Alfred planted one of his ugly feet on the step and kept it there until the train started.

"Well, and now what?" I demanded nastily, as the train steamed out. "This is a nice start to our tour, isn't it?"

Daphne was too full to reply, and we both gazed moodily out of the window until we reached Charfield. There we alighted, and were fortunate enough to find a return train about to start.

"Oh, well," I said, as we seated ourselves in it, "I suppose I shall have to forgive you. We shall be home again by eleven and—"

"Oh! Good gracious!" gasped Daphne, in sudden agitation. "Alfred's train doesn't leave until eleven-thirty! He will still be on the station!"

"Great jumping snakes!" I moaned miserably. "Why I should be tortured with such a set of relations as you possess passes my comprehension. Now we shall have to go right through to Bath and come back from there on the mid-day!"

It was just half-past twelve when we walked up our garden path.

"Well, now we really shall be off, darling," I said cheerfully, determined to forgive and forget. "I'll get the car out while you pop in and powder your pretty nose. All's well that ends—"

"Hullo!" I broke off suddenly. "Surely I didn't leave the garage doors open?"

We both covered the fifteen yards to the garage in about three seconds and gazed pantingly at its emptiness. No sign of "Old faithful" remained, save the extensive patch of dirty sump oil which marked the spot where it usually rested.

"What's that, Darling?" asked Daphne, distractedly, pointing to a note, pinned with a screwdriver to the bench in the corner.

I grabbed it and read:—

"It occurred to me, after you had gone, that it was a wicked shame for your car to be standing idle while you were away, especially as I found ten petrol coupons in the scuttle. I know you won't mind, but I have left this note in case you return before I do on Sunday.

Cousinly love,

ALFRED"

BRISTOL'S WATER SUPPLY

(III) FIRE PLUGS AND HYDRANTS

By R. T. Wood, M.I.Mech.E.,
Bristol Waterworks Company

THE Waterworks Clauses Act of 1847 requires the Bristol Waterworks Company to fix fire plugs in the mains at distances not exceeding 100 yards, and authorizes the fixing of plug indication plates on any house or building.

The Company, under the Bristol Waterworks Act of 1862, bears the cost of providing, fixing and maintaining plugs or hydrants, or of replacing faulty plugs by hydrants, but the cost of replacing plugs which are in proper repair by hydrants for the convenience of easier manipulation would have to be borne by the Bristol Corporation. As the cost of changing each plug to a hydrant is approximately £20, it will be realized that the change-over is an expensive item. The total number of plugs in the city area is 2,082 and the total number of hydrants 8,262. No plugs have been fixed since 1898.

In the 18th century, when water pipes were of wood, the method of obtaining water for fire fighting was to punch a hole in the wooden pipe and let the water overflow into a hole and pump from this sump by some form of primitive fire pump. The hole made in the pipe was plugged after use by a wooden plug, and later when iron pipes came into use, holes were left in the pipes for fire plugs as shown

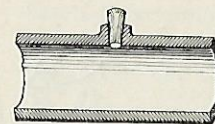


Fig. 1.

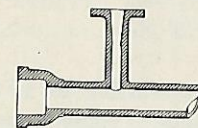


Fig. 2.

in Fig. 1, a later development of which is shown in Fig. 2, this being the type of casting in use for fire plugs in Bristol. The wooden plugs used are made by the Company from selected American rock elm, as it is very hard and practically non-porous. Plug standpipes were introduced when pressures became higher and pumps were not always required.

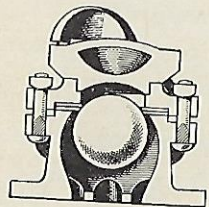


Fig. 3.

The ball type fire hydrant, Fig. 3, was introduced about 1849, and consists of a gutta-percha ball held on its seating by the water in the main. Such hydrants were a great advance on anything previously devised but are nowadays considered liable to cause contamination of potable water mains by admitting road washings or dirt, if the main should be emptied and the balls fall from their seatings; this risk may be avoided by fitting conversion pieces, consisting of spring-loaded elements which keep the hydrants closed even if the main is empty.

Screwdown hydrants were introduced about 1850, and there are now upwards of 60 different types of hydrants in use by water undertakings. Fig. 4 shows a section of a Bristol pattern screwdown hydrant. The body is of cast iron with the spindle, spindle nut and valve seat of gunmetal. The gland is also bushed with gunmetal. The valve itself has a leather washer on a gunmetal plate and as the washer is soft it is not necessary to use much force to close the hydrant. If too much force is used the spindle, which is only $\frac{7}{8}$ " diameter, is likely to be broken.

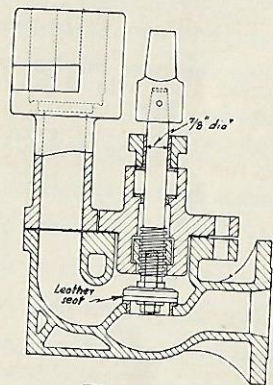


Fig. 4.

It is interesting to note that the valve is loose in the spindle, and should the water supply fail when a hydrant is open, the valve drops back on to its seat and prevents access of dirt or land water to the main.

The Bristol pattern hydrants close clockwise and open counter-clockwise.



SPONTANEOUS COMBUSTION

By Fire Constable A. Thomas, A.M.I.Fire E.

WHEN a fire is stated to have been caused by spontaneous combustion it is usually meant that the material, or gases, etc., involved have become ignited either by creating heat through the process known as oxidation, or by the chemical reaction of gases other than oxygen.

It is generally understood that fire requires a supply of oxygen from some source or another for it to continue burning, but it is not so generally understood that it is this combination of oxygen with the burning material that creates heat and light, and that the process known as fire or combustion is really oxidation in an energetic form.

If oxygen combines only slowly with a material, the reaction is gradual and the heat involved will only be very slight and, in most cases, will be dissipated into the atmosphere or surrounding material without increasing the temperature of the material very much. Iron undergoes this process of slow oxidation when it rusts, the rust—iron or ferric oxide—really being the residue of a very slow fire.

Complete oxidation of any combustible material, whether it is slowly rotted or burnt in a fire, gives off the same amount of heat, time being the only difference.

Many substances have a powerful chemical affinity to the oxygen in the air, especially when these substances exist in a finely-divided form and expose a large extent of surface to the action of the oxygen in the air. The combination of oxygen with these substances generates heat which, under favourable conditions, may rise until the ignition point of the substance is reached. Nearly all classes of carbonaceous material are liable to spontaneous combustion.

Conditions favourable to spontaneous combustion are :—

1. The storage of materials in large quantities such as coal, grain, jute, cotton seed, sacks, etc.
2. Materials stored in a moist state or in badly-ventilated places.
3. Materials in a fine state of sub-division, such as flour, grain, coal dust, etc.
4. Materials stored where they may be subjected to external heat.
5. The presence of materials which have a very powerful chemical affinity to oxygen, such as linseed oil, paint and cellulose ; or of oxygen carriers, such as nitrates, permanganates and peroxides, etc. ; or the presence of some metals, such as magnesium, sodium, potassium, aluminium, etc.

It will be appreciated that if the slow process of oxidation has started in any material and the conditions are such that the heat generated cannot escape (by reason of the materials being stored in bulk or in a badly-ventilated place), the heat will gradually build up until the ignition point of the material is reached. Again, if a substance which has a strong chemical affinity to oxygen is present, the rate of oxidation will be increased with a consequently higher rise of tempera-

Spontaneous Combustion

ture and, if an oxygen carrier or inflammable metal is present, the rate of oxidation will also be increased.

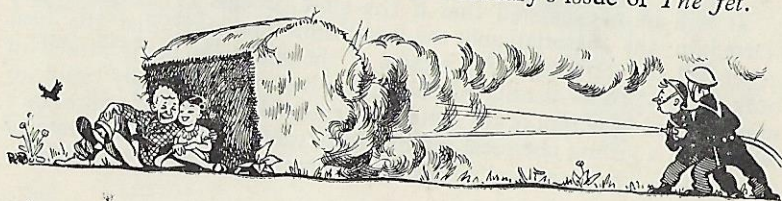
To demonstrate this last remark, here is a brief outline of an experiment carried out some years ago by a well-known authority on the chemistry of fire. A small quantity of cotton waste moistened with boiled oil was placed in a box to prevent heat dissipation and left to react. A bulb of a thermometer was placed in the cotton waste, and it took five hours for the initial temperature of 75 deg. F. to increase by 25 deg. F. Soon after passing 95 deg. F. the temperature began to rise steadily and in another two hours a temperature of 440 deg. F. had been reached, and a little later the waste reached ignition point and caught fire.

Numerous instances of oily or paint-covered waste and rags catching on fire in a matter of a few hours have been known. Coal heaps are very prone to spontaneous ignition, especially if large quantities of small coal are present. The only effective means of preventing spontaneous combustion in large coal stacks is to take the temperature of all parts of the heap at frequent intervals and to use up or move any part of the heap that rises to 130 deg. F. Grain and hay, etc., are liable to spontaneous combustion, but this is thought to be not only due to oxidation, but also to bacterial action.

Hay rick fires are brought about through bacterial action. The micro-organisms, which are always present in freshly-cut grass and clover, act on the sap of the plant and produce oxidation. These micro-organisms are destroyed at a temperature of 60 to 70 deg. C., but once this heat has been reached the rate of oxidation is fairly rapid and if other conditions are favourable the temperature of the rick will continue to rise until ignition point is reached. If grass is thoroughly dried these bacteria are destroyed, but over-dried grass does not make good hay. In some districts farmers mix salt with the grass to destroy them; this has the added advantage of improving the flavour of the hay. However, the most satisfactory way of preventing rick fires is to have an effective system of ventilation to allow for the dissipation of any heat that is generated.

Space does not permit more examples to be given, but many typical examples of spontaneous combustion or the process of oxidation will no doubt occur to the reader—the heating of garden and stable refuse, rags, cotton, leather, sawdust, grain, bran, fodder, coal, etc.

There are, of course, many instances of fires having been caused by the oxidation of carbonaceous materials, but I have refrained from making any remarks about this as the subject was well covered in the article on "Dust Explosions" in February's issue of *The Jet*.



SOLUTION TO "SPOT THE ERRORS"

Competition in last month's issue

- Line 1—February 3rd was a Saturday. 17.00 hrs.
- „ 3—Shortest should be *No. 11*. No mention of forming squad.
 - „ 4—If he was 9th he should *not* move. If 11th he should.
 - „ 5—You would only actually move at the order "Form fours."
 - „ 6—If he was 9th he would be in a blank file with *no one* alongside him.
 - „ 9—In hose drill 2 persons are detailed to ship the plug standpipe. No mention of plug iron being taken.
 - „ 11—Valve should be *open*.
 - „ 13—Length of hose from *standpipe* to dividing breeching.
 - „ 14—Men at the *branches*. "Ready here" before "Turn on" order is given. "Turn on both standpipes," not *valve* (which should read *plug*) standpipe.
 - „ 16—"by means of a collecting breeching *and so many lengths of hose*."
 - „ 17—Branch clips in without pulling out the lugs.
 - „ 18—The man at the branch is not detailed to add a length of hose. "*At the branch*" is unnecessary.
 - „ 19—Person detailed should run it out from the first branch joint (not *alongside or between the breeching and first length*), taking a spare branch under his arm. After inserting the branch he shouts "Ready here." Man at original branch would then give the order "Turn off," connect up, then shout "Ready here." Man at new branch should then give the order to turn on. There would be no need to take out the branch if he did what he said in line 20.
 - „ 22—After running out the new length, he should have shouted "Ready here." The man at the branch then gives the order to turn off both standpipes. Connections are made, and person running out hose shouts "Ready here." Branchman then gives the order to turn on both standpipes.
 - „ 23—*Collecting* breeching, not dividing.
 - „ 25—No mention of tying an overhand knot in the damaged length.
 - „ 26—He has not actually received the order to make up.
 - „ 29—*F.S.M.* type. No mention of turning petrol on. Oil is not gravity fed in this type of pump, and cannot be turned on.
 - „ 31—"Start control" should be pushed in when engine warms up.
 - „ 32—The obvious way to connect suction hose to a standpipe is by connecting the screw coupling direct to the pump, and by means of an adaptor (3-in. female screw to 2½-in. male instantaneous) to the standpipe. Only if two feeds are required into the pump would the collecting head be used. Ordinary canvas delivery hose is generally used from two hydrants: suction hose is rarely used when it is necessary to suck on the main.
 - „ 34—Priming unnecessary; water under pressure.
 - „ 35—No mention of opening throttle and engine cooling valve.
 - „ 36—It is impossible for this type of pump to register 350 lb.
 - „ 37—Vacuum readings are in inches, not *sq.* inches. There would be no vacuum reading when working from a hydrant, but the compound gauge would show an inlet pressure.
 - „ 40—"Screwed *onto* the pump." Basket strainer should be used when working from a brook.
 - „ 43—Clove hitch should be tied around the lugs of both the suction hose and the *copper* strainer; half hitch should also be tied half-way up the suction hose before making fast.
 - „ 46—Why the delay in running out the delivery?
 - „ 48—6.8 in. should of course read ¾ in., although some of the older type fire brigade nozzles are marked in eighths.