

shutter has been adjusted for the "X" type of synchronisation. This means that the shutter should be set at 1/25th or 1/30th of a second when using flashbulbs. The use of any other speed and your bulb will have burnt itself out before the shutter is fully opened.

Should the camera be marked "X" or "M" then you should always use the "M" setting. This enables you to take pictures faster than 1/25th of a second. Actually what happens is that when you press the release it sets up a delay mechanism that prevents the bulb from firing until the shutter is fully open. This "M" setting means that on the "Compur" shutters we can use any of the faster speeds—even the 1/500th—though I would suggest you use either the 1/60th or 1/100th setting.

Returning to the focal plane shutter we now see the

problem. Whereas with the "Compur" shutter the whole negative is exposed when the flash is fired, with the focal plane shutter the exposure is made by the slot moving across the film. Use of the wrong shutter speed would mean that your film would be only partially exposed. Because of this we have to use a width of slot which exposes the whole negative at once—the 1/10th or 1/20th—but this varies with different cameras. In brief, therefore, our flash drill is this—if your camera has fixed synchronisation, then your shutter should always be set at 1/25th or 1/30th. If you have the choice—then move the switch to "M", select a shutter speed of 1/60th or 1/100th, and all will be well.

Next month I shall discuss the different types of flashbulbs and the modern electronic units, and how they can be used to the best advantage.

RETIREMENTS

MR. E. S. BISSELL

Another member of the select band who have completed 50 years' service to the industry—Mr. E. S. Bissell, senior assistant (statistics) at Sandiway House, Area 2 office—retired on August 31st.

Mr. Bissell joined Warrington Corporation's Electricity Department two days after his fourteenth birthday, being appointed senior assistant (statistics) at Sandiway on the nationalisation of the industry.

On behalf of his colleagues he was presented with an electric fan heater by Mr. S. C. Harling (Manager, Area 2).

MR. E. SMITH

After 35 years' service to the industry, Mr. E. Smith, cooker assembler at Warrington appliance repair workshop, retired on September 27th.

Mr. Smith joined Warrington Corporation as a stoker in 1927, later transferring to the building section and subsequently to the repair workshop.

On behalf of his colleagues he was presented with a cheque by Mr. R. G. Monk (District Commercial Engineer).

MR. J. E. TRELING

Colleagues in Liverpool South District gathered round recently to wish a happy retirement to Mr. J. E. Treling, assistant consumers' engineer, on his retirement after 30 years' service to the industry.

Mr. Treling joined the Liverpool Corporation staff in 1932 as an apprentice electrician, being appointed assistant consumers' engineer in 1950. Mr. Treling is

taking over as "mine host" at a well-known Woolton hotel.

On behalf of his colleagues he was presented with a canteen of cutlery by Mr. G. J. Bulmer (District Commercial Engineer).

WEDDINGS

DICKENS—JACKSON

Congratulations to Miss B. A. Jackson (private secretary at Area 2 office) who was married to Mr. J. Dickens at Barnton, Northwich, on September 22nd. Miss Jackson was presented with a pressure cooker on behalf of her colleagues at Sandiway House by Mr. P. B. Henderson (Secretary, Area 2).

ROBERTS—ROBERTS

Best wishes for the future to Mr. Vernon J. Roberts, an electrician at Blaenau Ffestiniog, who married Miss Nerys Hughes Roberts at Maentwrog recently.

BIRTHS

CONGRATULATIONS TO . . .

Mr. T. D. Smith (3rd assistant engineer (planning), Area 2), and Mrs. Smith, on the birth of a son, Andrew Robert Dealtry, on September 10th.

Mr. Robert Pierce Hughes, an electrician at Bangor, and Mrs. Hughes, on the birth of a daughter on September 20th.

BREVITIES

GET WELL SOON

Colleagues at St. Helens District send their best wishes for a speedy recovery to Mrs. B. C. L. Kemp, telephone operator at Carlton Street, who has been ill for some time.

ODD NOTE

An envelope, containing a pen and the following delightful message, was received at Blaenau Ffestiniog Service Centre recently:

"Mr. Hughes the ½ English ½ Welsh left this pen at Brynhelth, Trawsfynydd in July last".

RESIGNATION

On leaving the service of the Board recently for family reasons, Mrs. R. E. Wake, shorthand typist in the District Engineer's Department at St. Helens, was presented with a pram-set on behalf of her colleagues by Mr. H. C. Barr (District Engineer).

MOVES TO TRAWSFYNYDD

Best wishes from his colleagues at Blaenau Ffestiniog go with Mr. G. Ll. Jones, who has joined the Fairey Engineering Company at Trawsfynydd.

Obituary

MR. R. HUNTER

We deeply regret to report the death of Mr. Robert Hunter, a clerk in the Cost Section at Area 3 office, Chester, who died in hospital at Marseilles following injuries sustained in a road accident while on a motor-scooter in France.

Mr. Hunter, who was a bachelor, was 38 years old and had been employed in the Financial Department at Chester for seven years.

We extend our sincere sympathy to his widowed mother.

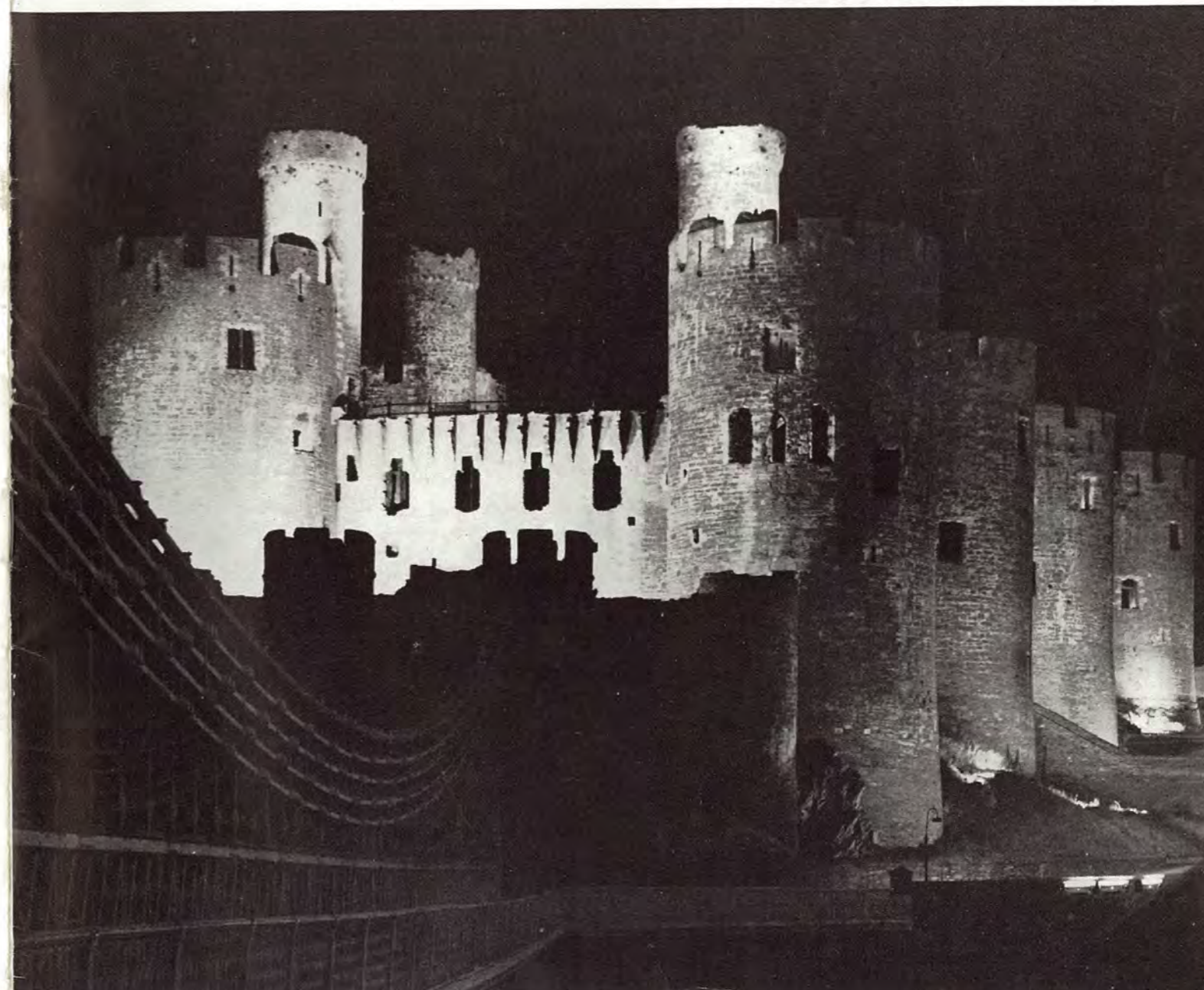
November

1962

The Staff Magazine
of the
Merseyside and North Wales
Electricity Board

Contact

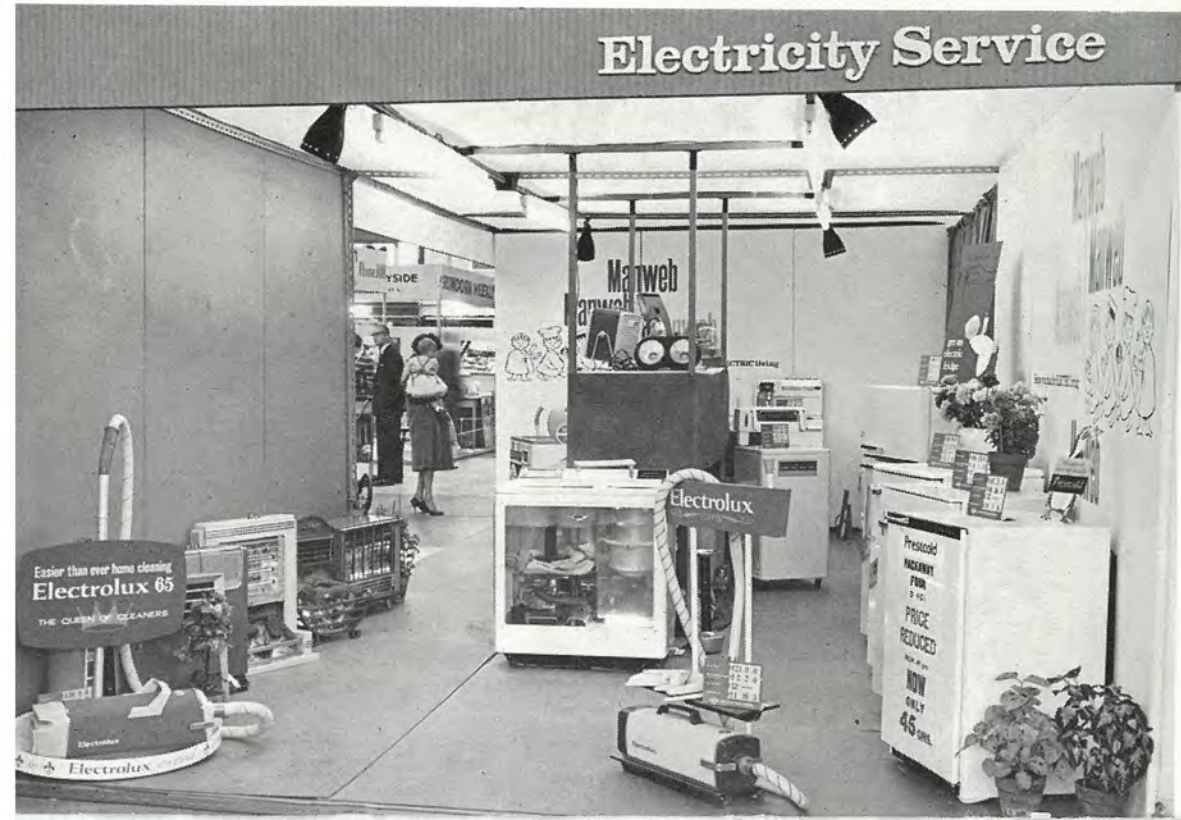
GLITTERING BATTLEMENTS (see page 258)





Members of the Board pause to chat with members of a rural electrification team, after holding a meeting at the Towyn home of Col. J. F. Williams Wynne, one of the Members of the Board.

VISITS AND SHOWS



The electricity stand at the Runcorn Chamber of Commerce Traders' Section Exhibition



Contact

THE STAFF MAGAZINE OF THE
MERSEYSIDE AND NORTH WALES
ELECTRICITY BOARD

Edited by Keith Baldwin and published
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VOL. 14 No. 11

NOVEMBER 1962

EDITORIAL

Keeping Things Going

SINCE the face of *Contact* changed, earlier this year, circulation has risen steadily until today it is higher than it has ever been in the history of our magazine's publication. We hope, too, that reader-interest is being maintained at a very high level, and that families as well as employees are finding enjoyment in our new-style magazine.

This is a situation which can only be maintained by the continued co-operation of every member of the staff, and we would like to take this opportunity to urge every reader to do his or her best to help our local correspondents in their task of gathering news and pictures to keep our pages lively and topical.

Our contributors on gardening and photographic topics are doing a valiant job, and we have every reason to believe that their efforts are appreciated by very many people.

Most people enjoy a hobby of some kind, be it as a form of relaxation and escape from the day-to-day problems and responsibilities of their workaday lives, an instrument of personal fulfilment and satisfaction, or even as an antidote to the wife!

A series of articles on other people's hobbies has been included in *Contact* during recent months, and as in the case of our other new features, we want to keep this series going. Perhaps you know someone who has an unusual pastime, or who is an acknowledged expert in his own particular field? If so, please pass on the tip to your local correspondent, so that we can make arrangements to include them in this series.

In the meantime, if you have any strong view on any aspect of *Contact*, or any suggestions for new features or other improvements, do not hesitate to write to the Editor to tell him all about them.

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At Chester . . .

Some of the recipients of awards at Chester.



The Holyhead group.

. . . Holyhead . . .

SAFE DRIVING

Royal Society for the Prevention of Accidents Safe Driving Awards were presented to more than 150 employees of the Board at recent ceremonies at Chester, Birkenhead, Holyhead and Blaenau Ffestiniog.

The Chester presentations—to 53 drivers—were carried out by Superintendent A. Elliott, of Cheshire County Police, while 74 awards were handed to members of the staff at Birkenhead by Major S. J. Harvey, the Chief Constable. At both ceremonies Mr. J. W. Kellett (Manager, Area 3),

was among those present.

At Holyhead 19 awards were presented by Inspector R. E. Williams, of Holyhead Police—including the posthumous award of a Five-Year Medal to Mr. J. Jones, of Holland Arms, whose death was reported recently in *Contact*.

Eight members of the staff at Blaenau Ffestiniog received their awards from Inspector W. H. Parry, of Gwynedd Constabulary, who praised the recipients for the example they had set to other road users.

. . . Birkenhead . . .

Those whose driving skill received recognition at Birkenhead.

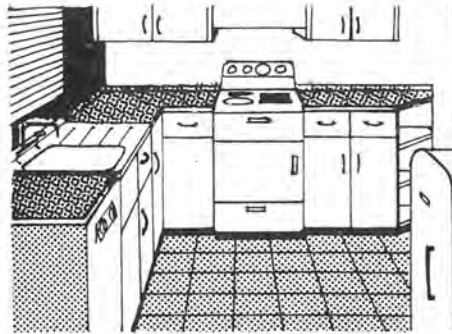


PRESENTATIONS

. . . and Blaenau Ffestiniog



After the Blaenau Ffestiniog presentations.



A Woman's WORLD

WHOLE-TIME PARTNERS

MANY married couples go to work each day leaving their spouses to go separate ways to their jobs. Occasionally one finds a man and wife team working together and one such case can be found at the Board's Runcorn District.

Mrs. Linda Blease often finds that her work as the District demonstrator takes her to Frodsham Service Centre, where her husband Arthur works as the senior Service Centre assistant. They both find that working together is a big help with their domestic arrangements and they regularly join forces at the Board's exhibitions and demonstrations.

After leaving the Wade Deacon Grammar School, Widnes, in 1938, Linda started work in the accounts department of the Mersey Power Company at Runcorn. She told us that most of her time was spent in answering the telephone so she was not very surprised when she was given the job on the switchboard, which was sited in the showrooms. It was not very long before she was attending to the customers as well. By this time most of the male members of the staff were leaving to do battle with Hitler, and 19 year-old Linda was left in charge of the showrooms.

Wartime direction of labour sent her to Runcorn Power Station where for two years she worked as a laboratory assistant and thoroughly enjoyed her work, doing routine analysis on boiler waters and coal samples. Later she went back to the showrooms and kept the flag flying until the showroom manager came back from the wars.



Mr. and Mrs. Blease

In 1948 Linda left the industry, and shortly afterwards her son Martin was born. Five years later she joined the MANWEB staff at St. Helens Service Centre, and was soon appointed as Demonstrator. In her first year back at work she won the area finals of the Electrical Development Association's public speaking competition, and represented the Board at the London finals. At about the same time she was presented with a Hoover vacuum cleaner as a result of winning the finals of an area sales competition in which she had already won a powder compact and a manicure set. While at St. Helens Linda was going about her daily job, running her home, and taking a three-year part-time course in domestic science at the Salford Royal Technical College. In her first year, nearly 2,000 students sat for the examination and Linda, as a part-time student remember, was awarded the City and Guilds Prize of the Year.

She carried on to pass her final examinations in Advanced Cookery, Housecraft and Laundrywork. She also holds the Demonstrator's Certificate of the Electrical Association for Women.

After a five-year period at St. Helens she was appointed to the unique position as an outside sales representative at Widnes. She told us that she applied for the job to be nearer her home and because she wanted to prove that women were as good as men when it came to selling electrical appliances and she had her sales record to prove her point. After a couple of years 'in the field' she was appointed to her present position.

Her husband Arthur worked in the family business until he joined the Board's staff nine years ago as a Service Centre assistant at Widnes. Later he too became an outside sales representative until he took over at Frodsham Service Centre when it opened four years ago. Having previously taken a course on display at the Liverpool College of Art helped in gaining another first year triumph when the Frodsham Service Centre window took first prize in the Board's window display competition.

Arthur is very interested in cooking, and took a catering course which he says has been a big help to him when it comes to selling electric cookers. In their all-electric home he takes his turn with the washing so that he knows what he is talking about when advising consumers about washing machines.

Until recently their main hobby was ballroom dancing, in fact that was how they met, and became permanent partners in 1945. The family tradition is upheld by their son, Martin, now at King's School, Chester, who is a bronze, silver,

gold and gold-bar medallist in ballroom dancing.

Nowadays, Linda spends quite a lot of her spare time in dressmaking, she used to make all her own dancing gowns. Whenever the occasion demands or opportunity permits,

Linda likes trying out new foods—either eating out or preparing meals at home. She adores Chinese foods and Indian curries, but Arthur (just like a man) still prefers the basic English foods—cooked by electricity of course.

Mrs. Blease's Christmas Cake

Ingredients: 6 ozs. plain flour; pinch salt; half teaspoon mixed spice; 5 ozs. butter; 5 ozs. sugar (castor or soft brown); 5 ozs. currants; 5 ozs. chopped stoned raisins; 4 ozs. cherries (cut-up); 3 ozs. chopped mixed peel; rind of one lemon; dessertspoon black treacle; 4 eggs; 2 ozs. almonds, blanched and chopped.

Method: (1) Line a 7-in. or 8-in. round (or 6-in. or 7-in. square) cake tin with double greased grease-proof paper. (2) Prepare the fruit and nuts. (Dried fruit, if not ready cleaned, should be washed two days beforehand). (3) Cream the butter and the sugar, add the beaten eggs gradually. (4) Stir in the sifted flour, salt and spice. (5) Add the fruit, treacle, grated lemon rind and nuts. (6) Put in prepared cake tin and level off. (7) Cook in a moderately slow oven (300°F) for about three hours. (8) Cool and keep in a tin for about five or six weeks before using.

Note: *Instead of adding brandy to the ingredients before cooking it is better to brush the brandy all over the cake using a pastry brush. This should be done a few days before the almond icing is put on.*

ALMOND ICING

Ingredients: 1 lb. ground almonds; ½ lb. icing sugar; ½ lb. castor sugar; 2 eggs; half teaspoon almond essence; lemon juice; half teaspoon vanilla essence.

Method: (1) Sift sugars and add ground almonds. (2) Work in the beaten eggs, essences and lemon juice. (3) Mix to a smooth paste which will roll without cracking. (4) Knead well, but avoid overhandling as this might make the paste brittle. (5) Divide in two, using one half to cover the sides and the other half for the top. (6) White of egg is the best ingredient to use for making the paste adhere to the cake, but sieved raspberry jam will do almost as well. (7) Allow the almond icing to dry out for at least a week before putting on the royal icing.

ROYAL ICING

(for coating sides and top)

Ingredients: 1 lb. icing sugar; 2 egg whites; 2 teaspoons lemon juice; half teaspoon glycerine; a few drops of laundry blue or other culinary colouring may be added.

Method: (1) Sift icing sugar. (2) Put the egg whites and lemon juice in a bowl and add the sugar until the right consistency is obtained. (3) The glycerine is added to prevent the icing from becoming brittle and the blue helps to keep the pure white finish on the cake.

Note: *When it comes to the icing on the Christmas cake, it is the amount of decoration left off which actually makes the cake look nice, not the amount that is put on.*

Knit
one
of
these
for
Christmas



(Above)

LADY'S 3-ply MAGYAR JUMPER

Materials: 9 (10, 11) ozs. Paton's Beehive Fingering 3-ply, Patonised, or Patons Nylox Knitting 3-ply, Patonised. Two No. 11 and two No. 13 needles. Set of four No. 12 and set of four No. 14 needles with points at both ends.

Measurements: To fit 34 (36, 38) in. bust. Length, 22 (22½, 22½) ins. Sleeve seam, 13 ins.

FULL KNITTING PATTERNS for these two garments are free. Just write to the Editor, Contact, MANWEB, Head Office, Love Lane, Liverpool 3.

(Below)

MAN'S SWEATER IN 3 SIZES

Materials: 25 (27, 29) ozs. Paton's Double Quick Knitting, or Paton's Totem Double Knitting, or 24 (26, 28) ozs. Paton's Moorland Double Knitting. Two No. 10 and two No. 6 needles. Set of four No. 10 needles with points at both ends.

Measurements: To fit 40 (42, 44) in. chest (loosely). Length 24½ (25, 25½) ins. Sleeve seam, 18½ ins. (adjustable).

Sizes: The figures in brackets refer to the medium and large sizes respectively.





A typical scene at a Pony Club meeting.

Other People's Hobbies

RIDING

by HILDA JOHNSTON

HORSE RIDING has been defined for me recently as merely being a difficult and sometimes painful way of getting from one point to another, but judging from the increase in recent years of the riding-horse population of these islands a great many people appear to think differently. In fact, riding has now become yet another of the outdoor pastimes which have come within the reach of ordinary people.

You do not have to be rich to learn to ride these days but, paradoxically, it is more difficult to do so

in the country than the town—if you do not own your own pony. Most people who ride in the country do have their own horses, and riding stables and teachers are hard to come by, but in or near large towns riding schools have mushroomed in the last ten years, and the biggest obstacle is to work up enough courage to make an appointment for a lesson.

Prices range from farm prices of about 4s. an hour (hacking, not lessons) to riding schools, whose fees are from 7s. 6d. to 11s. an hour or more, possibly according to the quality of the

horseflesh you will be allowed to misuse, and the qualifications of the instructors.

If you already have the rudiments of riding, and know which foot to put in the stirrup to bring you facing the right end of the horse, know how to keep your toes up (but not out), grip with your knees and keep your elbows in and your back straight, then you need only hire hacking ponies by the hour and work things out for yourself. Just walking along roads is dull stuff, but trotting gently along country lanes is quite stimulating, while a good canter or gallop over open country takes a lot of beating for exhilaration.

The Foibles of Horses

It is best not to ride alone until you feel really proficient, since you need to know your mount and to be able to cope with its idiosyncrasies, since they all have individual temperaments and moods. For instance, the one I was taught to ride on waltzed across the road at any stray bit of litter blown by the wind, at all things white, it reared at tractors, and had a tendency to roll on grass in joyous abandon, given half a chance. These traits were catalogued for me (after I was in the saddle) by my instructor and I felt a horrible sinking feeling inside, wondered if I had not made a terrible mistake in coming at all, and would probably have gone home like a shot except that nobody had told me how to dismount! However, I was also told how to forestall these eruptions on the part of the horse, which I must say looked quiet enough, and it never did roll on me, ever.

Perhaps the most expensive part of riding is the kit required. On holiday, jeans and sweater pass muster for riding rig, but for regular use, jodhpurs, jacket, shirt and shoes, or breeches, long socks and shoes or riding boots and sweater are things you should have. Gumboots are not good for

riding, as they often have a broad toe, and serrations across the sole, which prevent one from getting the foot quickly out of the stirrup iron in an emergency. A riding hat is also advised. They come in black, dark green or brown, blocked for head protection, and in velvet with a peak. They look rather attractive and are advised in the same way that crash helmets are recommended for motor cycling.

For young people and children, joining a Pony Club is a very good way of learning to ride, and enjoying the company of others of the same mind.

Members usually become addicts, and find all their weekends and holidays filled with gymkhanas, meets and competitions. In this way, it is possible to learn all about horses—their points, care, grooming, feeding, etc. **Note for Parents:** *Do not allow this thing to happen unless you are prepared for the next twelve months (or possibly much, much longer) to allow the household to be completely taken over by horses.*

For young and old alike, interested in riding and horses, there are now trekking holidays to be had in many parts of the country, particularly in Mid and South Wales and Scotland. Here, for an inclusive charge, you can ride every day for fairly long distances on ponies suitable both for the veriest beginner or the more experienced rider, and eat, sleep, and drink horses, if you wish. Some of these establishments also give lessons.

The horse has now become almost non-existent as a member of the farm working staff, but apparently it is getting a new boost as a means of providing us with healthy and happy outdoor exercise, and riding is something which can be regulated according to age and temperament—as a gentle form of exercise or a riotous tussle with the horse. Or you can aim really high, and finally attain that perfect combination of excellent rider and perfect horse which we see occasionally on TV.

RHOSTYLLLEN TREASURE HUNT

Thirteen cars set out from Area 4 office on Monday, October 1st, to compete in the last treasure hunt of the season. After several humorous incidents—the funniest being the surprise of a caravan dweller when asked if he was “Wee Georgie”—the cars arrived at their destination, a hotel at Farndon, where an excellent buffet was enjoyed.

The winners were Mr. and Mrs. Noel Allan, Mr. Gren. Roberts of Area 1 office, and Mr. Arthur Evans of Legacy. Close runners-up were Miss Pam Stephens, secretarial department, Miss

M. Williams and friends. The prizes were presented by Mr. A. Kidd (Secretary, Area 4).

The Winners receive their prizes.





WIRES and CABLES

AREA 1 EMPLOYEES' MEETINGS

At the beginning of this year meetings were inaugurated to enable small groups of employees to discuss matters of interest within the terms of reference of the advisory machinery. The groups were arranged to consist of employees who work together or who do similar kinds of work.

Two series of meetings have been held so far, covering about two-thirds of the employees of the area. The wide range of discussions has revealed abounding interest in the job—most of the points raised have been directly concerned with efficiency

and methods of work, while the remaining items were fairly evenly divided between welfare, health, safety, and education and training.

The meetings were publicised by the distribution of a personal message from the Manager to each employee. Very few declined the invitation to attend, and the enthusiasm shown both in attendance and discussion indicates success. The third series of meetings, which will complete the first cycle, is at present being held.

SOCCKER AT EVERSLEY AND THINGWALL ROAD

In their opening game of the season against British Waterways, Eversley team did very well to gain a draw, and the match, played in a continuous down-pour, produced some exciting football with the final result always in doubt. After 15 minutes a lapse in the Eversley defence allowed Redford to put the home side in the lead, but Eversley soon equalised with a goal from centre-forward and captain Tony Stubbs. The second half saw Alan Littlemore put Eversley in

the lead, only for Redford to level the scores once again. In the dying seconds, Eversley were awarded a penalty but Stubbs shot straight at the goalkeeper (his excuse being that an Eversley victory would have been unjust).

The Eversley team, which does not play in a league, would like to arrange further friendly matches during the season, and anyone interested should contact Mr. A. Littlemore, Area 2 Accounts, Eversley.

* * *

The Electric Supply 1st and 2nd teams opened the season at the Sports and Welfare Club's ground at Thingwall Road, Liverpool, with games against Wapping and "Lusrac" respectively, and were lucky enough to secure the services of Miss Norma Price (Revenue Section, Derby House), who had been elected Miss Electricity at the Club's Gala Day, to kick-off before the start of each game.

The first game was played at a fast pace, and though the Electric Supply players were superior in skill, they could not match the weight of Wapping, and the match ended in a 1-1 draw.

The second team found it hard going against the University side, and were two goals down in five minutes. Play was fast and goals came easily, and despite a hard fight the University team ran out winners by six goals to four.

"Miss Electricity" kicks off!



A happy group from Rhostyllen, pictured during their visit to Barlaston.



POTTERY VISIT

A party of 33 people, members of the Rhostyllen Sports and Social Club and their friends, enjoyed a visit to the Wedgwood factory at Barlaston, Stoke-on-Trent, on October 3rd. After an extremely

interesting tour of the works, when they saw all the stages in the production of this famous pottery, the party visited the souvenir shop and later enjoyed an excellent meal before the return journey home.

CYCLING SAFETY

A few months ago we described in *Contact* how a number of the Board's employees at Northwich District had banded together to help the local Road Safety Committee taking responsibility for the training of children under the National Cycling Proficiency Scheme.

A few weeks ago Councillor Mrs. E. Henshall, Chairman of the Mid-Cheshire Road Safety

Committee, presented awards to children who have passed the appropriate test, including 53 who were trained by the MANWEB team. In recognition of the work done by the team, the Board has been elected a Corporate Member of a national road safety organisation, and a plaque and certificate were presented by Mrs. Henshall to Mr. J. Webb (cashier) who led the MANWEB team.

Mr. A. Stewart (D.C.E.) congratulates the Northwich safety trainers. Left to right: Messrs. T. A. Brindle, K. Hunter, J. Webb, H. Hough, A. Stewart and C. Adams.





In Your GARDEN

by Joe Forrester

Heating for Greenhouses

Most amateurs who have had a cold greenhouse for two or three seasons begin to appreciate the need for some form of heating. Certainly, if a greenhouse is to be used to best advantage, some heat will be essential. How much, and what kind, is the problem which confronts most people. Advertisements in the press and in gardening periodicals tend to confuse the issue for the variety of heating equipment available for all types of fuels is legion. Much depends upon the size and siting of the house to be heated, and even more on the temperature requirement. The main requirement of the amateur is simply frost protection, and quite frequently a heated frame would be the best proposition where the size and number of plants to be protected can be so accommodated. Since, in these circumstances, whether it be a greenhouse or a frame or both that require heat, it will be electricity that most people will turn to.

Probably the most important point to bear in mind when considering the provision of heat is that the consumption of fuel is approximately doubled for each 5°F. that the air temperature in the greenhouse is raised. In consequence the temperature requirements should be determined on the basis of the minimum temperature necessary, rather than what maximum temperature can be obtained. The tables of unit consumption for a typical 12 ft. x 8 ft. house shown on the opposite page takes into account the variations in outdoor temperature during the twelve months of the year, but assumes that the minimum temperature under the worst possible condition is 20°F., or 12°F. of frost. While it is acknowledged that even lower temperatures may in fact be encountered, it is a reasonable figure to adopt. To take a higher figure would mean the risk of loss in severe conditions while a lower figure would increase the capital outlay for equipment.

Control by Efficiency

It will also be apparent from the tables that if the outdoor temperature does not fall below the inside temperature no heat at all is required. Obviously, if lower house temperatures can be utilised successfully, the efficiency of any equipment installed will depend to a large extent on the degree of control of the heating equipment. To ensure economy in electric greenhouse heating a thermostat which is really sensitive must be used. Various types are available, and one is often

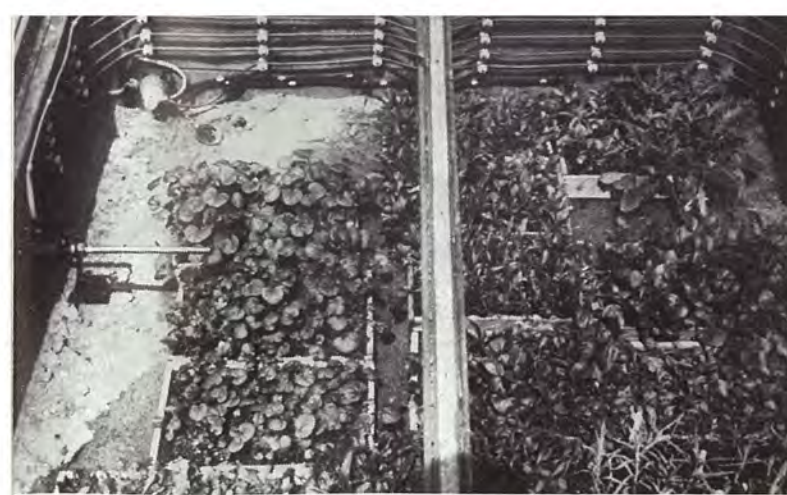
tempted to buy a comparatively cheap one with the false impression that since only frost protection is being afforded it is good enough. Most manufacturers state quite clearly the degree of accuracy for their thermostats, which vary from as much as + or - 3°F. to + or - 1°F. for the better rod-type thermostats. This means that if the thermostat is set at 40°F. it will switch off the supply at 43°F. and on again when the temperature falls to 37°F., a differential of 6°F., or in the case of the more accurate thermostat, off at 41°F. and on again at 39°F., a differential of only 2°F. It should readily be seen that although a 24" rod-type thermostat costs approximately £5, it can save its own cost in units in one year.

Where higher temperatures are required special-type thermostats are available, to give temperature variations of up to 10°F. between night and day temperatures ensuring maximum economy and better growing conditions. More about these will appear in future articles, but if any one is particularly interested further information can be obtained by writing to the Editor.

The siting and setting of the thermostat is of vital importance. Far too often one sees thermostats incorrectly located, and people when setting the thermostat assume that the temperature in the vicinity of the plants is the same as that in the location of the thermostat. Particularly on a large installation it is advisable for an experienced person to determine where the thermostat should be installed. In general this should be in a location at least ten inches away from the glass, and free from draughts created by the ventilators or doors. To set the thermostat a good maximum-minimum thermometer should be placed near the plants and adjustment carried out by reference to its reading. It cannot be emphasised too strongly that this is the only way to ensure correct temperatures at growing level.

If you take another look at the tables you will see that as the temperature increases the loading of the heating equipment must be correspondingly increased. It would be futile for the thermostat to be set at 60°F. where the installed load has been designed to give a controlled temperature of 45°F. as the load would never be switched off.

To determine the loading of the heaters in a greenhouse certain factors must be considered, as there are several ways in which heat may escape. It can be



An electrically-heated garden frame. Note the location of the thermostat.



Tubular heating in a concrete greenhouse.

TYPICAL CONSUMPTIONS AND LOADINGS

House 12' x 8' with 3' x 4½" Brick Walls 5' 6" to eaves, 7' 6" to ridge.

		To Maintain				
		40°F.	45°F.	50°F.	55°F.	60°F.
JANUARY	...	205	438	754	1,129	1,512
FEBRUARY	...	223	453	756	1,163	1,432
MARCH	...	159	358	652	1,004	1,359
APRIL	...	25	119	327	624	967
MAY	...	6	43	126	303	581
JUNE	...	—	—	9	55	199
JULY	...	—	—	3	28	126
AUGUST	...	—	—	—	22	116
SEPTEMBER	...	—	6	28	95	269
OCTOBER	...	25	49	132	300	594
NOVEMBER	...	61	165	379	698	1,062
DECEMBER	...	122	324	646	1,022	1,395
TOTAL	...	826	1,955	3,812	6,443	9,612
LOADING	...	2.56 kW	3.2 kW	3.84 kW	4.5 kW	5.1 kW

Assuming minimum temperature of 20°F.

A propagation case showing rod thermostat and frame-warming cables.



A 24-inch Proscen rod thermostat, correctly positioned.



conducted through the glass, the soil, the footpath and the brick or wood in the walls. In addition, air changes account for a fair proportion of the losses, and this is one of the most difficult factors to assess. As the factors concerned and the method of calculation cannot be covered in a short article I would suggest that if you are contemplating heating you drop a line to the Editor and ask for a copy of a booklet called *Electricity in the Garden*, published by the Electrical Development Association, or obtain advice from your own Commercial Department.

Tubular and Convector Heaters

Probably one of the most popular types of heating equipment available are tubular heaters. On installing this type of heater the following points should not be overlooked. First, the loading of the tubes should not exceed 60 watts per foot run of two-inch tube. Although tubes of 80 watts per foot are available the surface temperature of these is too high to be of practical value. It is also important to see that they are of aluminium construction so as to avoid corrosion. The use of Pyrotenax heating cables for greenhouse heating is also becoming very popular. The use of these mineral-insulated copper-sheathed cables ensures a very uniform heat distribution, but it should be noted that they should only be installed by a competent electrician, as indeed should any electrical horticultural equipment. Convector-type heaters do not give a uniform distribution, although some saving can be shown in capital cost and they are easy to instal. Some of these heaters incorporate means of alleged control of humidity. During the colder months of the year this is not as necessary as in the summer, and in fact could lead to the introduction of mould troubles.

Mention has previously been made of thermostatically-controlled fan heaters, and for small houses in particular they are an ideal way of dealing with both heating and air circulation in the greenhouse economically, both from a capital cost and running cost point of view.

Heating in frames is best accomplished by either the use of Pyrotenax heating cables or the plastic-sheathed heating cables specially designed for this application. One of the illustrations shows the method of installation. The frame should be of sound construction, of either brick or of wood, not less than one inch thick. The method of calculating the load required is somewhat simpler than that of a greenhouse. If we assume a frame of 6 ft. x 4 ft. the area of glass will be 24 square feet. Multiply the area of glass by 0.6 = 14.4 watts per 1°F. Then multiply by the temperature lift required, which should take 20°F. as the minimum outdoor temperature. In this case if the required temperature

REMINDERS

Plant deciduous trees and shrubs.
Sow lettuce for early crops.
Look out for mildew and leaf miner on chrysanthemums.
Tidy up herbaceous border.
Take cuttings of perpetual carnations.
Collect fallen leaves for leaf mould for composts.
Dig vacant ground.
Apply bone meal liberally on rock gardens.

is 45°F. the temperature lift will be 25°F., therefore $14.4 \times 25 = 360$ watts. As the cables are manufactured in fixed loadings the nearest available size above 360 watts should be used, which quite likely would be 400 watts. The thermostat, which will take care of the difference, should be installed with the 24" stem in the air space, and shielded from direct sunlight.

The use of thermal-storage heating for horticultural purposes has been developed for commercial application in the past but with limited application. Now that "Off Peak" tariffs are available to domestic consumers, experiments already in hand are being speeded up, and it is hoped that it will not be long before information on this particular aspect of heating will be available.

"To heat or not to heat" is a question each individual must answer for himself. Without heat the opportunity to have plants out of season, or while prices for tomatoes are high, is lost. The cost of heating in moderation offers the amateur the opportunity to do his own propagation with great interest, and, of course, to save money on buying-in from a nursery. Since low air temperatures are unsuitable for most propagation purposes, consideration should be given to providing a propagation case—a "miniature greenhouse within a greenhouse" is perhaps a better description. One of the illustrations shows a type which could readily be made by any handyman, equipped with plastic frame heating cable and thermostat, together with soil-warming. Apart from its main use—propagation—it is useful for the protection of house plants requiring a minimum temperature of 55°F.

Soil-warming both on the bench and in the bed should not go unmentioned. Root temperatures of 55°F. to 60°F. are essential to most plants to enable them to take up the plant foods in the soil. Since higher air temperatures were in the past the method attempted to increase the soil temperature, it will be appreciated that fuel costs are kept to a minimum where low air temperatures with soil warming are combined.

OUR COVER PICTURE is of floodlit Conway Castle, which has been a source of pleasure to thousands of visitors to Llandudno during the course of the past few months. The floodlighting installation was designed by Mr. L. Price, our consumers' engineer at Llandudno Junction, in collaboration with Ministry of Works engineers, and was carried out by members of the Llandudno Junction sub-District staff.

The layout was designed to give the impression of sunrise on the eastern side of the castle, and sunset on the western side, by the use of tungsten lighting in the first case and gold and blue fluorescent lighting in the latter. In addition the arrow slits in the north wall, together with various windows in the towers, have been lit to give the impression that the castle is occupied. All the cables supplying current to the various lighting points were concealed by taking advantage of natural cracks in the stonework, or by scraping out the cement from between the stones, inserting the cables in the joints, and then re-cementing them.

Photography

BY GEORGE GOULD

Know Your Camera

IN last month's article I said that camera shutter speeds—especially the faster ones—are inaccurate. This statement may have made some people raise their eyebrows, but I stick to my guns, and because of this inaccuracy it is not wise to change from one shutter speed to another. It is far better to try and use one speed (always the fastest) and to adjust the exposure by means of the Iris diaphragm. Another important point, which is not generally known, is that while the definition of most lenses is improved by "stopping down", there is a setting which gives optimum definition. This setting is usually about two stops down—a camera having a maximum aperture of F3.5 is best used between F5.6 and F8. On some camera lenses there is a marked softening of the image sharpness at stops smaller than F8, but more of this in future articles.

To return to shutter speeds—the fault mentioned earlier only applies to the "between lens" type of shutter—the focal plane shutter fitted to cameras such as the *Leica* and the *Contax* is extremely accurate. This focal plane shutter operates in quite a different way. I want you to imagine a thin metal strip moving across the film. In this metal strip, sometimes called a "blind", we have a slot which can be varied from narrow to very wide. The "blind" travels across the film at one fixed speed, and the amount of light reaching the film is controlled by the width of the slot. A small slot gives a brief exposure, while a wide slot will give a longer exposure. Another advantage of the focal plane shutter is that it permits all cameras fitted with such shutters to be easily adapted to take other types and makes of lenses.

Still, there are other important differences in the operation of these shutters, and every photographer who uses flash should understand the differences between the two shutter movements. When using flash our usual practice is to fit the flashgun, slip in the bulb, and press the release—all things being well we have a picture in the bag. Now and again however something

goes wrong, and perhaps the following will help you to eliminate these errors.

Let us consider the flashbulb—a glass bulb which contains magnesium foil in pure oxygen. Inside the bulb can be seen a blue spot—your guarantee that the bulb has not been damaged or the glass cracked. In any case the bulb is externally coated with shellac, and this prevents the glass from splintering when it is fired. When the shutter is released a contact is made through the blades, an electrical current passes to the bulb, and this current ignites a tiny blob of inflammable paste in the centre of the bulb. The magnesium wire starts to burn and we get an extremely high output of light which enables us to get our picture. From the bulb beginning to light up to the taking of the picture takes an appreciable amount of time—about 1/75th of a second—and if you use the wrong shutter speed or an incorrect type of flash synchronisation your film will not be exposed.

In the "good old days" the usual practice was to put the camera on a stand, open the shutter, fire the bulb—then close the shutter. This method, which can be used by owners of box cameras (non-synchronised), has much to commend it—especially on still subjects or portraiture. On modern cameras there is a built-in synchronising switch, and this enables us to ensure that the shutter blades are fully open at the time the bulb has reached the peak of its light output.

If your camera has built-in synchronisation, but has no identifying symbol such as "X" or "M", then your

A pleasing flash portrait done with one No. 5 bulb on camera (synchronised), 'M' setting, 1/100th, F.16. The inset shows the result to be expected using a focal plane shutter at the same speed and aperture.

