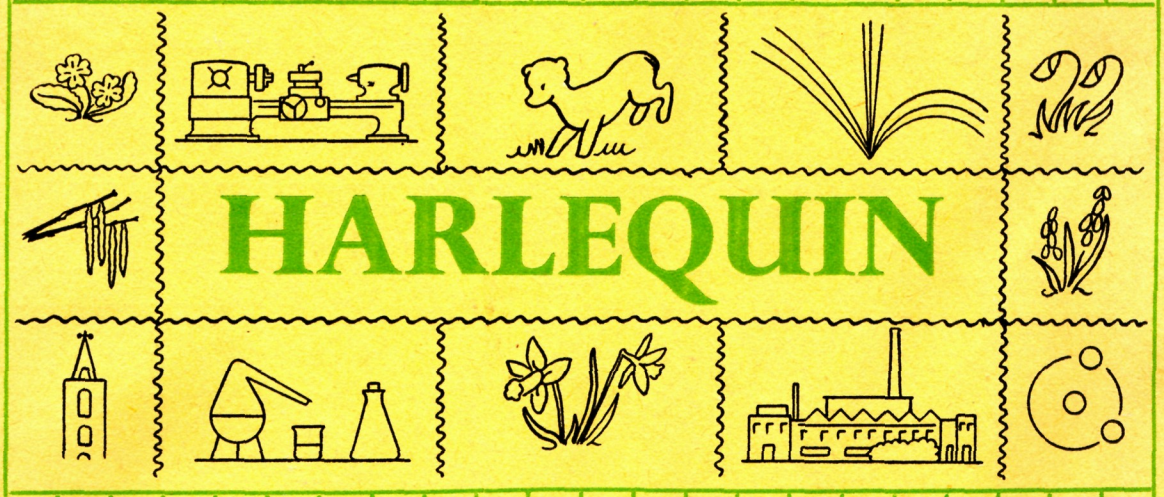
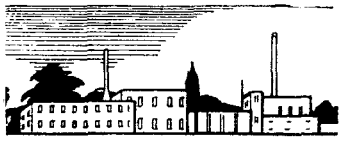
Springtime



HARLEQUIN

VOL. 4. NO. 3. PRICE NINEPENCE

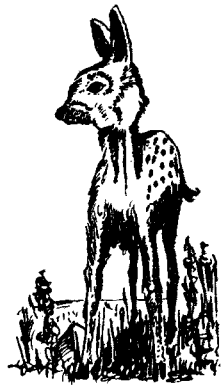
HARLEQUIN



Leisure Magazine of the Atomic Energy Research Establishment

CONTENTS

with guest contributors Malcolm Greenhill and Prof. O. R. Frisch (Old Harwellian)



SPRINGTIME

1954

SERIES 500

ALL-POWER

REGULATED POWER SUPPLIES

SERIES 500

ABRIDGED DATA
(Further information on request)

	Data	Model 501	Model 502	Model 503	Model 504
Main + VE Stabilizer	Output	200-500V 250mA	200-500V 250mA	0-500V 250mA	0-500V 250mA
	Number of Ranges	2	2	4	4
	Voltage Stabilization	±0.02%	±0.002%	±0.1%	±0.002%
	Effective Output Resistance (max.)	0.2 ohms	0.02 ohms	0.5 ohms	0.02 ohms
	Output Ripple (rms. max.)	2mV	1mV	3mV	1mV
—VE Supply Stabilizer	Outputs	—	—	250V 25mA 0-250V 1mA	250V 25mA 0-250V 1mA
	Voltage Stabilization	—	—	±0.05%	±0.002%
	Output Resistance (max.)	—	—	1 ohms	0.01 ohms
	Output Ripple (rms. max.)	—	—	2mV	1mV
Unstabilized + VE H.T. Supply 250mA max.		470V 630V	470V 630V	320V 470V 630V	320V 470V 630V
Unstabilized A.C. Supply		6.3V 10A	6.3V 10A	6.3V 10A	6.3V 10A
Price		**£70**	**£91**	**£81**	**£99**

	Data	Model 506	Model 507	Model 508	Model 509
Main + VE Stabilizer	Output	200-500 V 350mA	200-500V 350mA	0-500V 350mA	0-500V 350mA
	Number of Ranges	2	2	4	4
	Voltage Stabilization	±0.02%	±0.002%	±0.1%	±0.002%
	Effective Output Resistance (max.)	0.2 ohms	0.02 ohms	0.5 ohms	0.02 ohms
	Output Ripple (rms. max.)	2mV	1mV	3mV	1mV
—VE Supply Stabilizer	Outputs	—	—	250V 25mA 0-250V 1mA	250V 25mA 0-250V 1mA
	Voltage Stabilization	—	—	±0.05%	±0.002%
	Output Resistance (max.)	—	—	1 ohms	0.01 ohms
	Output Ripple (rms. max.)	—	—	2mV	1mV
Unstabilized +VE H.T. Supply 350mA max.		470V 630V	470V 630V	320V 470V 630V	320V 470V 630V
Unstabilized A.C. Supply		6.3V 10A	6.3V 10A	6.3V 10A	6.3V 10A
Price		**£77**	**£98**	**£88**	**£106**

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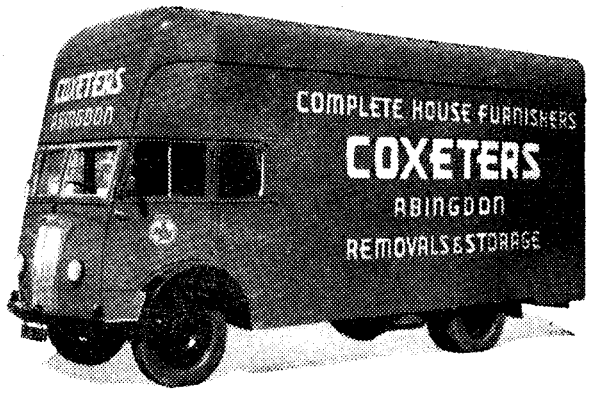
Each advertiser's announcement in Harlequin pays for an equivalent area of editorial matter. WITHOUT this support the sale of 2,000 copies at 9d. would provide for only 16 pages.
WITH this support the amount of actual editorial matter is doubled, while providing also a guide to the services and supplies of interest to the staff at Harwell.
The Editor wishes to acknowledge help received from colleagues of the Advertising Club of Oxford and to thank all Business Houses who have supported Harlequin.
When returning *their support*, please mention *this magazine.*



A list of some 500 words " possessing potentialities for trouble when put into type," have been assembled by the direction of the School of Journalism at Kentucky University.

Here are some examples from the list, the written word set in roman and the printed word in italic :

Married, *Marred* her 40 years ago ;
Room, Sleeping *groom* for one ;
Honour, Guest of *horror* ;
Duties, Took over his *cuties* ;
Betrothal, *Betrayal* of their daughter ;
Right, He was *tight* ;
Friends, Visiting *fiends* ;
Abominable, *Abdominal* behaviour ;
Sacred, *Scared* concert ;
Unalloyed, *Unallowed* bliss

For the finding of deliberate mistakes concealed in *Harlequin* advertisements see *Proof-Readers Competition* (page 35)

Agents for

Coats and Suits

RODEX
MARELLA
ALEXON
SUMRIE
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CHESRO
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Knitwear

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BAIRNSWEAR

From now onwards our windows and showrooms will be a centre of attraction to those seeking inspiration for their new spring outfit. We have much pleasure in inviting you to come and see the new season's outstanding examples from London's foremost Fashion Houses. Many of the coats, suits and dresses are economically priced, which will particularly appeal to those with good fashion sense but with a limited dress budget.

CAMP HOPSON & CO. LTD.

NEWBURY

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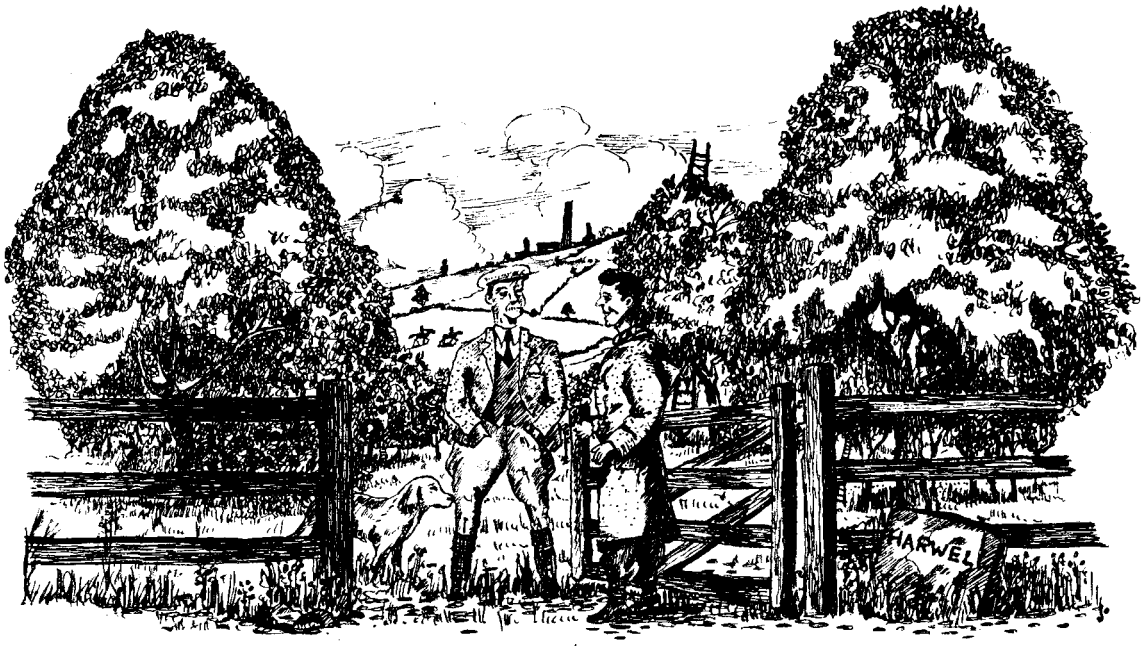


AS OTHERS SEE IT

" Worshippers of Beelzebub."

In the new Theatre Supplement to " The Isis " Mr. Nevil Coghill, Fellow of Exeter College, stresses the need for a University Theatre, but points out that such a project might be viewed in certain quarters with disfavour because it would become a laboratory for the study of drama, be it English, Greek or Japanese.

Mr. Coghill continues : " The. professors will hold up their hands in horror—the heresy of technical teaching ! Degrees to be awarded for doing ' the splits '—Oxford a school for chorus-girls and film-stars ! *Well, it is already a school for atom scientists. A few more worshippers of Beelzebub won't materially affect its damnation.*" (Italics ours).

BOUQUET

TO THE EDITOR, HARLEQUIN.

May I express my appreciation of the most interesting article by Mr. D. R. Willson on the early days of Harwell.

As a comparative newcomer to A.E.R.E., I find it fulfils a long-felt want in giving a clear picture of what has gone before.

May I venture to hope that these articles will be continued in each number until we become up-to-date. This would be by 1957 when you will have built up a complete history of the first ten years of A.E.R.E.

In other ways, too, each issue of *Harlequin* is of lasting value and, collected over the years, will constitute an interesting reference library.

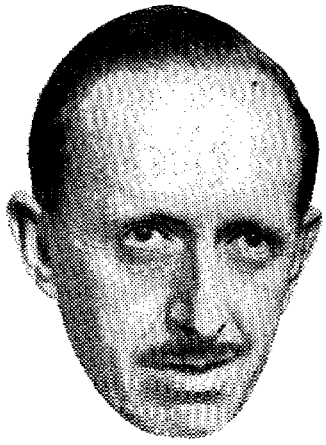
Yours, etc., G. R. MEGSON.

BRICKBAT

TO THE EDITOR, HARLEQUIN.

Being out of modern fiction
And having an addiction,
For reading trashy novels with my meal,
I found your mag atomic,
And read it like a comic;
I'm writing, Sir, to tell you what I feel.
Where's the " Page of Auntie Mabel " ?
Or " How to look like Betty Grable".
The warning, Sir, from " What the Stars Reveal " ?
No hints on ironing nappies,
Or making dresses out of 'scrappies ',
No cosmetics for me ' handies ' when they peel ?
No patterns for my knitting ?
Not a word on baby-sitting ?
Or how to shut the kids up when they squeal?
You write about your Depot,
On how they built the B.E.P.O.
I've read the scientific, 'til I reel !
I suggest the new edition,
Should exclude the nuclear fission,
To allow the ladies ' serials ' with their meal.
In your new and better issue,
With it's " How to make a fichu "
And " How to fix a flapping rubber heel",
I expect some news on Sales,
And some hints on washing veils.
And a little more regard for the feminine appeal.

By JILL CAVE.



MESSAGE FROM THE LORD PRESIDENT

I was very glad to be invited to write a few words of introduction to this issue of "*Harlequin*."

You will all know from my New Year's message the sense of privilege I felt at being able to join in the work of your great enterprise, which I have now seen at first hand.

What I saw deeply impressed me, as too did the atmosphere of enthusiasm which I found amongst you. You are, I know, fully alive to the vital importance to the country of the work you are doing in developing atomic energy in its many aspects: and in maintaining and increasing our strength against aggression. The work of Harwell is now widely acknowledged and acclaimed, and its importance cannot be too highly stressed.

While my immediate responsibility for the atomic energy establishments is likely to be short, the setting up of the Atomic Energy Authority will not end my connection with you all, and I have no doubt that, whatever changes there may be in organisation, your researches at Harwell together with the work of your sister establishments at Risley and Aldermaston will continue to contribute to the benefit of the country.

I shall watch with the greatest interest your progress along what I am convinced will be adventurous, fruitful and hopeful lines, and I send to you all personally my best wishes for success in your activities.

The best of luck to you all.

SALISBURY.

Editorial

This year *Harlequin* enters its seventh year. In May there is to be the first Annual General Meeting to which readers have been invited and it is therefore fitting to look back for a moment and to examine the road that has been covered.

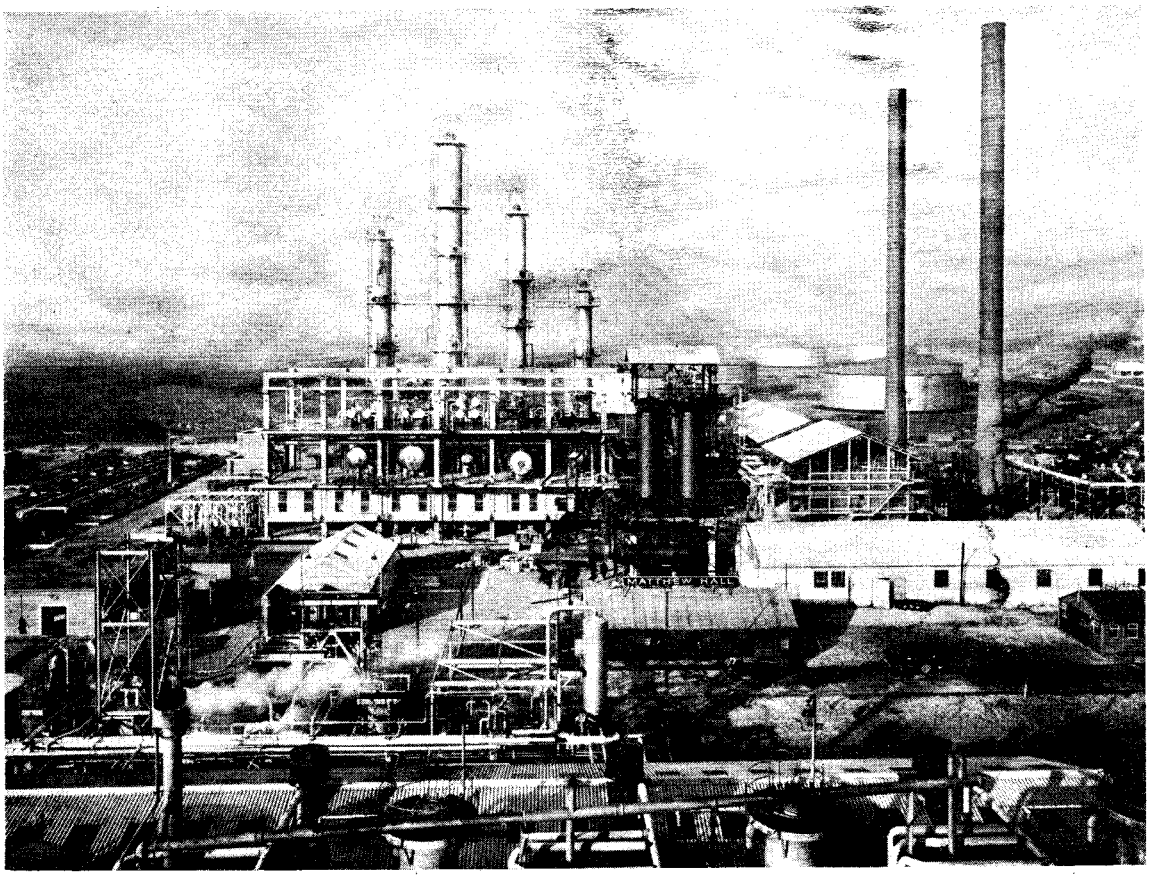
When *Harlequin* began in 1948, under the editorship of Dr. Peter Stewart, it was merely a vehicle for the literary and artistic talents of the few, and as such, like the Topical Talks Club and the Arts Society, both of which are now extinct, it catered for a dwindling minority.

On being elected Editor in 1952 the writer had the ambition to publish a magazine of interest to *all* concerned with Harwell and, although more gradual changes reaped their reward, it seemed imperative to give the magazine a completely new look. A new format and sharply re-shaped contents were called for with more illustrations in both line and half-tone to be carefully laid out on a larger-sized page. It was perhaps fortunate that there was a free hand in carrying out these changes for through resignations from the Board only a skeleton crew of occasional helpers remained. When all was ready for "press," a new Board was formed and a pasted mock-up placed upon the table. Thus *New Elizabethan Harlequin* was christened.

For *Yuletide Harlequin* the writer was relieved to have his duties divided between five new officers and to sit back as Chairman to hear progress that was being achieved. This experiment in a working democracy was a profitable one, for all were heedless of outside advice that "no Board can edit." When press day drew dangerously near, a quick decision was required between democracy and expediency . . . . and *Harlequin* kicking his heels in the Conference Room was frogmarched to the compositor's bench.

For the work on this number the office of Editor/Chairman was divided with D. J. Behrens elected to the Chair, leaving the editor free to concentrate on production with final choice of content and lay-out. Thus a more workable constitution was forged.

The writer would express the thanks of the Board for the growing support that has come to the magazine over the past year . . . not only from contributors and readers, but from the Recreational Association and official side. The aim is to publish a magazine of interest to all concerned with A.E.R.E. and in this the reader can help by the writing of an article for the Summer number in course of preparation. Your views will also be welcomed on *Harlequin* and can be written or given in person at the Annual General Meeting of which details are given at the end of this number. D.A.T



THE

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GROUP OF COMPANIES

ESTD. 1848

MATTHEW HALL

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KELCO (METALS) LTD. — GARCHEY LTD.

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MANCHESTER	14, Lloyd Street	GERMISTON	Wadeville	DUBLIN	29, Westland Row
GLASGOW	Dykehead Street, E.2	DURBAN	100-102, Williams Road	WEST INDIES	Kingston, Jamaica
BRISTOL	St. Stephen's Street	CAPE TOWN	Epping Industrial Estate	BULAWAYO	Ironbridge Road
		WELKOM	Third Street		

Those were the days . .

Part II.

D. R. WILLSON

1947 opened quietly enough at A.E.R.E. in rather mild and pleasant weather. The Social Club had started a few weeks earlier in a Nissen hut, and weekly dances were being held there in addition to the Tuesday evening record " hops " in Ridgeway House. Hugh Roskell had just succeeded A. Milne as Secretary of the Recreational Association. On the site, all available design office effort was concentrated for the time being on GLEEP, the low-energy pile we hoped to start-up later in the year as Britain's first nuclear reactor. The larger air-cooled reactor due to follow a year later—BEPO —was being designed in detail at Risley, and many of the drawings had already arrived at Harwell. Extra height for BEPO was needed in part of Hangar 10, and to enable the roof to be altered, a large Bailey bridge was erected inside the hangar. Our large Van de Graaff machine had been erected at Malvern by R. Fortescue and his group, and was being dismantled for transfer to Harwell. The cyclotron pit in Hangar 7 was well down, and some of the foundation steel-work had arrived.

On Monday, 6th January it was much colder, and snow fell. The next day it thawed, and the snow disappeared. A week later, however, the thermometer fell again sharply, more snow arrived, and the cold spell which was to paralyze much of the industrial life of the country had taken Harwell in its grip. The contractors working outdoors had first to reduce, and then to stop, their operations. Heavy drifting snow covered the site and filled the trenches. Roads became slippery and dangerous ; sometimes impassable. By the fourth week, many houses on the site were completely frozen up, and the residents were facing real hardship. The prefabs had not yet received their correct lagging, and the heat loss in them made reasonable warmth impracticable to maintain. One resident arrived home from work to find his wife sitting reading in the kitchen ; her feet comfortably installed inside the gas-oven, of which the door was open and the gas lighted. Odd decorative effects were provided in many prefabs by assemblies of cotton-wool and jam-jars to cope with condensation on the metal ceiling strips. By contrast, some of the hostel occupants were free from the more immediate domestic crises, and there were many happy ski-ing excursions on the Berkshire Downs. The five-day week had just been officially instituted, with a longer working day and a free Saturday morning that helped greatly during this time.

In spite of these external difficulties, work was being pressed ahead in offices, laboratories and workshops. The site had not yet grown so large that scientific colloquia for the whole Station were unwieldy, and these were regularly held at 4 p.m. on Mondays. The Mess Committee, however, prophesied that the rapidly rising staff numbers would lead to a serious breakdown in mid-day feeding arrangements unless new facilities could operate to supplement the dining rooms of Icknield Way and Ridgeway hostels. Building 150 was still required by the building contractors as a canteen for their labour force, and so the famous (or notorious) " Black Beetle " came to be planned.

Early in February the supply of solid fuel to the Establishment had ceased, and there was less than two weeks' stock on site. The Director issued a Station Order strictly limiting the buildings entitled to an electric supply, and forbidding lighting in offices or laboratories before 4 p.m. Portable Diesel generators were installed as emergency power suppliers, and for a time the Station became dependent on them. The only space heating available in most buildings was from small paraffin stoves, for which the distribution of fuel soon became one of the site's most vital services. Round these stoves would gather the muffled and overcoated staff to warm their hands, and to meditate on the coming glories of the atomic

age. Opinions on this point were frequently and strongly expressed. Nevertheless, the Dramatic Society presented on 6th February their first production, " Jane Steps Out," in the former R.A.F. gymnasium. The house was packed on both nights and the reception was enthusiastic in spite of the low temperature, which the heroic stoking of the stoves with odd scraps of fuel could not raise. By 20th February, the Social Club had less than two days' supply of fuel, and was cancelling fixtures.

The first days of March brought signs of a break in the arctic conditions, but these hopes were soon dashed by snowfalls even heavier than those of February. On 5th and 6th road conditions were so bad that very few employees arrived for work, and the " A.E.R.E. News " for that week had to be distributed by volunteers ; the usual messenger could not get through.

Vol. 2. No. 33. 14th August, 1947.

A.E.R.E. News and Sporting Pink

WHAT'S ON THIS WEEK, ETC.

Thursday,	14th August	Not a thing
Friday,	15th August	Library Editor goes on leave ! Horticultural Meeting
Saturday,	16th August	Cricket : Engineers *v* The Rest *or* Brawn *v* Brain
Sunday,	17th August	Topical Talks jaunt to Blewbury Hill. Tennis at Home Cricket at Cholsey
Monday,	18th August	Library Choir Practice
Tuesday,	19th August	Football at home.
Wednesday,	20th August	Library Dramatic Club Meeting Whipsnade Trip

Great credit went to Smith's and Job's dairymen, who in spite of appalling conditions, never failed to deliver their precious and strictly rationed commodities. One of the temporary canvas stores hangars on the former parade ground (where Building 354 now stands) collapsed during one Sunday night and its contents were exposed to the elements.

Mid-March brought the real thaw at last—so rapid that the rate of disclosure of burst pipes in Prefabria sent volunteer squads hurrying to turn off the water at the mains. One strong helper, trying to close a valve inside a prefab, merely forced it wider open as unknown to him it contained a left-hand thread. When he finally wrenched it right off, the results were distressing. The thaw was also accompanied by violent gales which damaged several structures on the site and wrenched loose large sheets of corrugated iron from the roof extension of Hangar 10 and elsewhere. These alarming missiles travelled considerable distances, and wrecked in one place the graceful lines of the new security fence. Several large trees were blown down, but their fallen trunks and branches disappeared with the same rapidity as had a large pile of waste timber left by the R.A.F. in one corner of the airfield. At twilight, or later, sounds of crosscut sawing could sometimes be heard, and residents taking an evening stroll appeared to gain greater assistance from a barrow or old perambulator than from walking-sticks.

As described in " Britain's Atomic Factories," a decision was taken about this time to change the plans for the production piles from water-cooled to gas-cooled piles. This decision had immediate and considerable repercussions on the Harwell programme—for instance, some of the water-testing projects at distant sites were discontinued, though it was decided to continue one particularly likely to be of value later. This exception was most acceptable to the scientist in charge of the experiment ; he was a keen fisherman and the prospects at the site concerned were excellent ! In Hangar 9, the foundations for the main workshop machines were being laid. Assurances on effluent activity were given to the Ministry of Health, to the Thames Conservancy, and to the Metropolitan Water Board. Work was started on the first permanent houses for A.E.R.E., at Fitzharry's estate, Abingdon. A claim was made on behalf of Mr. and Mrs. Forster for the first " atomic baby " to be born on the Harwell site, but the W.D.C. reported that one little policeman and two little policewomen had already arrived.

By April, the weather had definitely improved ; the floods following the March thaw had subsided, and the site had returned to the muddy conditions of late 1946. The Horticultural Society held the first of many meetings on " What to grow on Harwell soil," and some spare trees were distributed among prefab residents for immediate planting. In mid-April, a series of lectures on atomic energy by members of A.E.R.E. staff was inaugurated in the Didcot Community Centre ; they helped some of the local residents to a better understanding of why we had come and what we were trying to do. The difficult task of machining the GLEEP graphite blocks had been pressed forward, first in a makeshift workshop and then in a specially-equipped shop in Hangar 7. The constructional work on the GLEEP pile itself was sufficiently advanced to permit graphite laying to start in April ; by early May the graphite shop had finished the GLEEP blocks and turned their attention to the first blocks for BEPO. The

Ridgeway House, February, 1947 (*Photo* : *J. M. Morrison*)

shortage of main stores accommodation, already serious, had been aggravated by the loss of the canvas hangar ; Robin and Romney hangars were obtained for erection at what was then the far end of the site, and Mr. Geary's " caravan colony " was established there.

The last week of April saw a most successful Annual General Meeting of the Recreational Association, with John Fisher in the chair as the Director was away. Regular Saturday dances were now being held in the former gymnasium, there also the Dramatic Club successfully staged in May their second production, "Dangerous Corner " in conditions vastly better than those the first had had to survive. The New Zealanders in the GLEEP group had a festive occasion when Gordon Fergusson married Barbara Wadey, who had come over from Montreal. Ron Maskell gave away the bride, and the best man was Charlie Watson-Munro, the team leader. An early summer heat-wave developed, and the site relaxed somewhat after the tension and hardships of the preceding months. One recalls a technical meeting being summoned by a notice to which the Secretary had added a footnote requesting members to wear collar and tie as Ministry representatives from London would be present. All constructional work could now go at full speed, and the contractors were trying to make up lost time. The new radiochemical laboratory, Building 220, was taking shape. The Van de Graaff accelerator had been erected in a temporary home in one of the R.A.F. navigational trainers, and was undergoing tests. The second permanent housing estate had been started at Wantage ; the first houses on it were the steel-framed B.I.S.F. type, with more conventional brick ones to follow. On the Chilton estate, the first prefabs were occupied and the residents of the Aldfield Farm site acquired an unaccustomed seniority. The long Nissen hut for the new temporary canteen developed a side-attachment—a boiler obviously modelled on the famous " Rocket " to serve as a steam supplier. The first trials with it produced clouds of black smoke which called forth vigorous protests from the nearby residents of North Drive.

By June, the A.E.R.E. pay-roll had passed the 1,000 mark, not counting the groups still at Malvern, but including both industrials and non-industrials. The layout plans for the Fitzharry's Estate at Abingdon, and for the various types of house being erected on it, were displayed first in the Library, and then in the Social Club, for all to see. John Tennison formed the Light Orchestra which later proved so popular at the regular informal concerts in the Social Club. On 25th June the A.E.R.E.

Cinema opened in the gymnasium with a 16 mm. showing of "The Lady Vanishes." Trouble soon developed with the sound reproduction, and regular showings of films were not maintained until September. From then onwards, the cinema was firmly established as one of the amenities of the site, and great credit is due to those who strove so hard to keep it going. In June, also, the date of the Sports Day in August was announced, and a "small ad." appeared over Fisher's name in the "A.E.R.E. News" asking for old top hats and tennis balls (both non-returnable). Regular cricket matches in the Inter-Divisional League became a feature of the summer evenings.

During July, 3½MeV was obtained on test with the Van de Graaff machine. Graphite laying for GLEEP was finished by the end of the month, and preparations for loading of fuel and start-up were pushed ahead. Outdoors, progress had been made with the feed and return mains between the site and Sutton Courtenay—our link with the Thames. It was decided to form a Chemical Engineering Division at A.E.R.E. with facilities for pilot plant work and an ore-dressing laboratory. A lively discussion developed between the three parishes containing parts of the site (Chilton, East Hendred and Harwell) about whether any one of them should have the privilege, or burden, of taking in the whole of A.E.R.E. The Berks. C.C. organised a public meeting in the gymnasium, but after much deliberation it was decided to leave things as they were.

August, 1947, was a notable month for A.E.R.E. The first great success was the Sports Day, held on the 9th in perfect weather, and opened by the Director. A very large crowd attended, and all events were well supported. The tophats, surmounting Fisher and Dickinson, perambulated above a screen with tennis balls flying all round them; later they were worn by this intrepid pair all over the ground, and went down into Harwell history. A thrilling display was given by a motorcycle detachment of the REME, culminating in a dash through a blazing hoop. Unluckily one of the machines caught fire; the rider dismounted with alacrity, and the machine presented itself at the Judges' table, which it knocked over and set alight. Some rapid and commendable work with fire extinguishers followed, and remarkably little damage was done. The rider had a very short

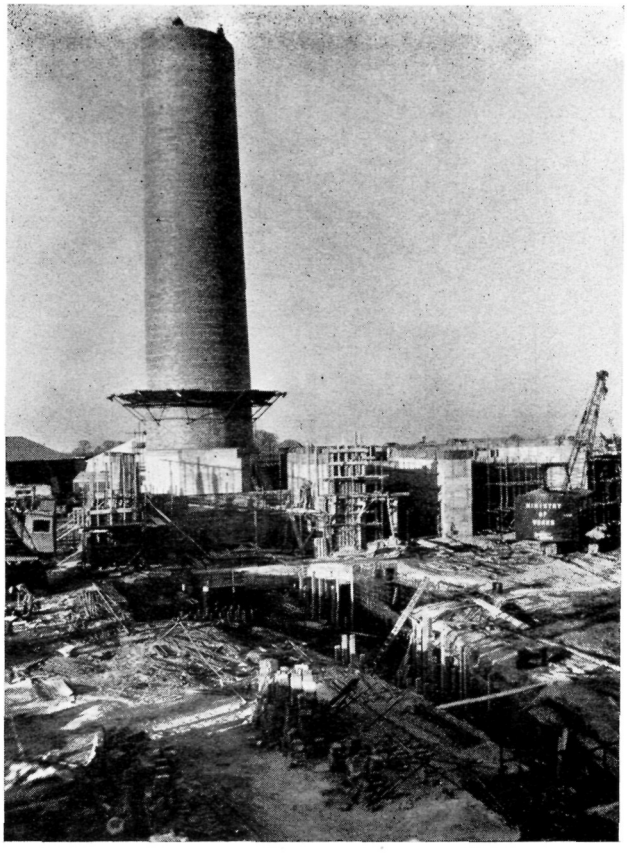
Gale Damage to Perimeter Fence, March, 1947 (*Crown Copyright Reserved*)

stay in hospital and was not seriously hurt. At the end of the sports, Lady Ebury presented the prizes, and later that evening a lively dance was held in Icknield Way House. Altogether, a memorable and satisfying day !

On 15th August, GLEEP " diverged," and the country's first pile was operating. The following day, the Director led " The Rest " against " The Engineers " at Cricket, but the latter were victorious. On 29th, the dining rooms of Ridgeway and Icknield Way hostels were closed for general service of lunch, and the " Black Beetle " was opened with three sittings and a ticket system of entry. Things did not go too well at first ; the queues were long, and the equipment barely adequate for the relentlessly-growing needs of the staff of A.E.R.E. Improvements were introduced as and when possible, however, and although even its strongest supporters would not claim that the " Black Beetle " was a first-class eating place, there is no doubt that it tided the Establishment over a very difficult period. That month a complete review was again held of the staff intake compared with accommodation and feeding facilities ; the results showed a need for more houses and more hostel accommodation, and the search for suitable sites went on. In September, two suitable houses were found in Abingdon for conversion to hostels—Coseners' House and Fellows Close, and moves were started to acquire them. The allocation of the first eight houses on the Fitzharry's Estate was announced ; this had been arrived at by a combination of Divisional allocation and " points " systems as agreed earlier in the year. These first houses were occupied in November. On 5th September, a merry party was held in Ridgeway house to celebrate the starting-up of GLEEP, which was now operating well and could be run at 100 KW for limited periods. On 28th, the Director again led " The Rest " against " The Engineers " ; this time the Engineers were beaten by 5 wickets.

The machining of graphite for BEPO was nearing completion, as was the erection of the steelwork. The BEPO stack was climbing from the ground and was already 30ft. above the level of the hangar roof. Study groups were already working on the best forms of experimental reactors which might follow BEPO—these studies have obviously taken longer than was at first hoped ! It had been decided to adopt the Ministry of Works " standard hutting " to provide long-term accommodation for the M.R.C. Photography, Metallurgy, Electronics and some Drawing Offices. A present-day stroller round the site will note that one or two of these decisions were later modified.

In October, the production and distribution



Erection of BEPO Stack, Fanhouse and Main Duct November, 1947 *(Crown Copyright Reserved)*

of isotopes from GLEEP had been organised under the general care of Dr. Marley (this was before the days of the Isotopes Division). Dr. Spence arrived back from Canada to take charge of the Chemistry Division, which Dr. Bretscher had been looking after until Spence should return. The Scientific Information Office was formed, and Kenneth Jay joined us to take charge of it. The number of official visitors to the site was proving difficult to handle, and Divisions were asked to nominate people to help the administration in looking after them. It was decided to change Building 168 into accommodation suitable for apprentices and young scientific assistants ; unfortunately the existing residents could not be found alternative accommodation nearer than Grazeley Green (near Reading), and although the scheme had to go through, it was not popular. On 15th October the A.E.R.E. group at Malvern announced the operation of their 30 MeV synchrotron ; a notable scientific achievement.

In November, the structural work for BEPO was complete, and three layers of graphite had been laid. The main structure of the B-wing

A.E.R.E. Site Development, December, 1947 *(Crown Copyright Reserved)*

of Building 220 was also complete, and erection of the plant room had started. The provision of a proper Sick Bay was planned to supplant the makeshift arrangements then operating, and a Romney hut was at long last allocated for garage purposes to the long-suffering car owners on the site. Work was started on the " Palace of Engineering " (Building 329) which was very badly needed. During this month, a number of Harwell staff carried out the adventurous experiments on the dispersal and behaviour in the sea of the radioactive effluents to be expected from the Windscale plants. The experimental party used harmless substitutes, and operated in very mixed weather conditions off the Cumberland coast.

Back at the site, a handicap had fallen on many of the staff by the ending of the " basic " petrol ration. On such an isolated site, the effects of this were keenly felt, and improvised transport could not meet the need. In the gymnasium on Sundays, a Children's Service was started, and the A.E.R.E. Cinema started special children's shows on Saturday mornings. A children's Christmas Party had been planned for December, for which a concert raised £13, and for which despairing pleas for sweet coupons were heard. At the end of November, the Engineering Society held its first annual dinner in the Randolph Hotel, Oxford. It was a successful and boisterous affair, and subsequent anniversaries have been celebrated on the A.E.R.E. site.

The Children's Party was held in December—a major undertaking with more than 400 children present. On 15th and 16th December, the energetic Dramatic Society presented yet another venture—three one-act plays.

This, like their previous shows, was well supported and successful. Indeed, as many local residents put it, the difficulty on our isolated site was not so much how to spend one's leisure time, but how to find time to support the many flourishing ventures all demanding attention. The Director was away in Canada and the U.S.A. during this month, but he sent Christmas greetings to all the staff for publication in the " A.E.R.E. News." A crowded Xmas Dance was held in Icknield Way House and another on New Year's Eve, at which 1947 was danced, sung, and toasted out. It had been an eventful and memorable year for the establishment, with both hardship and happiness for most of the staff, and hard work for all. At the year's end there was an undoubted feeling of achievement to accompany the knowledge of greater efforts still to come.

To be continued

Interplanetary Flight

by DR. L. R. SHEPHERD, *Chairman, British Interplanetary Society (Reactor Physics Division)*

The idea of flight to the moon is almost certainly prehistoric, dating back to a time when the notion of the moon as another world was based entirely upon speculation. During the past two thousand years many fantasies have been woven about such an adventure. However, the means by which the journeys were to be made were usually entirely fanciful and completely impracticable, since the early writers were unaware of the vacuum which separated the moon and other planets from our earth. In 1650 Cyrano de Bergerac wrote two fantasies " Voyage to the Moon " and " History of the States and Empires of the Sun " in which he mentioned the use of rockets to propel a vessel to our satellite. This was the first reference to a practical method of flying to other worlds.

We know today, that the stars and planets are moving through a vacuum. Our atmosphere extends only for a limited distance above the surface of the earth. At 8 miles, the height at which the Comet flies, the air is already only a quarter as dense as at sea level ; at 50 miles it has less than one ten thousandth of the sea level density, while above two or three hundred miles, we have conditions of almost complete vacuum. Thus interplanetary flight is a matter of flight through a vacuum and there is only one known method by which this may be done ; by rocket propulsion, the method perhaps fortuitously, but nevertheless prophetically, introduced by Cyrano into his stories.

The first serious treatise on the use of rocket propulsion for interplanetary flight was published only 50 years ago when in 1903 a Russian schoolmaster Ziolkowski wrote a technical paper on the design of a space rocket. His paper was notable, not only in being the first serious scientific examination of interplanetary flight, but also in setting out for the first time the principles of liquid propellant rockets.

In the past 50 years a great deal, technical and otherwise, has been written about the possibilities of rocket flight to other worlds. The literature has been particularly stimulated by the sensational development of rocket vehicles during the past 20 years. Perhaps, initial scepticism which was prevalent in pre-war years has been swept aside too freely and the tendency nowadays is to regard flight to the planets with too much optimism. It cannot be too strongly emphasised that we are far from knowing all the answers to the problems of interplanetary flight.

We may say that we have today the means at our disposal for constructing unmanned rockets capable of flying into orbits around the earth. These orbits might take them out beyond the moon, perhaps to transmit to earth pictures of the hidden side.

The further possibility of humans travelling to the moon and back may elude us for some time, representing, as it does, a problem of much higher order. Twenty or thirty years may well pass before we are able to assess this problem in a sufficiently serious manner that we can point to a reasonable solution, but even today we can say that the possibility of obtaining a solution is very high indeed and that our belief in the achievement of interplanetary flight is justified.

We may expect that the development of the rocket during the latter part of this century and the early part of the next will lead to the conquest of space.

FOR THE YOUNGER READERS .

Children's Painting Competition

To paint in water colour on paper not larger than 15in. x 10in. any subject of your choice. There will be a booktoken awarded to the winner in each of three age groups :

6-8 ; 9-12 ; 13-15.

Space Ship Competition

To design a space ship that is to undertake a journey to the moon. Entries must be drawn on paper not larger than 36in. x 24in. and give as many working details as possible.

Age limit : 15 years.

RULES

(1) Each entry must be own unaided work.
(2) Print your name, address and age on a card attached and not on entry itself.
(3) Pack carefully and send to " Harlequin Competitions " c/o Registry, A.E.R.E., before May 31st. In addition to the book tokens awarded, there will be an exhibition of all entries arranged for Sports Day, while winning entries may be reproduced in " Harlequin."

The INTERPLANETARY Times
EARTH EDITION
TUESDAY 1ST APRIL 2,074

MARS GOVT. TO TAKE OVER NUCLEAR POWER?

NEW GOVERNMENT EXPECTED TO ADOPT UPSILON PROPOSALS

Following last week's resignation of the Moralist Government on the issue of the relative remuneration of space ship ground crew and algae cultivators, the new Legalist Government is expected to introduce legislation to implement Senator Upsilon's proposals for reorganising the nuclear power industry. These involve transferring control of the present undertaking from the Martian Nuclear Power Corporation to a Department of the Federal Government.

Our Martian Political Correspondent reviews below the development of the present situation.

Mars, March 31st, 2074.

The Martian Nuclear Power Corporation has become one of the most familiar features of daily life on Mars. Every state in the Martian Federation contains at least one of their power stations, children carry film-badges as soon as they can walk, and coal has ceased to be more than a source of detergents, nylon stockings and similar products. There were, it is true, some early misgivings as to possible contamination of canals from the disposal of radioactive effluents, but at the time this was felt to be a small risk to take in view of the immense advantage of cheap, clean electric power, and in fact these fears proved groundless.

Continued on page 2

" THREE EPOCH-MAKING EVENTS."

At the Presidential Address of the Scientific Association, Professor B. A. Aklande spoke today of the dynamic acceleration given to science in the 20th century. Although the position reached by the year 2,000 would have been unbelievable to scientists of the 1950's, their own achievements, the harnessing of the atom and plane flight faster than sound, would likewise have been startling to their predecessors of 1900. " Then it was," said Professor Aklande, " that the horse tram was the typical mode of travel along streets lit by naked gas burners, when the bicycle was still regarded as a dangerous form of locomotion. To these pioneers of 1900 even stories of the charabanc and the aeroplane would have been unbelievable."

Reviewing recorded history, Professor Aklande submitted we had witnessed the third of three great material events which might justifiably be called " epoch-making."

The first was the discovery of agriculture some 11,000 years before Christ, prior to which men had wandered in small tribes, killing and picking from wild nature. " With the discovery of agriculture he could for the first time settle down in large and sometimes civilized communities. Yet these communities, said the President, " were all ' muscle-driven ' with man depending for his power on the muscles of his wife and animals with slight assistance from wind and stream."

" The second great epoch-making material event was the conquest of power culminating in the harnessing of atomic energy to give nuclear fuels millions of times more energetic than chemical ones. This, by making war unprofitable for victor and vanquished alike had brought about

Continued on page 3 column 3

Senator Upsilon's Proposal *continued from previous page*

The senior executives of the Corporation are among the most respected personalities on the planet, and the presence of even comparatively junior officers is welcome on the committees of such bodies as county councils, playing fields associations and temperance societies. The general esteem in which the senior executives are held is clearly reflected in their incomes, which compare not unfavourably with those of the more enterprising property speculators.

It was, therefore, with some surprise that, early last year, people read in the press a letter from Senator Upsilon, one of the Federation's most distinguished legislators, which seemed to question what most people had come to regard as the normal, even the natural, state of affairs. The Senator's letter was thoughtful, not condemnatory in tone. She did not question the competence of the Corporation in the day to day running of its vast and complex enterprise. Nor did she doubt the efficiency and integrity of those in charge, many of whom she was privileged to number among her personal friends. But, she asked, was it not time to consider whether it was right *in principle* for a semi-autonomous body of this kind to occupy such a dominating position? She admitted that there was no sign of abuse of that power at present, but wondered what guarantee there was that this happy state of affairs would continue indefinitely.

This was the main point the Senator made, but there were others. For example, she wrote, was there not perhaps a danger of the Corporation becoming scientifically and technically complacent? As far as she was aware, no new type of reactor had been built for nearly three years, and no new design-study embarked on for at least six months. Again, some of her industrialist friends had been heard to complain that the high salaries which the Corporation was able to pay tended to draw the best men away from other branches of industry, with serious effects on the efficiency of those branches. In these critical days, when exports were so vital to our very existence, this was a serious matter. The recently published figures on the balance of payments position with Jupiter were surely a clear warning, she said.

Senator Upsilon went on to propose a solution. She submitted, in all deference, that what was required was, essentially, closer control by the Federal Government. To this end, she suggested, the Corporation's Charter should be annulled, and the entire enterprise become either a separate government department, or possibly part of an existing one. In this way, the affairs of the organisation could be kept under closer scrutiny than was possible with the existing arrangement, and the advice and assistance of other experienced departments, particularly of the Treasury, would be at its disposal. New ideas would be stimulated by closer association and friendly rivalry with other government research efforts, notably the Stellar Power Project. The staff, she considered, should be transferred to appropriate civil service grades, with effective safeguards for their rights and interests.

The publication of this letter roused much controversy, and a long correspondence in the press eventually led to debates in both chambers of the Federal Assembly. The Government, as was natural, defended the existing arrangement with great skill and determination, but had no small difficulty in countering the arguments of the Opposition, which had naturally decided to endorse the Senator's proposals.

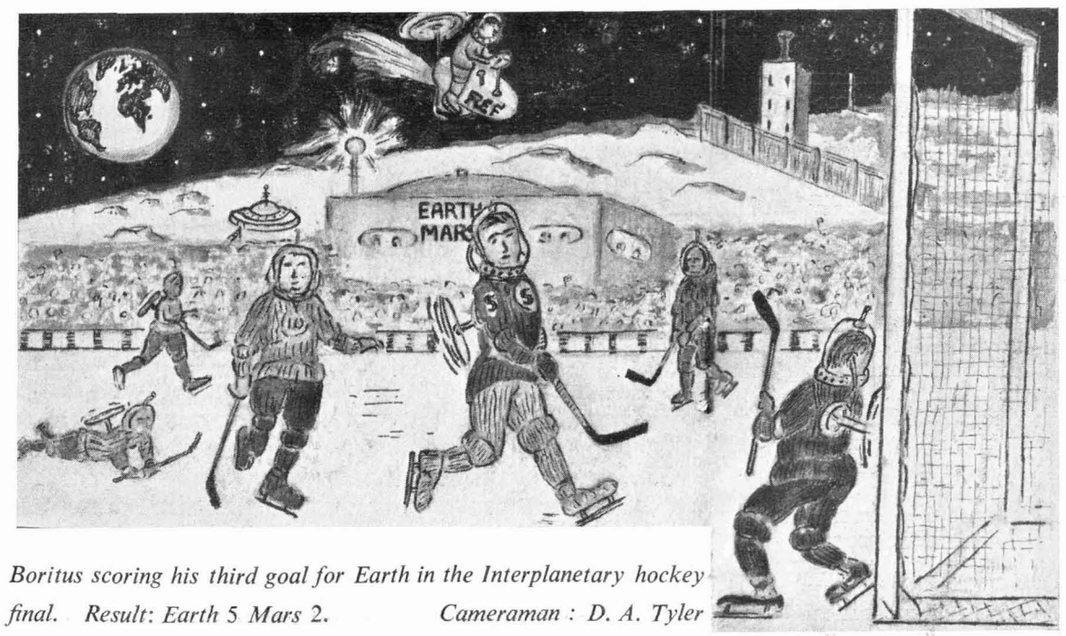
The Government, however, won both divisions by substantial majorities, and there the matter rested until last week, when, as already reported, the Government was defeated on the issue of whether spaceship ground crew should receive more or less remuneration than algae cultivators. In view of the new Government's earlier support of the Upsilon proposals, there is now much speculation in political, industrial and scientific circles, as to the future fate of this great basic industry. M.G.

The INTERPLANETARY Times

EARTH EDITION

FOR RELIABLE NEWS

TUESDAY 1st APRIL 2,074



Boritus scoring his third goal for Earth in the Interplanetary hockey final. Result: Earth 5 Mars 2. Cameraman: D. A. Tyler

THE PROBLEM OF OUR AGE

Report of the P.S.I.

Speaking at the Annual Meeting of the Psycho-Somatic's Institute today, Dr. Roberto Wilde referred to the anxiety, uncertainty and tension which characterise the 21st century. While life itself was now geared to a pace unthinkable in the 20th century, man's supply of nervous energy and his resistance remained much what they were. In short, while our stress and anxiety had been multiplied a thousand fold with our growing control of the forces of Nature the human framework and human nature remained virtually unchanged.

"Is it therefore surprising," asked Dr. Wilde, "that the most important branch of medical study was that of psycho-somatics in which the emphasis was not simply on the body alone, or even on the mind with its power to affect the body, but on the social and environmental setting with its prodigious effect on both mind and body? The typical diseases of our age are those suggestive of strain, tension and foreboding for high blood pressure, heart trouble and digestive disorders are universal."

Referring to the problem of our age, Dr. Wilde said that this was not simply that of living strenuously twenty-four hours a day for most of us were accomplishing this whether we wished it or not. The problem was rather that of making the twenty-four hours of the day liveable, of how to ensure the present pace and stress of things, and yet possess our own selves in serenity and poise.

For some, suggested Dr. Wilde, recuperation may come from a nearer acquaintance with Nature in her quieter moments: one day spent in the solitude of outer space may do more for us than many tonics and the like. In the Lunar hills and mountains may be found great opportunities for withdrawal and refreshment for there is an exhilaration about the Moon's mountain peaks that offer both exultation and tranquility.

Dr. Wilde said that he had for a long time prescribed fishing for his patients: "Those who are acquainted with old Isaak Walton's 'Compleat Angler' (*abridged edition by Mars Digest Co.*) will not need to be reminded what a world of tranquility and recovery lies in the restful watching of a float bobbing up and down on the surface of a canal." D.A.T.

Three Epoch-Making Events *cont.*

an era of peace made more prosperous by the momentous industrial advances."

"Then," said Professor Aklande, "had come the third epoch-making material event in the life of man for, by the application of nuclear power to rocket propulsion, man had ceased to be 'earth-bound,' but with the final conquest of space had reached out into the furthermost recesses of the universe." D.A.T.

STOP PRESS

TEST MATCH

Pluto 279 for 14 (declared)

3,000 Years After *(Reproduced, without permission, from the Interplanetary Times)*

Black fossilised plant remains have hitherto been a geological curiosity of the New World known as "Coal". The recent discovery of deep seams in a number of places offers an interesting alternative to the production of power from fission. Some of the places where coal has been found show indeed signs of previous exploitation by prehistoric men who, however, probably used it for jewels and to blacken their faces at tribal ceremonies. Prof. O. R. Frisch of the Cavendish Laboratory sends us the following comments:

" The power potentialities depend on the fact that coal can be readily oxidised, with the production of a high temperature and an energy of about 0.0000001 Megawattday per gramme. That is, of course, very little, but large amounts of coal (perhaps millions of tons) appear to be available.

Design of a Coal Reactor. The main problem is to achieve free, yet controlled, access of oxygen to the fuel elements. The kinetics of the coal-oxygen reaction are much more complicated than fission kinetics, and not yet completely understood. A differential equation which approximates the behaviour of the reaction has been set up, but its solution is possible only in the simplest cases.

It is therefore proposed to make the reaction vessel in the form of a cylinder, with perforated walls to allow the combustion gases to escape. A concentric inner cylinder, also perforated, serves to introduce the oxygen, while the fuel elements are placed between the two cylinders. The necessary presence of end plates poses a difficult, but not insoluble, mathematical problem.

Fuel Elements. It is likely that these will be easier to manufacture than in the case of fission reactors. Canning is unnecessary and indeed undesirable since it would make it impossible for the oxygen to gain access to the fuel. Various lattices have been calculated, and it appears that the simplest of all—a close packing of equal spheres—is likely to be satisfactory. Computations are in progress to determine the optimum size of the spheres and the required tolerances. Coal is soft and easy to machine ; so the manufacture of the spheres should present no major problem.

Operation and Control. To start the reaction one requires a fairly high temperature of about 988° F ; this is most conveniently achieved by passing an electric current between the inner and outer cylinder (the end plates being made of insulating ceramic). A current of several thousand amps is needed, at some 30 volts, and the required large storage battery will add substantially to the cost of the installation.

There is the possibility of starting the reaction by some auxiliary self-starting reaction, such as that between phosphine and hydrogen peroxide ; this is being looked into.

Once the reaction is started its rate can be controlled by adjusting the rate at which oxygen is admitted ; this is almost as simple as the use of control rods in a conventional fission reactor.

Corrosion. The walls of the reactor must withstand a temperature of well over 1000° F. in the presence of oxygen, nitrogen, carbon monoxide and dioxide, as well as small amounts of sulphur dioxide, and other impurities, some still unknown. Few metals or ceramics can resist such gruelling conditions. Platinum with a thin lining of nickel might be an attractive possibility, but probably solid nickel will have to be used. For the ceramic, fused thoria appears to be the best material.

Oxidant. Pure oxygen is of course ideal, but costly ; it is therefore proposed to use air in the first place. However it must be remembered that air contains 78% of nitrogen. If even a fraction of that combined with the carbon of the coal to form the highly toxic gas cyanogen this would constitute a grave health hazard.

Health Hazards. The main health hazard is due to the gaseous waste products. They contain not only carbon monoxide and sulphur dioxide (both highly toxic) but also a number of carcinogenic compounds such as phenanthrene and others. To discharge those into the air is impossible ; it would cause the tolerance level to be exceeded for several miles around the reactor.

It is therefore necessary to collect the gaseous waste in suitable containers, pending chemical detoxification. Alternatively, the waste might be mixed with hydrogen and filled into large balloons which are subsequently released.

The solid waste products will have to be removed at frequent intervals (perhaps as often as daily), but the health hazards involved in that operation can easily be minimized by the use of conventional remote-handling equipment. The waste could then be taken out to sea and dumped.

There is a possibility—though it may seem remote—that the oxygen supply may get out of control ; this would lead to melting of the entire reactor and the liberation of vast amounts of toxic gases. Here is a grave argument against the use of coal and in favour of fission reactors which have proved their complete safety over a period of several thousand years. It will probably take decades before a control system of sufficient reliability can be evolved to allay the fears of those to whom the safety of our people is entrusted."

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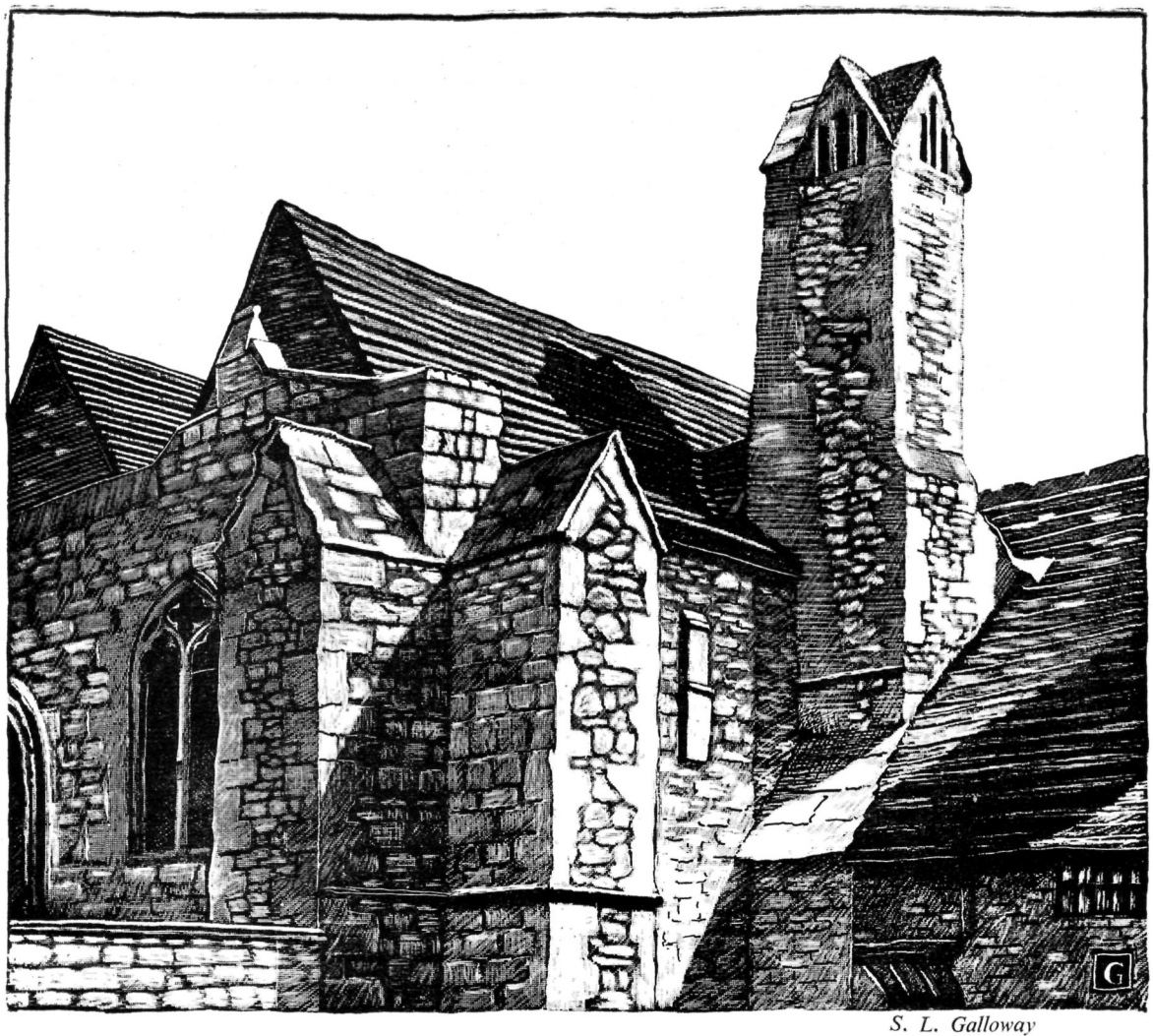


S. L. Galloway

ABINGDON ABBEY

Of this great Foundation very few buildings remain today. Apart from St. Nicholas Church, St. John's Hospital (now Council Offices), and the Abbey Gateway connecting the two, the only other fragments are the Checker, the Long Gallery, and the Barn (since converted into cottages) along Thames Street.

The 'ruins' in the Abbey Gardens have nothing to do with the Abbey, though they may have been made up from debris left behind when the Abbey was demolished by the Reformers.

Abingdon Abbey was first founded in the latter part of the 7th century by a Saxon nobleman named Hean, who before the year 700 took the habit and became the first Abbot. The community suffered greatly in the constant wars between Mercia and Wessex, on whose borders it lay, and in 955 the now derelict monastery was given by King Edred to Ethelwold, a monk from Glastonbury. From this date the Abbey has a continuous history right down to the suppression of the Monasteries under Henry VIII. Abingdon Abbey surrendered to the King on 9th February, 1538.

The Abbey Church was particularly fine and is said to have resembled Wells Cathedral. Today every vestige of the Church has gone, and excavations in 1922 revealed that even the foundations had been dug out !

A foundation so large required many offices. Along or near the present Thames Street were the brew-house, malt-houses, granary, bake-house, almonry, stables, etc., and astride the stream the corn and the fulling mills. A corn mill still stands where the earlier one probably stood. The Abbey Hostel occupies the site of the Cosener's Inn, or Kitchener's House, which was approached through the Cosener's Gatehouse.

Our picture is of the Checker (or Exchequer) with its lovely 13th century chimney. Such chimneys are rare, and this one at Abingdon is certainly the finest and most beautiful in the country.

TO MULTITUDES OF MEN*

Take a motley assortment of men (or women) in all walks of life and of different political creeds, but infused with the desire to make this world a bit better place for their being in it ; put in a generous helping of good humour and fellowship, add the milk of human kindness, let the whole lot simmer for a bit, and you probably have an interdenominational Christian body which can do a power of good work. Such a mixture is the organisation known as Toc H.

Changing the metaphor, one can say that the shallower roots of Toc H go back some forty years when a remarkable parson, known affectionately as " Tubby " Clayton set up a rest house behind the lines in Poperinghe, near Ypres. Men of all ranks and from all walks of life came, and many left after making the discovery that before God all men are equal, and that rank and class and colour and creed aren't so important after all. There must have been a tap root reaching down nearly two thousand years, for Toc H did not die after the war, nor did it become another Old Comrades Association ; but in peace time it became an organisation of men and women of goodwill striving to reconcile man with man and man with God. Branches and residential houses (called " Marks ") were set up in this country and abroad. There are about fifteen hundred of them, representing about thirty thousand men and women. Not a vast number, but it represents jobs of service and acts of fellowship quietly and almost furtively performed. You will find Toc H members helping the old folks, visiting hospitals, running clubs for the blind, helping with Scouts, Boys' Clubs, the British Empire Leprosy Relief Association—to whose service in Africa several Toc H men have dedicated themselves—and many other jobs that can only be done in the spirit that service is the rent we pay for our room on earth. Overseas there are clubs for the service man and woman, at home there are for instance the Talbot House Seafaring Boys' Club at Southampton which gives friendship and guidance to boys in the Merchant Navy, and the Toc H Wendover Club where there is sleeping accommodation for relatives visiting R.A.F. apprentices in the hospital at Halton.

Talbot House, Poperinghe, was known as " Everyman's Club," and today Toc H is open to every man, a powerful antidote to the "Pull up the ladder Jack, I'm aboard " mentality of this mechanical age. The Toc H compass—to love widely, to build bravely, to think fairly, to witness humbly—is a simple statement of the Christian way of life. Within the fellowship of Toc H men and women find themselves to be of value to the community ; the things that divide them become less important, and they find that the other chap isn't so bad after all.

Toc H has branches around here—at Oxford, Abingdon, Compton and Witney. There will probably be a branch of the Women's Section in Abingdon before this article appears in print, and there are great hopes for a start in Wantage. If the ideas you may have gathered about Toc H make you want to do something about it, rout out a member and get him to tell you more, or write to Toc H Headquarters, at 47 Francis Street, London, S.W.1.

R. A. FAIRES.

* The title is taken from the Main Resolution of Toc H:

" Remembering with gratitude how God used the Old House to bring home to multitudes of men that behind the ebb and flow of things temporal lie the eternal realities."

ART NOTES : The Technique of Scraper Board

The picture of the Checker was executed on a white, patterned board. First the silhouette outline was traced down from a pencil drawing on thin paper, and transferred to the board, and the whole of the silhouette blacked in with Indian Ink and allowed to dry. When dry the back of the tracing was chalked, and the ' internal ' outlines transferred to the board by going over the right side of the tracing with a hard pencil.

The actual scraping of the original china clay deposit was now carried out. First the well lit face of the chimney was tackled to set the depth of tone. A No. 15 scalpel was used for the whole of the work. Gentle scraping with the tool removes a thin film of black and leaves a series of fine white dots. Subsequent scraping enlarges the dots, and it is thus possible to get gradation of tones. Hard pressure will cut right through the pattern and leave a pure white tone. This will be noticed on the two areas at the base of the chimney.

The advantage of this method is that a drawing can be reproduced by means of a line block, which is comparatively cheap, and yet obtain a result similar to that obtained by a half tone block such as is used for reproducing photographs, and which is expensive. The excellence of the results obtainable is limited only by the skill of the artist, and a close look at the daily papers and periodicals will reveal pictures done in this way which are almost indistinguishable from photographs.

A.E.R.E. Camera Club.

The Club has a membership of over a hundred, and during the winter has a meeting about once a fortnight. The meetings may be lectures or film shows, or just a get-together of a few of the members to discuss photographic topics. To cater for people who have no darkroom facilities of their own, a fully equipped dark-room is available, with all the equipment necessary for the production of quality prints or holiday snap-shots. During the summer the Camera Club runs trips to places of photographic interest, such as the factories where films or lenses are made, or to local beauty spots. The high spot of the year is the annual Exhibition held on Sports Day, when the members' work is on show to raise funds for the Recreational Association. An added attraction to the 1953 exhibition was a showing of colour transparencies produced by members of the Club. A further activity of the Club is the portfolio group, each member of which submits a print to be circulated in the group for criticism and comments of others. This is a useful way of finding out what is best or worst in a picture, and the hints on technique which come to light are often interesting.

The Club still needs keen photographers as members, who will make an effort to support the Club's activities, and the members of the committee will be glad to meet prospective members. Secretary : M. Pattison.

M.P.

RECENT RECREATIONAL SUCCESSES

The A.E.R.E. team won the Civil Service Rugby Football seven-a-side competition. In the final we defeated R.A.E. by 8 points to 3.

The Staff Club B Billiards and Snooker teams won the cups in both games in the Didcot and District League.

The Bridge Club, for the second successive season, beat both Oxford and Cambridge Universities.

EFFLUENT ACTIVITY

by R. H. BURNS

Many excellent reasons have been given why the Atomic Energy Research Establishment was sited at Harwell, but the easy disposal of unwanted waste is not one of these. In fact it is difficult to think of another area in which such disposals would be more difficult. Years ago the greatest problem was what to do with used razor blades ; to-day the problem of waste products of shaving has given way to that of the waste products of Atomic Energy.

To understand fully the problem at Harwell it must be appreciated that large quantities of potentially dangerous solids and liquids cannot be disposed of indiscriminately. It is not normally possible for example, to spread such liquids over the ground or to dig a large hole and pour them down. The recognised procedure is the controlled discharge to a river, canal or to the sea. At Harwell the only possible local outlet was, and still is, the river Thames.

Again buried solid matter can be attacked by rain water, and it is possible that certain radioactive isotopes present could be leached out. Harwell is in the Thames catchment area, and much of the rain which falls in the district and which does not appear in local wells eventually finds its way into the river.

It is well known that the river Thames is the main source of London's drinking water, and without this the capital could not exist. It is no wonder therefore, that the proposed siting of A.E.R.E. caused some concern to the official bodies responsible for the purity of London's water. Their argument that A.E.R.E. could be moved, but it would be somewhat difficult to move London, was perfectly valid. However, it is gratifying to note that their requirements have been satisfied in every detail.

It is interesting reading to search through the old files and be reminded of some of the early schemes for liquid disposal. One proposal was to transfer all effluent to tanks fitted with soluble plugs, and dump at sea. Another was to tanker it to the Welsh or Cumberland coast and discharge by Pluto pipes some 5-10 miles out to sea. The present effluent arisings are about 300,000 gallons per day, if all this had to be tankered there would be quite an increase in road traffic !

Later it was realised that most of the effluent would have to be discharged to the Thames, but it was still considered that :—" effluent from Building 220, the pile laboratories, etc., will be too active to go to the Thames, and as it will contain tracer amounts of plutonium it would, in any case, be inadvisable to do so."

Having by elimination, accepted the Thames as the only outlet, the next step was to satisfy all concerned that no hazard would be created. The Medical Research Council was asked to lay down drinking water tolerances for the most common radio isotopes ; these tolerances are based on the assumption that everyone drinks about half a gallon of water each day and lives for 100 years. Having been informed of the figures, it was the responsibility of A.E.R.E. to see that the levels were never exceeded in the Thames. The effluent system had then to be planned to ensure that complete control could be exercised at each stage. In those early days, a time of little experience in this new field, the problem was a difficult one and as Col. Fisher said in 1948 " . . . . it has meant we have had to provide facilties for dealing with effluent which, besides being extremely costly, may prove in the future to be over elaborate." In tribute to the early pioneers, let it be said that if the plant was to be designed today, some 7-8 years later, very few alterations would be made.

Any sins that were committed were sure to be found out, since officers of the Ministry of Health, the Thames Conservancy and the Metropolitan Water Board were trained in the art of radioactive effluent analysis, and they were in a position to satisfy their authorities that a complete check was being kept on " Harwell activities."

The system of control practised today is essentially that envisaged in the early days. Workers in the laboratories or process rooms are given suitable containers into which they are asked to place the radioactive waste liquors. These containers, when full, are collected and the contents treated or stored. All other water from radioactive areas is taken to delay tanks and collected.

When a tank is full, the contents are sampled and tested, and from the results of the tests a decision is made as to the destination of the liquid. If the activity is high the liquid is removed to the treatment plant by special tankers, otherwise it arrives there via the main active drain which serves the whole of the Establishment.

The delay tank system thus serves as the first test point, and in order to ensure the minimum flow of liquid, sinks connected to the smaller

River Mud Sampling at Sutton Courtenay (*Crown Copyright Reserved*)

type of delay tanks are fitted with spring loaded taps. This is not entirely foolproof as was demonstrated by the young lady chemist who by the use of a little ingenuity and a good deal of selotape provided herself with a free flowing tap, and the establishment with an overflowing delay tank.

At the treatment plant the days arisings are batched, sampled, tested and treated. The whole idea of treatment is to transfer the activity in solution to a solid phase in the expectation that the solids when separated will be easier to store or dispose of than would a large quantity of liquid effluent.

Disposal of the low activity sludge takes place at a recognised dumping ground at sea, the operation being in charge of an officer who is a good sailor, so that he does not add materially to the amount dumped !

After treatment and removal of the solid matter, the effluent is again tested. If the results show that the required decontamination has been achieved, permission is granted for discharge to the Thames. At this stage two further samples are taken ; one for the radiochemical Inspector of the Ministry of Housing and Local Government and one for the Metropolitan Water Board. The approved effluent is pumped from the final tank to a Break tank situated on the highest point locally and from there it flows by gravity through an 18in. main six miles to the Thames at Sutton Courtenay, where it is discharged from one of three sparge pipes which span a backwater. The outlet nozzles are so arranged that the liquid is discharged into the most turbulent area as the river water tumbles over the specially built weir, so that maximum mixing and aeration are obtained. As the effluent is discharged to the river, a last sample is taken, making it possible to compare what goes out of the pipe line with what has been put in.

In addition to all the other tests periodic samples are taken of the river mud and water below the discharge point, in order to establish that no build up of activity is taking place. Further, at Day's Weir, approximately 7 miles downstream, a special sampling station has been erected where continuous sampling devices are available.

A few extracts from the Thames Conservancy Acts will give some idea of the difficulties which may be met ; for example it is unlawful to

(a) Unload, throw, or put or cause, or suffer to fall any gravel or any substance which

has been used as ballast or any stones, earth, mud, ashes, dirt, refuse, soil or rubbish into the river or into any tributary so as to tend either directly or in combination with similar acts of the same or other persons to impede the proper flow or be detrimental to the purity of the water of the river or any tributary.

(b) Wilfully cause or knowingly suffer any oil or tar or sewage or **any** offensive or injurious matter, whether solid or fluid, to flow or pass into the river or into any tributary.

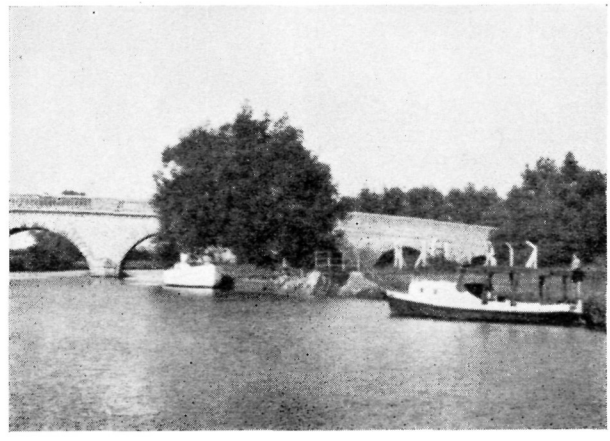
All the precautions mentioned ensure that the discharges to the Thames cannot possibly create a hazard. An interesting story for which there appears to be every justification is that some Swedes required low back-ground water for their experiments. Being unable to find any in their own country, they sent a tanker and took back a load of Thames Water.

In addition to the known active effluent, provision is made for surface water, sewage effluent and Trade Waste to be diverted into the active effluent system should they prove to be radioactive.

Since the 10th of February 1948, when the first discharge took place, to the present day, the effluent system has never got out of control. There have been minor mishaps and alarms, but all have been resolved without too many sleepless nights. The joint efforts of officers of many divisions, and outside authorities has made this good record possible. In January 1948 the 'Daily Herald' reported "Five institutions have collaborated to ensure that Londoners and other Thames-side dwellers shall not suffer from 'atom-tummy'." Let us hope that this complaint will remain as mythological as hitherto.

HOLIDAY *on the* THAMES

by H. A. C. McKAY



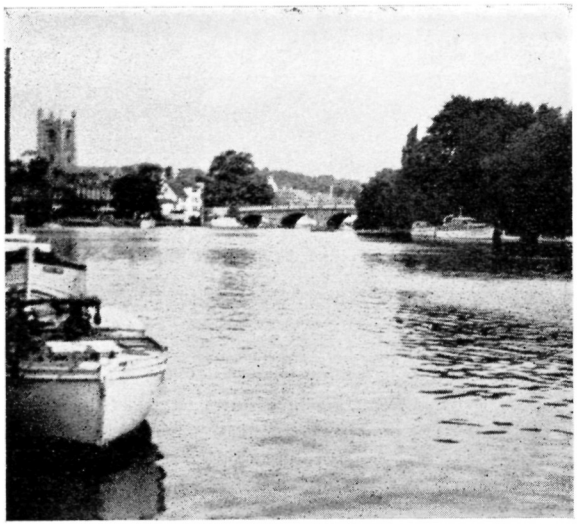
Eynsham

We took a motor cruiser for a fortnight. She was sound rather than stylish, being, we were told, a converted lifeboat. She had a motor-car engine, and she would do 7 m.p.h. all out, besides providing hotel accommodation for the three of us—Cymro the Corgi puppy (who was inclined to mutiny), Hilda my wife, and myself.

We embarked at Abingdon Bridge at 11.30 a.m. on a Sunday. I started the engine, Hilda gave a push-off with the boat-hook, and very gingerly I let in the clutch. "This is it!" I said. For the next fourteen days the cares and responsibilities of Harwell and Fitzharry's would be left behind. If we were wanted urgently, nothing short of telegraphing every lock-keeper, an announcement on the B.B.C., or a fluke would find us.

"Carefree" is nevertheless not entirely the right word to describe our life afloat. There was Navigation. We were ready if necessary to give four short hoots, meaning "I am out of control," but that was only as a last resort and could not anyway be relied on to save us from the weirs.

A boat is not like a car. If you want to stop, you can't just put the brakes on. If you want to turn, it is not always enough merely to adjust the rudder, for you have to allow for wind and for current. You have also to watch for shallows, fortunately rare in the Thames,



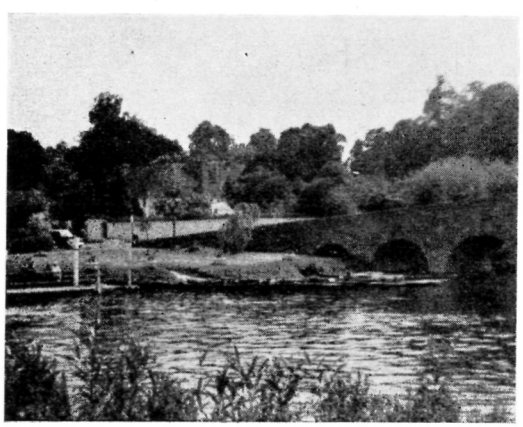
Henley

where you might run aground. (I once crossed the Mersey in an aircraft carrier with the full tide running. It took an hour of patient, skilful manoeuvring, which I am now able to appreciate to the full).

The beginner's biggest ordeal is his first lock. The first time you moor, you can do it alone in a quiet spot (though a Thames Conservancy launch passed us with a grin just as we got in a jam), but going through a lock is inevitably a public affair. We had lunch to raise our morale before tackling Culham. Fortunately lock-keepers are kindly, helpful men, responsive to praise of their indeed excellent gardening ; moreover it is easier to go down a lock than up it. So we emerged safely into the lower reach.

After a day or two, we had sufficiently mastered Navigation to enjoy the beauties of the Thames. And it *is* both lovely and varied. God has blessed our land with some of the most charming scenery in the world, and our forefathers' care has enhanced that heritage. We saw practically nothing ugly apart from a short stretch in Reading and a longer stretch in, I regret to say, Oxford.

Sonning



When we planned our holiday we visualised long, lazy hours, so we took reading matter and a portable wireless set with us. Actually our days went something like this :

Getting up	8—8.30 a.m.
Meals (including mooring, preparation and eating)	8.30—9.30 a.m., 12.30—2 3.30—4.30 and 6—7.30 p.m
Under weigh (including washing up)	11.30 a.m.—12.30, 2—3.30, 4.30—6 p.m.
Shopping	10.30—11.30 a.m.
Turning in	8.30—9.30 p.m.

If you work that out you'll see we had an hour for quiet meditation in the morning, and another hour after supper. You will also note that we washed up under weigh. That was because the engine, while running, provided constant hot water.

Here are a few facts to help anyone who may be contemplating a Thames holiday themselves. The fortnight cost the two-and-a-dog of us about £40 inclusive of everything ; however we hired our boat privately, and in the ordinary way we should have paid perhaps £10 more. With a larger party you naturally reduce the price per head, besides having more deckhands.

Crew of the Nevjan

We averaged about ten miles a day and ten miles to the gallon. Every meal but one we prepared on board. Supplies—milk, bread, petrol, etc.—presented no great difficulty up to Oxford ; we found we could get all we wanted from the riverside towns and villages. But above Oxford we had to plan more carefully because the villages are some way from the river. Downstream, on the other hand, we began to run into another problem, particularly around Henley ; there are so many privately owned river-frontages that it was sometimes difficult to find a good spot to moor for the night.

Although the days were full, our chores did not weigh heavily on us. There was seldom any strict necessity to move at all, apart from the morning shopping so we never lost the sense of freedom which is one of the keys to a good holiday. Often we went as slowly as the engine permitted, letting the banks glide lazily by, while other craft overtook us as they chose. And the wireless set was not altogether wasted, we used it to tell the time !

HARWELL CHARACTERS No. 1. "JOCK"

Drawn by A. Humphries

Jock is a familiar figure, riding about on his ice-cream tricycle ; he may not be the site's oldest inhabitant, but he has been here longer than most of us, since early 1947 in fact.

Jock was born in Edinburgh, but didn't get far away until 1939, when he took the King's Shilling and travelled south. He'd always had an eye for the form book, horses or the pools, and any man who can unscramble the mysteries of weights and handicaps, distance and going, finds that Bradshaw is child's play, so the War Office, with one of its rare flashes of insight, dropped him into an R.T.O's office and there, quite happily, he stayed. York . . . Carlisle . . . Reading . . . , up and down the country until, toward the end of the war, he was posted to Didcot Station, and from there he was demobbed.

Having, during his few months stay at Didcot, found a liking for the Berkshire way of life, Jock foreswore the delights of ' Edinboro ' for the lights of Didcot. For a few months he worked at the M.U. at Milton, but early in 1947 he transferred to Harwell, and has been here ever since. First of all, he went to work as a storeman, but that, regrettably was not a success. Jock was always too keen to issue things, and this offends against the first rule of the storekeeper's code. So to Building 47, where, in the early days, Engineering Division had an outpost.

There he stayed for about a couple of years, sweeping, cleaning, fetching and carrying. Most of all, though, he made tea. Twice a day, morning and afternoon, he carried round his teapot, like a doctor's little black bag, giving birth to all the gossip and scandal. Of course, there is always danger in having tea brewed up in a research lab. ; once a scientist was working late, and urgently required a large receptacle. The usual offices being closed, he had to raid Jock's glory hole, and borrow the teapot, returning it, without comment, later the same evening. Strangely enough, no one passed any comment until a week later when the brew had returned to normal.

So much did he become a carrier of the news and views, that it was no great surprise when he decided to regularize the position, and to take up a vacancy in the messengers. He was fortunate enough to effect this change at a time when one of the larger ice-cream concerns was mechanising its delivery fleet, and the afore mentioned tricycle, one of their surplus of such vehicles, made him an ideal mount. It is not an easy job, carrying round vast loads of learning ; those machines have, as the Air Force used to say in the days of radial engined fighters, a built-in headwind, and in anything more than a gentle breeze they are quite unwieldy. More than once Jock has been seen going back to the library when he was facing towards 220.

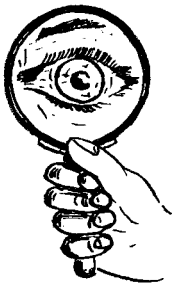
So it goes on—a learned work for Dr. A., a tip for the 2.30 for some richer fellow—most of us are satisfied with what he gives us, one way or another. Someday, perhaps, as we all grow older, and sit in our offices reading what other people have done, rather than doing it ourselves, the load will become too much for him. Then he'll get a little battery van, with an electric motor to do all the work, as he steals along the road without a sound, cased from the elements like a goldfish in a tank.

That is progress. But the happiest memories will always see him behind a teapot.

BLARNEY BLOWER'S COLUMN

Not long ago I met an old man who travelled Watling Street driving a steamroller for a firm of contractors, that had bought a roller secondhand from a Lancashire town council. It proved cheaper to move the machine under its own steam than to allow the railway company to do the job, although forty miles a day was the limit. So, with caravan in tow, he set out ; each night's camp had to be near a water supply for the roller and a pub to supply the engineer. Advice, and occasionally a reciprocal helping hand, were given at any interesting " roads under repair," and the journey took three and a half weeks.

Can any reader lend me a roller for the summer holiday?



PROOF READERS' COMPETITION

With bags of ice perched precariously on our head, surrounded by bottles of pick-us-ups, vitamin pills and other what-nots, we collapse into the editorial chair to report the result of this competition.

The keenness of readers has been most gratifying, and we congratulate them on their industrious efforts. Not satisfied with such ordinary things as spelling errors, they must have remembered the methods of Sherlock Holmes, donned their deer-stalkers, lit their meerschaums, grabbed their powerful lenses and set to work.

It was generally noticed by readers that our good friends the West Anglia School of Motoring had invited us to describe their most excellent fleet as "out of date," but not all readers spotted the 'compere' in Beadle's advert, the 'stationary' in Oxford Educational, Usher's 'Bournmouth, Sales' 'Herbacous' and 'Insectides' and the 'old word' charm for the Old World Charm of Restaurant Elizabeth.

Mr. J. E. Terry sent in the longest and most correct list, and Mr. F. R. Taylor was close upon his heels, only one point behind. To them, therefore, go the first and second prizes of one guinea, and half a guinea respectively. Mr. E. V. Glenn wins one of the special book token prizes, for he alone discovered the confusion of singular and plural in the adverts of Messrs. Eames and Messrs. Hiles and the misspelt name of Messrs. Jones and Stevens. We had thought the last named error would be an easy one as the advertiser's van visits A.E.R.E. daily.

Another special book token prize has gone to an old friend from among our young readers. Miss S. Bretscher, who previously won a prize in our competitions, was on this occasion the only reader who noticed the error in the fount of the "1954" shewn in the advert from Alfred Press.

With regard to the adverts in this issue, once again with the co-operation of our advertisers we have arranged some deliberate mistakes, and on this occasion we announce the total in *our* list as 12 confined to deliberate printing and spelling errors. Errors of grammar and syntax are not included. We thank those business houses who have suggested, or agreed upon, deliberate mistakes for this number.

A first prize of one guinea will be paid to the reader who discovers the greatest number of those on our list, with half a guinea for the runner-up.

There will also be the usual special book token prizes for those who find an error or errors not discovered by any other reader.

Entries to Harlequin Competitions, c/o Central Registry, D.A.E./A.E.R.E., Harwell, Berkshire, before May 31st.

BRITISH COLONIAL STAMP DESIGN

A collection of British Colonial Stamps formed before about 1928, would now seem, to all but the fiercest philatelist, a trifle monotonous ; it would appear, on first inspection, to consist mostly of two designs, varied only in colour, value and name of country. The impression would be correct, for the economically minded Crown Agents made a single design (head plate) do for many territories by the use of different inserts (duty plates). These typically Edwardian, rather florid designs are perpetuated by the latest issue, at the end of February, of the stamps for the Leeward Islands. The stamps are pleasing as long as they do not comprise the backbone of our collection. All this economy is very worthy as long as the purpose of a stamp is strictly utilitarian, but long before 1928 it was evident that in many instances this was certainly not the case. The fact was, and now is even more true, that many small colonies sold more stamps to collectors than ever got stuck on envelopes or documents. It was not then really considered polite to say so, but nowadays you will find it stated quite boldly, as in the report for 1948 on the Turks and Caicos Islands, where the Colony's sound financial position (a bit of a novelty, it seems) is ascribed to the sale of the Centenary stamp set of that year.

Some territories " marked red on the map " had been collector-conscious for a good many years before all this ; the emissions of the British North Borneo State (formerly 'Company') had carried magnificent designs since the end of last century. Dismissed for decades as " school-boy stuff," " gum pap " and " jam labels," they were none the less made to fill a genuine postal need.

The earlier 1930's saw a break with monotony, in the form mostly of a number of hideous " Centenary " sets, which were not popular, and consequently today have cash value in inverse ratio to their artistic merit. However, it was not till after the 1935 " Silver Jubilee " " portmanteau " issue (i.e., the same design for each colony-shades of the key-plates) and the ensuing philatelic boom that the colonial " pictorial " really came to stay, towards the end of the reign of King George V.

The " New Reign " sets of 1937-38 accelerated the trend, as more colonies went after the stamp collector's money with pictorials, mostly of a similar pattern, many rather insipid. After the war came a tendency to even more insipidness on the same general lines ; two colours where one had been, weak pastel shades in place of strong " tapestry " colours, and over-detailed photographs displacing strong, bold, engravings. With notable exceptions there was a general tendency to design a postage stamp as a poster, instead of—well, as a stamp ; a great mistake, for unlike a poster, the poor wee stamp cannot shout.

What is going to happen in this reign is still anybody's guess, though the bulk of the evidence seems to indicate that prettiness is going to predominate. We began very elegantly with the Coronation design, a coloured, mechanically-engraved background framing a black portrait, consciously inspired by the Chalon engravings of Victoria. It is in strong contrast with the British set, which was printed in photogravure (as, alas, must be any issue numbering hundreds of millions, for reasons of cost). We recall the 1/3d. value, which was Edmund Dulac's last effort before he died, and certainly not his best. The free-lance design of Southern Rhodesia, in thoroughly modern idiom, is also a pleasing piece of engraving as the illustration shows.

Turning to the definitive issues now appearing at the rate of about two a month, Trinidad and Tobago provided a big disappointment with their issue which perpetuates " lumpy " designs (" Scenes in Colony ") which have been in use, with change of Royal portrait, since 1935. Mauritius changed to straight photogravure scenes in 1950, so nobody was surprised to see the first seven Q.E. values.

Bermuda provides the first really outstanding set ; she held an open competition, and chose each value individually. This naturally produced a somewhat mixed bag, but on the whole a very successful set. The old Warwick fort on the 2/6 is the best of them all, and the 2/- and 10/- are also very pleasing. The 4½d. and £1 on the other hand are both much too messy. It is strange how often the top value of an otherwise well designed set turns out badly. It seems to be customary to specify the use of the colony's arms, and this, coupled perhaps with other conditions of design, appears to cramp the style of many artists.

Antigua has a conventional set (Scenes in Colony with Royal Portrait) saved from insipidness by sheer elegance ; good lettering, good vignettes and very sparing use of two colour work. The Southern Rhodesian low values provide a good example of how not to do this sort of thing, though the set is redeemed by the excellent portraits on the 5/- and 10/- values (but notice the coat of arms difficulty on the £1). The Aden variation on this theme is pleasing and individual—it does suggest the orient. Our pictures look better than the stamps, which are bicoloured in very wishy-washy shades.

The finest set of all so far, and probably of the whole reign, is that for Nigeria. This illustrates a method of design commission different from that of Bermuda. The whole set was designed by the French painter Maurice Fievet. He has taken the conventional formula for all but one design, but has given it wonderful freshness with his use of a stylized frame design in a contrasting colour. What a difference between this and the hackneyed treatment of the same thing in the case of Nyasaland. If no other good comes of Central African Federation, it will at least kill this abominable set.

There is not space to mention all the sets that have come out already ; mostly the rest are competent and conventional. In conclusion, let us glance quickly at Tonga, rather fresher in people's minds than most other small colonies. Nobody knew quite what to expect, but no one tipped a £1 in no less than four colours ! The 3d. and 3½d. in quite different ways are beauties ; if some of the others are a bit florid, we must remember that they were chosen by Queen Salote herself, probably to please the somewhat unsophisticated islanders, rather than stamp collectors, who must, like farmers and film critics, have something to grumble about.

FRANK STERRY


NIGERIA
3d.


NIGERIA


TONGATAPU
TONGA
3½D


NIGERIA
£1


6d.
IFE BRONZE
NIGERIA


NIGERIA
10/


TWO DOLLARS FORTY CENTS
$2·40
$2·40
LEEWARD ISLANDS


POSTAGE
1½d
BERMUDA


LEEWARD ISLANDS
POSTAGE
& REVENUE
½d


BERMUDA
2/6
POSTAGE & REVENUE


SOUTHERN RHODESIA
2/6
2/6
CORONATION 1953


BERMUDA
2/-
POSTAGE


BERMUDA
10/-
POSTAGE AND REVENUE
10/-

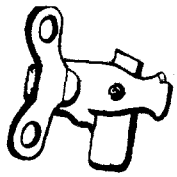

BERMUDA
POSTAGE AND REVENUE
£1
ELIZABETH II


4½d.
POSTAGE
BERMUDA


10
CENTS
MAURITIUS


MAURITIUS
15 CENTS


ANTIGUA
8
CENTS



FROM OUR

Technical Correspondent

In our family my wife does all the shopping. In fact, the last time I was asked to act as her representative was quite a few years ago, when she had some difficulty in buying a new carving knife. A shop near my office supplied me with one, but unfortunately the blade fractured under the bend test (subsequent examination, I remember, disclosed an unacceptably high percentage of non-metallic inclusions in the steel), and in the end she managed to buy one herself.

However, the other day, she told me that tin openers were quite unobtainable locally, and persuaded me against my better judgment to buy one for her in the luncheon break. It would be required, I understood, for breakfast the following day. My responsibility was further increased by the fact that she was unable to supply me with a drawing, but I gathered that any good quality trade pattern would suffice.

"And for goodness sake, don't break it," she said, as I left the house.

The shop had only two patterns in stock. The first was a piece of 3/16 in. bar, one end of which was bent to form a crude handle, and the other slotted. I could see no way in which this device could open a tin, and assumed that some components must be deficient. The second was a more complicated design, in which a wing nut rotated a toothed wheel, and a movable knife actually cut the tin. The method of operation was obscure but I assumed my wife would understand it, and my responsibility was limited to ensuring that the workmanship and material were to an acceptable standard.

The shop had no proper facilities for inspection, so all I could do immediately was to subject the opener to a visual examination and arrange with the shop-keeper that he would replace it if further examination disclosed any faults. He was rather inclined to be uppish, but long experience with contractors enabled me to put him quickly in his place, so I left with the opener and a written contract to the effect that he would refund my one and threepence in the event of the article proving to be defective.

Fortunately my wife had gone out to have supper with her mother by the time I got home, so I was able to proceed at once to my workshop and subject the apparatus to critical examination.

The preliminary visual examination had disclosed no serious defects except that the cutting edge of the knife was inadequately sharpened, a defect common to the other seventy-two openers I had inspected in the shop. I decided to correct this myself before proceeding further with inspection. First, however, I checked the hardness in my home-made Vickers Hardness Testing machine, and to my dismay found that it was dead soft !

My first job, therefore, would be to harden and temper it, but this necessitated removing the rivet which held it ; this also enabled me to plug the rivet holes.

You would hardly believe it, but they differed by .006 in. in diameter and the bores were rough.

I congratulated myself more than ever that my wife was out. What would she have thought if I had accepted an article in this condition ?

After reamering and lapping the holes, I heated the blade to a bright cherry red in the gas cooker, and quenched it in the sink. It was still soft, so I was forced to assume that it was mild steel ! Even when I had ground it, case-hardened it, and finished it on the stone, I was not entirely happy, but decided that it was just acceptable on a concession basis, and I proceeded with the examination of the other components.

I will not weary you with the tribulations I went through. How I magnified the wing nut 25 times on my epidiascope and found it was not truly symmetrical, or the trouble I had with the contours of the teeth on the toothed wheel, which was another component with insufficient hardness figures. Eventually the equipment was serviceable ; all sharp edges and burrs had been removed, and it was correctly assembled and had been dipped in a suitable preservative.

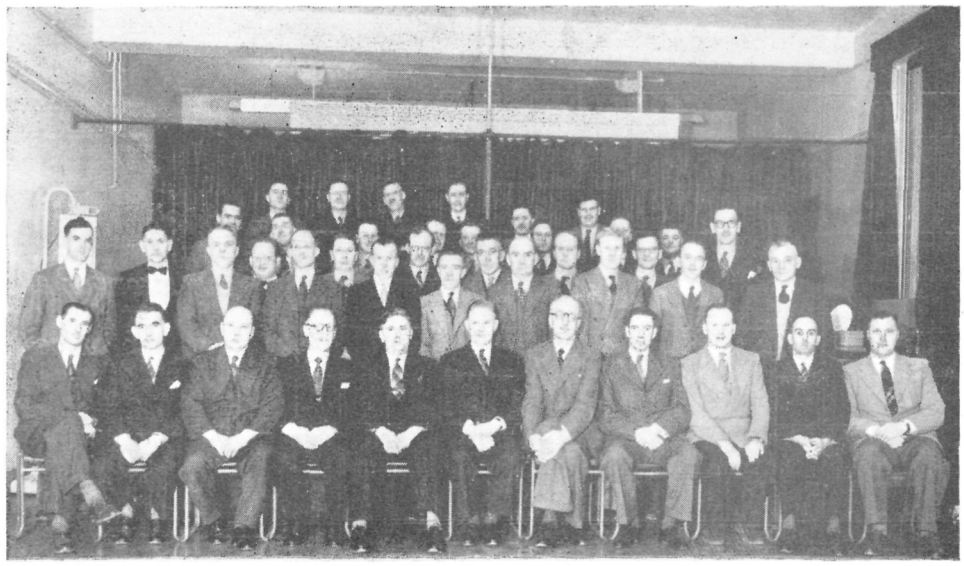
It was after midnight when I was through, and hardly had I finished when my wife returned.

She immediately asked what the smell was, and rushed into the kitchen. It seems that she had left my supper in the oven, and although I explained that I had not had time to think about such things, it was evident that she was considerably put out. Thinking to calm her down, I showed her the tin opener, but her reaction was not at all what I expected.

"I've already got one like that," she said, "Why don't you listen? I wanted one for opening sardines—something like a bar with the end split would have been the thing."

R.W.H.

A WORKSHOPS OCCASION



After eight years as Workshops Manager Mr. H. O. Norwood has retired from that position and on Friday evening the 2nd April, at an informal gathering in the Social Club, members of the staff met to present him with a memento of their association with him and to spend a few pleasant hours once again in his company.

In accepting the gift—a solid silver condiment set—which was presented on behalf of the staff by Mr. M. C. Canning, Mr. Norwood said that when he went to Malvern eleven years ago he went with the prevalent idea of life in a Government Department . . . that the Civil Servant worked, like the fountains in Trafalgar Square, between the hours of 10 a.m. and 4 p.m.

His experience both at Malvern and at Harwell had proved the fallacy of this assumption and he could honestly say that he had worked as hard in the interval as at any time in his fifty years in the Engineering Industry.

The early days at Harwell had certainly called for hard work for, while in the process of building up the Hangar 9 and Laboratory Workshops, getting the right men, machines, tools and buildings, there was also the graphite machining programme, the control gear for Gleep and a cyclotron to be provided and an ever increasing number of scientists and engineers making their demands on the limited capacity.

By the combined efforts of the whole of the staff the Workshops became efficient units in a remarkably short space of time. This was well recognised and appreciated and today the Shops have shewn that they can turn out work of the highest quality, covering a wide range of products, and at a cost which will stand comparison with any similar workshop.

The Design Office and Workshops, continued Mr. Norwood, had now been welded into a well-established team who were able to provide their scientific colleagues with the equipment they wanted both quickly and well.

Mr. Norwood concluded by thanking all for their loyal support during his term of office and asked that it be given in the same measure to his successor, Mr. S. Price and to Mr. R. Gregory.

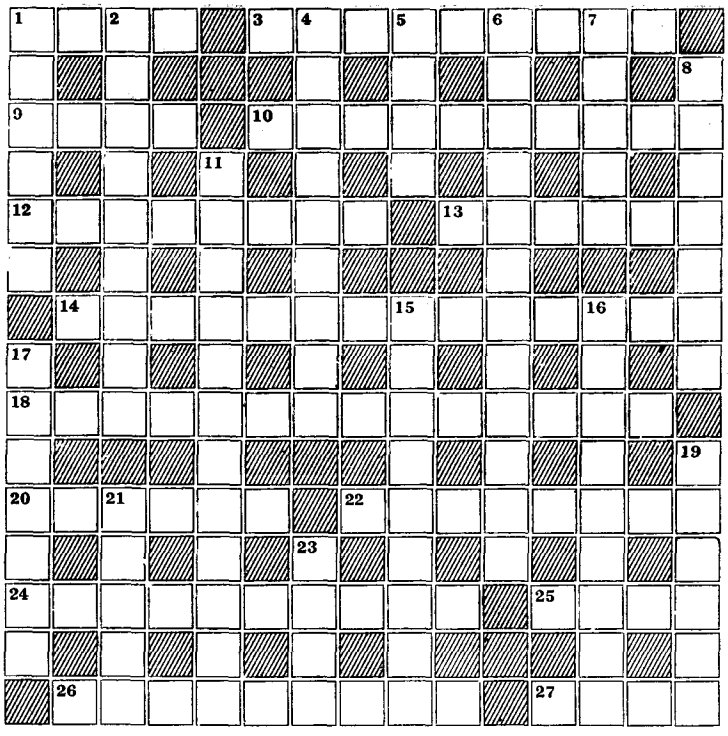
W. Yates, J. Sheldon, T. D. Condon, N. Meadowcroft, J. K. Taylor, W. A. Burden.

F. W. Clamtree, W. L. Sephens, L. Jellyman, W. Lowe, L. R. Simmonds, E. V. Glenn, E. R. Wakeley, D. H. Hitchcox.

A. M. Jones, F. Bevan, C. Clapham, M. J. Hayes, A. G. Rosser, R. L. Spiller, T. F. Barlow.

C. E. McLoughlin, C. G. Peck, E. J. Hiscock, A. Bowie, S. A. Quinton, A. E. Bickley, F. J. Furneaux, G. R. Megson, G. E. Gardner, G. Pollard.

A. E. Nicholls, J. H. Bicknell, T. Farrimond, M. C. Canning, W. C. R. Gregory, P. Bowles, H. O. Norwood, S. Price, G. L. Monks, R. B. Carver, L. E. Hollands.



HARLEQUIN

Crossword Puzzle

No. 12

Compiled by P. G. Dawson, General Physics

CLUES—ACROSS

1. Herb—he's a knowing one ! (4)
3. "A snapper-up of unconsidered trifles." (9)
9. Found in the three drones of the bag-pipes. (4)
10. Push in, suckers ! Here are the cakes ! (3, 7)
12. Cat without all its lives suggests under-development. (8)
13. "The Anglo-Dutch Issue" featuring Bob Tanner and Tizzy. (6)
14. Home of a blind woman. (5, 2, 7)
18. Engines for tots. (6, 8)
20. Noble reduced weight internally—now but base metal. (6)
22. Wearer of hardware. (8)
24. Court poser set by Crown counsel. (10)
25. Bitter source—could be bitter about nothing. (4)
26. Irritability shewn by cricket writers ? (9)
27. Noisy place, according to Caliban. (4)

DOWN

1. Sherpa translated is one who dwells on high. (6)
2. The forest is good round about three directions. (9)
4. Should there be one in a really democratic school ? (9)
5. Clothe with authority in an undergarment. (4)
6. Sloane is a L.C.C. exchange—in the modern style. (12)
7. Enthusiastic—could be a bore. (5)
8. Apart or, apart, as below. (7)
11. Form of transport with the door at the front. (12)
15. Sailor and hotel boy in military wear. (4, 5)
16. Cultivated by snow-ploughs ? (9)
17. Conveyer of de-coked coal. (7)
19. Go back and return it. (6)
21. Sounds like something missing but all is here. (5)
23. Regrettin' the end of the bear. (4)

Half a Guinea will be awarded for the first correct solution opened by the Editor. Closing date May 31st.

Letter from Windscale

To the Editor, Harlequin

In common with a number of former members of A.E.R.E., I moved up from Harwell some time ago, to become part of the Research and Development Branch located here at Windscale. Though not in actual fact so distant from Harwell as, for example, that other "Old Harwellian," Ken Bobin, my present colleagues and I seem to have arrived, in the minds of some of our past associates, at a place which is the ultimate "end" in terms of weather, social amenities and general outlook. This strange conception of life in the north-west corner of England has afforded those of us who are "condemned" to endure it, considerable amusement. For the truth of the matter is that although there are differences between life up here and life say in Abingdon, there is equal opportunity for recreation and relaxation. Similarly, although the scenery and climate may be different all the disadvantages are not with us. This is particularly noticeable in springtime—the best part of the year in this area—when the surrounding countryside takes on an appearance which bears comparison with any other part of the country. The abundance of spring flowers including snowdrops, croci, and, later on, wild daffodils, is an unexpected treat to the newcomer to the district, and the subsequent flowering of honeysuckle in the hedgerows and the really magnificent display of rhododendrons which grow in profusion hereabouts is a delight to the eye.

I certainly miss the rolling downland and the glorious trees which are so much a part of your countryside, but here we have the picturesque lakes and the mountains which are always spectacular whatever the season of the year.

The weather is greatly maligned. This coastal strip enjoys a much more favourable climate than the Lake District proper, the rainfall is of the same order as that in Oxford and the winter is markedly milder than in Abingdon. The fact that we have had two falls of snow in Seascale during this winter has been the subject of much local comment.

In terms of social amenities it is true that we have no Odeon cinemas, Philharmonic Orchestras or the like. Nevertheless for those able and willing to take an active part in the many activities which are available, life can be very full. Of the list of twenty-eight different activities which are sponsored by the A.E.R.E. Recreational Association, we have at Seascale nineteen corresponding activities together with a number of additional ones such as the Cinema Club, Recorded Music group, etc. The focal point for most of these activities is our Windscale Club which has filled a very definite need in this rather small community. Should one still find time hanging heavily on one's hands, the occupations peculiar to this area have much to offer. There are sea-bathing, climbing, walking, ski-ing and skating (when the weather is suitable) and fishing, together with the local pursuits of hound-trailing, wrestling, fell-running, sheep-dog trials, etc., which can be enjoyed as a spectator. But in the main, our pleasures we make for ourselves and herein lies much of the secret of the contentment shown by those who have settled down to his somewhat different way of life.

A real disadvantage is probably more apparent to the ladies than to the men-folk viz. the lack of shopping facilities comparable with those to be found within relatively short distance of Harwell. One has to travel to Workington or to Carlisle to enjoy the kind of shopping which even begins to approach that which was formerly enjoyed by our womenfolk. A second disadvantage which should not however be over-emphasised by comparison with Abingdon or Wantage (which have their own difficulties) is that of schooling. This applies not so much to primary education up to the age of 10-11 years, since a well equipped modern school was provided at Seascale a year or two ago, but to secondary grammar schooling which involves a rail-journey of some twenty-five miles from Seascale. It is the journey which is the bugbear, the schooling itself being reasonably adequate.

So there it is—we may not have all we would wish for in terms of elegant living, but we are removed from those hardships, the supposed existence of which gives rise to so much sincere but quite unnecessary sympathy on the part of our considerate but sadly-misinformed ex-colleagues.

I conclude with all good wishes for the future success of the magazine.

K. SADDINGTON.

Solutions to Harlequin Competitions.

Answers to the Accumulator Competition.

(1) **Who was he ?** William Vincent Wallace (1812-1865).

(2) **Tele Crostic.** "Starting East London investigation-gathering most amazing news. Seligman.

(3) **Where is this ?** A view of the run-way taken from the contractors' gate.

(4) **Acrostic**

H i g H
A d i e U
W i N
KnockouT
ExercisE
R e u t e R

(5) **General Knowledge Quiz**

1. The name of the aircraft in which Charles A. Lindbergh made the first non-stop flight from New York to Paris, May 20-21st, 1927.

2. (a) Amateur Golf
   (b) Yacht racing
   (c) Rugby football
   (d) Polo

3. Sir Stafford Northcote. Sir Charles Trevelyan.

4. (a) William Pitt. (b) Charles II. (c) Sir Walter Raleigh.

5. (a) Jenny Lind (Swedish Singer).
   (b) Primero Carnera (Italian heavy-weight boxer)
   (c) Oliver Cromwell (Lord Protector of England 1653-1658).

6. Psalm 139, verse 13.

What are our ideas for this number ? On other pages you will find details of our popular crossword, and our equally popular proof-reader competition. In addition there is the usual lucky number feature.

NOTE.—As readers do not appear to like sending in an incomplete entry this competition has been replaced in this issue by the new competitions for the younger readers.

Please bring these to the notice of your children. If sufficient interest is shewn, we shall continue with competitions for the younger readers.

AS I SEE IT—*The Editor*

(Some Facts and Thoughts for Discussion at the Annual General Meeting of *Harlequin* to be held in the Social Club at 7.30 on Tuesday, May 18th).

As stated in the Editorial, the aim in publishing the magazine is to interest all concerned with A.E.R.E.

Other activities of the Board, such as the publishing of the Sports Day Programmes, performed last year for the Recreational Association, need to remain secondary, but the Board has already offered to sponsor an Old Harwellian Society and it may be said in passing that as an initial step letters are welcomed from past members of the Establishment. Concerning another proposal, however, that the Board should assist the formation of a Harwell society to concern itself with debates and talks on matters of general interest, this, no doubt, will be one of the proposals to be discussed at the Annual General Meeting. The main function of the Board, however, must remain one of fulfilling the function of the magazine.

And what should that function be ? It should not, the writer feels, duplicate that of the A.E.R.E. News which, although a small news-sheet can with its subsidy appear weekly with up-to-date news-items. Nor need *Harlequin* duplicate the function of the Harwell Bulletin with its official notices of visitors to the Establishment, etc. Yet both publications it can effectively augment.

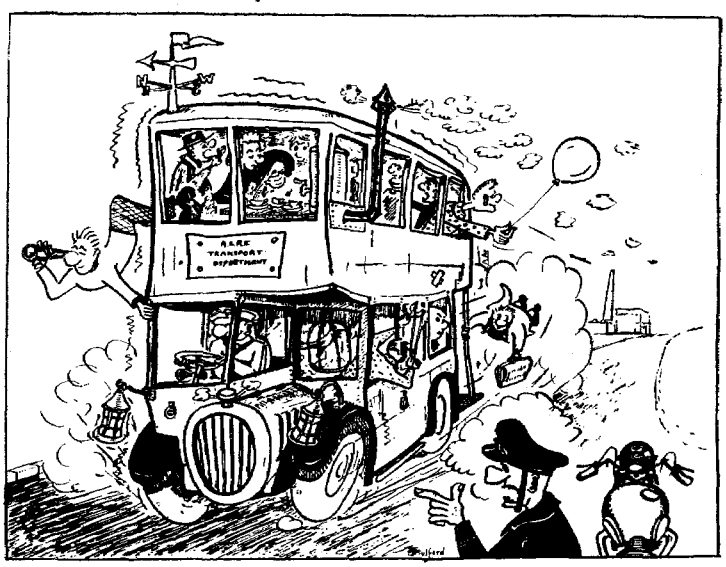
During the past year there has been produced in *Harlequin* information on all of the 30 clubs and societies and this has been brought up-to-date in the 2,000 booklets, produced by the Board for the Recreational Association last month. In *Harlequin*, apart from Recreational activities, space can be devoted also to photographs of distinguished visitors to A.E.R.E. Divisional and Group activities and informative, illustrated articles on the Harwell enterprise itself. Yet balance is important and some pages must be included in which to quote from a review of *Harlequin* in the *Times Literary Supplement* : " the scientist is on holiday and there is not a whiff of the laboratory." To be of general interest, the writer feels, *Harlequin* requires careful tailoring in a costume of contrasting colours.

The magazine must also be financially independent and it may be stated that the net result of transactions with the Recreational Association is that the Association has itself benefited by £10.

These facts need to be taken into account when comparing *Harlequin* with other house publications which may be for organizations without a weekly news-sheet and which may themselves be subsidized either by their Recreational Association or Management.

COMPETITION FOR CARTOONISTS

Half a guinea will be awarded for the best cartoon (or idea for a cartoon) submitted on the theme : " Life at Harwell "—with or without caption.



MAY 31st

Latest Posting Day for **Competition Entries and Contributions** *for the next number*

HARLEQUIN MAGAZINE, C/O CENTRAL REGISTRY, A.E.R.E., HARWELL, BERKS.

Photo : Frank Duckworth

THE PLOUGH

A Landscape in Berkshire

ABOVE yon sombre swell of land
Thou see'st the dawn's grave orange hue,
With one pale streak like yellow sand,
And over that a vein of blue.

The air is cold above the woods ;
All silent is the earth and sky,
Except with his own lonely moods
The blackbird holds a colloquy.

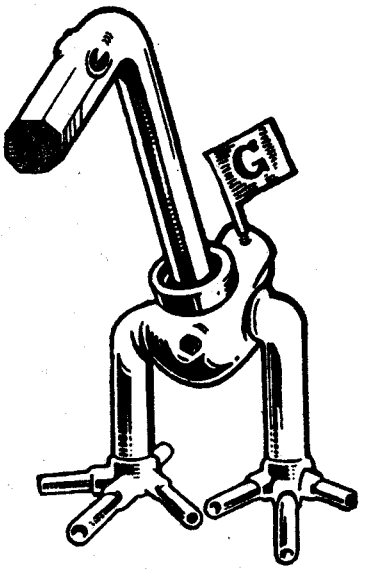
Over the broad hill creeps a beam,
Like hope that gilds a good man's brow ;
And now ascends the nostril-steam
Of stalwart horses come to plough.

Ye rigid ploughmen, bear in mind
Your labour is for future hours :
Advance—spare not—nor look behind—
Plough deep and straight with all your powers !

RICHARD HENRY HORNE (1803—84)

KEEKLAMPS

The
Modern
and
Efficient
Method
of
Tube
Joining
for
all
Structural
Purposes



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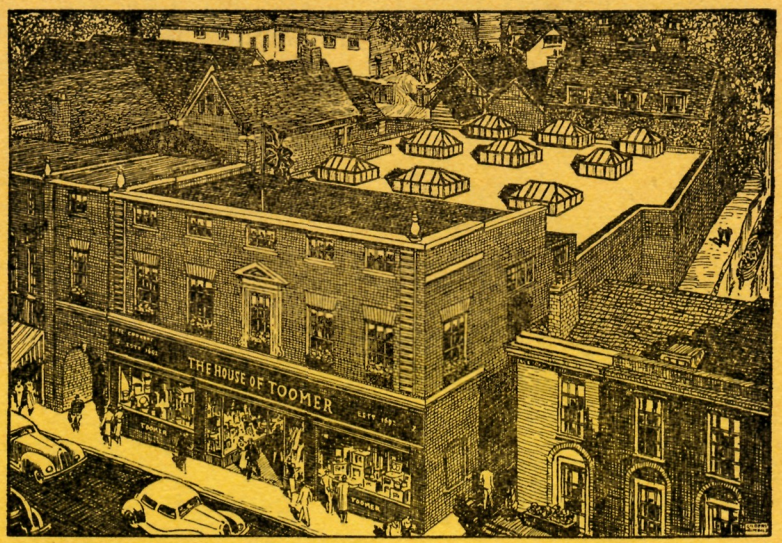

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