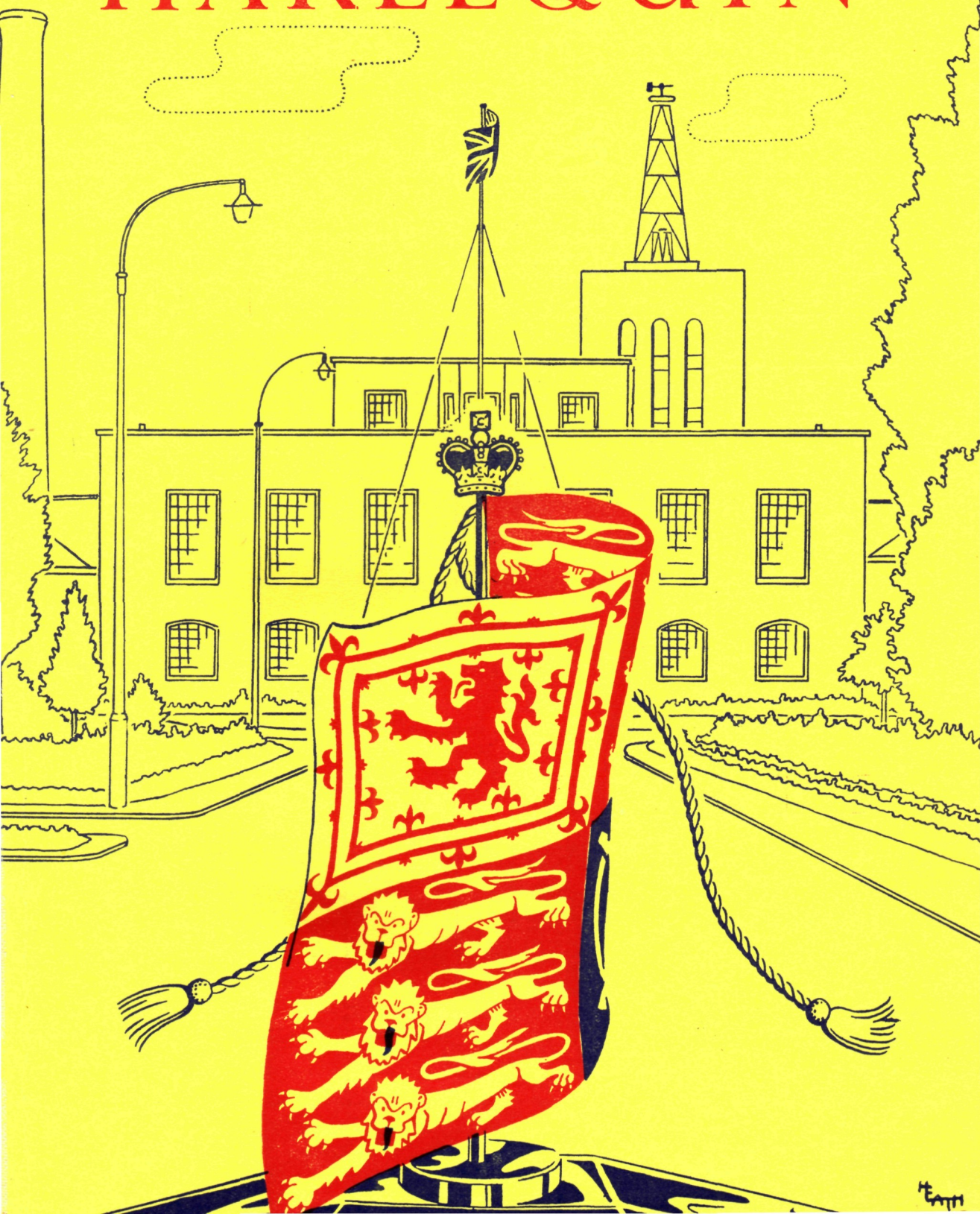


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March 1st, 1957.

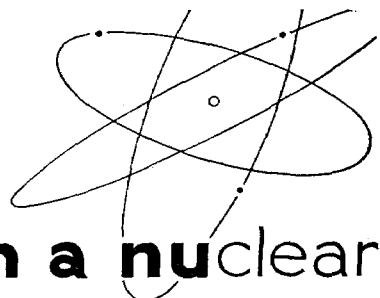
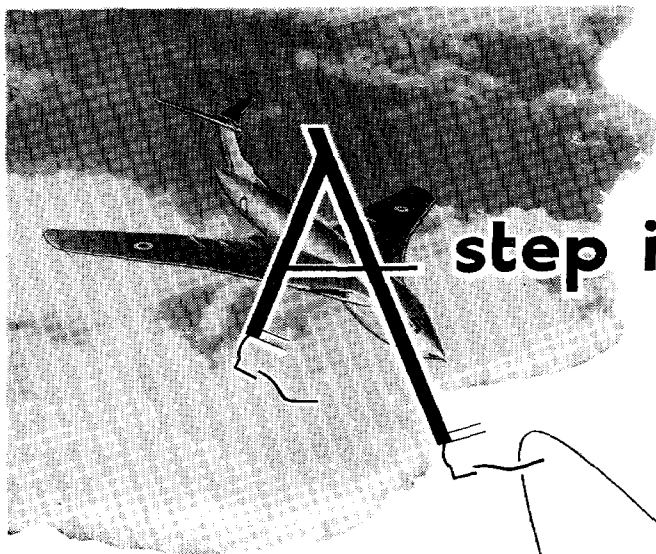
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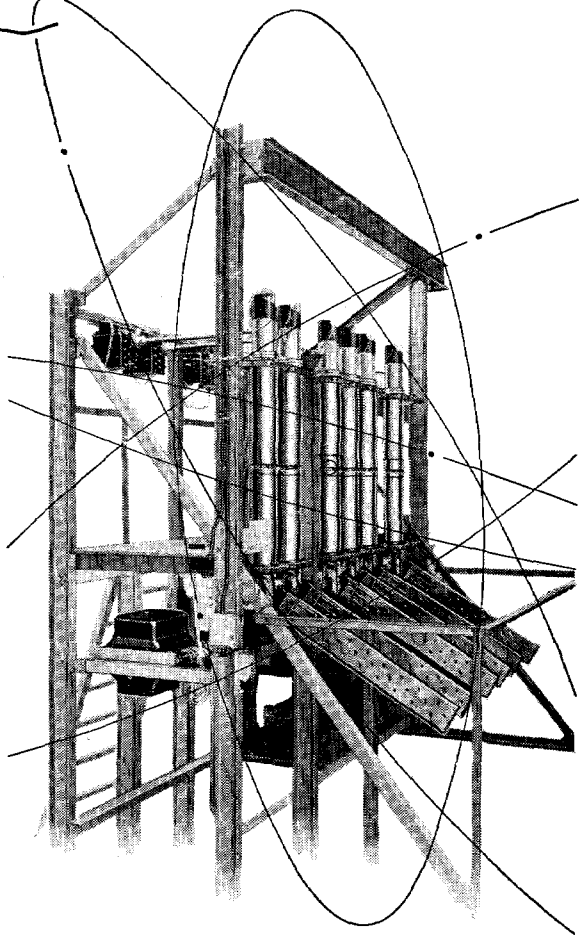
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step in a nuclear direction

H. M. HOBSON LTD. have for many years specialised in the design and manufacture of aircraft components calling for the highest degree of ingenuity and precision engineering. Although these activities continue in full swing, the Company have now entered the nuclear field and are engaged in the design and production of reactor control components and other ancillary equipment in collaboration with the Atomic Energy Authority. These items include the control systems for the following important Research Reactors: E.443 (Dido) for Harwell, A.E.443 for Sydney, Australia, and the R.E.775 (Pluto) for Harwell and Dounreay. Design, development and manufacture is proceeding on an automatic machine for introducing isotope specimens into the reactor and removing them after the requisite irradiation time; precision small pressure vessels and other experimental equipment for testing samples of various materials in the reactors; and control mechanisms for a new zero energy reactor.



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PROOF READERS' COMPETITION NEW RULES

In their search for errors, concealed in the last issue by co-operation with the business-houses concerned, some readers were again led off the scent by red herrings.

For example: *dependents* may also be *dependants*; *cyder* is the same as *cider*, and *lutetium* is in fact correctly spelt — named after the town of Paris (Latin: Lutetia). Genuine errors are listed on page 39.

For the competition in this issue it has been decided to add a little more interest — *marks will be deducted for any incorrect assumptions made by competitors!*

THE DRIVING TEST. "Nil desperandum". The driving test was resumed in April. **THE WEST ANGLIA**, Oxford's first RAC School, **29 St. Aldate's, Oxford 48812**, is now in the position to add further successes to its record. "OVER 3,000 OF OUR PUPILS HAVE PASSED THE OFFICIAL DRIVING TEST." Commence your tuition now, ensuring a high standard of proficiency for the re-introduction of the test.



THIS COLOPHON will be found on the title-page of all our scientific and technical publications and there are few branches of science and technology not covered by one or more books on our list. We shall be pleased to send you detailed information about them and about the books published by John Wiley & Sons Inc. and Reinhold Publishing Corporation, both of New York, whom we represent in this country. Messrs. John Wiley & Sons this year celebrate their 150th Anniversary, and we have been their sole agents in Great Britain for over sixty years.

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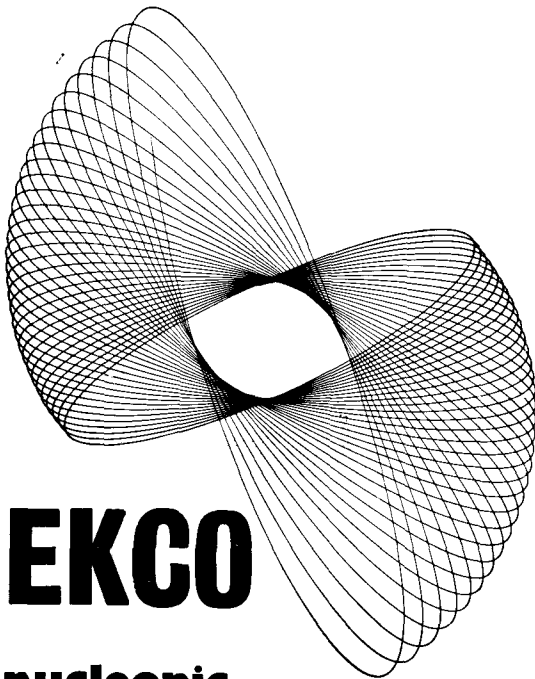
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N.B. Funambulist: a tightrope walker. Latin: funis a rope, ambulare to walk.



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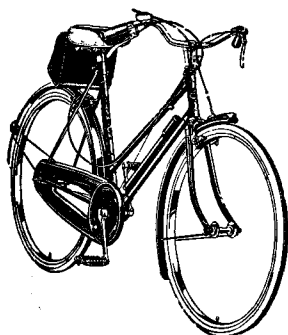
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EDITORIAL

"We hope", were the words of our last Editorial, "that Her Majesty will one day visit Harwell".

It was a pleasant surprise, shortly after publication, to hear that the Queen was indeed to come. It proved an agreeable duty, when the time finally arrived, to record on-the-spot for "Harlequin" the events of the great day.

Two thousand copies of the last issue sold within four days of publication, and an additional thousand has this time been printed—all of which will be sold at a loss made good by past profits. Amidst mounting costs the attempt will be made to give greater value to our expanding readership.

This issue of "Harlequin" is more documentary than usual, but it is felt that all readers will welcome a permanent record of the past month. As before, many items of interest have had to be denied space because of Harlequin's limited size and infrequent appearance. This was nearly the fate of the following incident that had to be cut from the account of the Royal tour; not a thumb-nail of space remains elsewhere, but it deserves mention here:

"While the pressmen were making pencilled notes and fitting new plates into their cameras, all eyes were on the Royal pair as they left the School Reactor. Your reporter, who by this time had grown accustomed to the unfamiliar sight of the Royal car, took the opportunity of surveying the line of spectators the other side of it. They had loudly cheered the Royal pair on their arrival at the School and now, fifteen minutes later, were giving them a grand "send-off". There, in the front of a line of flags waved by the children, a shaggy-haired dog stood on its hind legs waving its front paws furiously towards the Royal couple. This sight was made more amusing by the fact that, in the dense line of spectators, the adult who presumably was responsible for it could not be seen. The Queen noticed this and laughingly drew the attention of Prince Philip towards it. Then, with a parting wave, they were on their way again . . ."

The incident reflects, more forcibly than words could do, the happy relationship that exists between the people and our enlightened Monarchy of to-day.

D.A.T.

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THE HARWELL FIND

In a "Harlequin interview with the A.E.R.E. Workshop Manager, Mr. Gregory related how he became involved in matters of historic interest:

It was late one evening towards the end of the summer when my wife and I paid a visit to Harwell village to see our bungalow that was in course of construction.

After looking at all the points in connection with the building we crossed the Hollow Way in order to visit friends on that side. Then, while casting our eyes back to the bungalow, we noticed a figure bent double and moving along the skyline—it appeared that someone was having a look at the bungalow without wishing to be seen. In the gathering dusk this figure was joined by another and, with curiosity getting the better of me, I went back to investigate.

So intent were they in searching the ground that I was able to walk within a few feet of them before being observed. They then claimed to be in search of bone fragments reported found while opening trenches for the drainage system. I pointed out their position and, although filled in, fragments of bone were in fact to be seen on the surface. Some of these they then picked up and immediately pronounced them to be — Human Remains.

Some readers will be disappointed at this stage to learn that the bones were too old to interest the local coroner and that the plain-clothed investigators were in fact from the Ashmolean Museum. The discovery of that evening, however, was not the first or the last to be made on the site. "Harlequin" commissioned the following story from Mrs. Joan Clarke, late of the Ashmolean Museum, who was concerned in the systematic excavation to which the garden was subjected.

In the autumn of 1955 a workman, digging a drainage trench in the grounds of a new bungalow in Harwell village just south of the Wantage — Reading (A417) road, came across a jar. This was identified at the Ashmolean Museum, Oxford, as belonging to the Anglo-Saxon period. It seemed more than possible that it might form part of a burial group, and with the co-operation of the site owner excavations were begun by Mr. and Mrs. Kenneth Marshall.



A series of trenches was laid out over the garden and six graves were revealed — one of them belonging to the owner of the earthenware jar. "Grave-goods" were found beside three of the six skeletons unearthed.

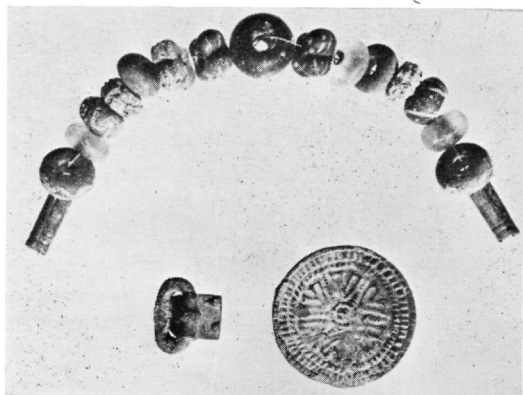


THE POT, the first object to be discovered at the burial ground, is unusual both in shape and decoration. About seven inches high, it is of black earthenware with four bosses round the body, each one decorated with a cross. Recovered complete except for one small fragment, it was taken to the Ashmolean Museum, Oxford, where it was recognised as belonging to the Anglo-Saxon Period.

BEADS made of bronze and different-coloured glass and glaze. From the position in which they were found, they had apparently been strung together and worn as a bracelet.

A SMALL BRONZE BUCKLE that originated in Kent.

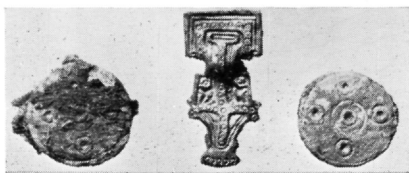
A LESS COMMON BROOCH, it is also made of bronze, but is in two pieces. There is a plain flat disc for backing. Attached to the front of it is a very thin piece of sheet bronze with the design embossed on it. This method of manufacture goes back to Roman times or even earlier and at first sight suggests that the brooch should be dated very early in the Saxon period. The design on the front, however, belongs to a date quite late in the 6th century.



(Centre)

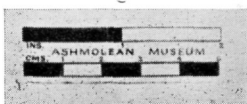
A GILT-BRONZE BROOCH — long, instead of round, and quite different in design. This type was certainly made in Kent in Anglo-Saxon times and was traded from there to other parts of the country. Craftsmen in other parts of England tried to copy it, often with very inferior results — and several of these copies have been found in the Upper Thames Valley. This Harwell example, while better than many copies, still fell short of Kentish standards and was therefore probably made outside that county.

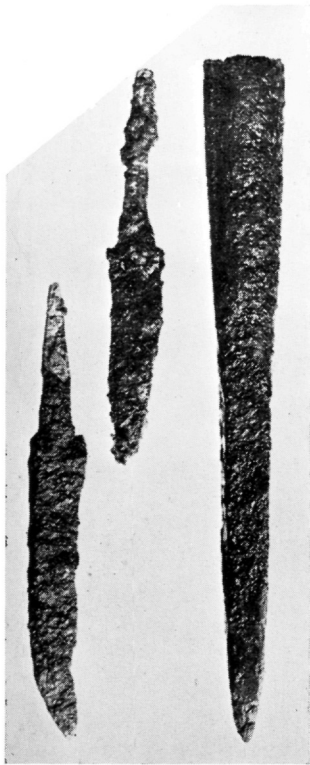
TWO BROOCHES that form a pair made of plain bronze discs and stamped with bulls-eye circle for decoration. This kind of brooch was very fashionable among the Saxons who lived in this part of the country, the number found suggesting that they were mass-produced and readily available. One brooch would have been worn on each shoulder.



(Overleaf)

KNIVES AND SPEARHEADS of iron were the normal equipment of the Saxon warrior, who would usually be buried with his spear by his side, his shield on his arm, and his knife in his belt. Swords are, in comparison, rarely found. There is nothing unusual in the two small knives from Harwell, but the spear or javelin head is very unlike the usual Saxon weapon. It is much more like a Roman javelin; another like it was found in a Saxon cemetery in Belgium and dated as 5th century A.D.





What story do these objects tell us — buried so long ago with their owners and found, by the merest chance, nearly 2,000 years later in this Atomic age? How, we may ask, do they fit into the picture of the Anglo-Saxon occupation of this part of the country?

It is certain that the Upper Thames was occupied by Anglo-Saxon invaders before the end of the 5th Century A.D. Probably, most of them came from East Anglia down the Icknield Way — that ancient trackway which carried so much of the early traffic of this island. Some of them would have kept slightly north and, having reached Northamptonshire, made their way down the Cherwell to the Thames; other Saxons may have come up the Thames from the direction of London.

Further away from the river and streams evidence shows that settlements were much smaller and were established considerably later. Certainly, the Saxons preferred to travel by water whenever they could, and signs of their

settlements are to be found along the banks of the Thames and its tributaries.

Saxon villages were poor, and little trace is left of them over the centuries. Yet, as we have seen at Harwell, it was the custom for the dead to be buried with their personal possessions, and most of what we know about these earlier inhabitants we learn from their cemeteries. A woman would be found in her grave wearing brooches, rings, bracelets and other ornaments — often, also, with a little bag hanging from her waist containing trinkets, small treasures and charms — while a man would have his weapons with him. From these exhumations it has been possible to paint some picture of Saxon civilisation.

Earlier discoveries near Harwell show that the group exhumed here was not isolated. A large Anglo-Saxon cemetery was discovered in the process of building operations at Abingdon in 1934. Excavated by the Ashmolean, it revealed over 100 burials — some plain inhumations, as at Harwell, and some cremations. Objects found indicate that the cemetery was in use right through the Saxon period. A cemetery with nearly 40 graves has been found at Wallingford while another at Long Wittenham revealed over 200 burials. Other group burials have been found at Milton and at Sutton Courtenay where in 1924 the remains of a village were excavated.

The Saxons at Harwell were thus not isolated, nor living in an unexpected place. True, Harwell is not near the river, but it lies not far from the Icknield Way which crosses the Thames at Wallingford and runs just to the north of the burial site. The pot and javelin-head both point to around A.D. 500, but the two-piece brooch and gilt brooch suggest a later date. What then can we assume? Perhaps the most we can say is that in the 6th century A.D.—probably in the early part of it — a small band of Saxons lived in what is now Harwell and had connections with the Saxons of Kent and of the Continent (cf. the javelin-head) — although this connection may be remote, the weapon having come by an indirect route through other people. Whether they were a small group of their own, or had broken away from one of the larger settlements

(continued on page 29)



(Associated Press)

Prior to the Royal visit to Harwell came the State Visit to Portugal.

Features of the visit were a march part of six thousand troops and the letting loose of ten thousand pigeons over the capital.

Proud of being the United Kingdom's oldest ally, the Portuguese turned out in their hundreds of thousands to line the streets along which the Royal procession passed.

Shown here, welcoming the Royal Party ashore is the President of Portugal, General Creveiro Lopez, who visited Harwell in 1955.

EYE WITNESS—

Harwell, March 1st, 1957

It was 10.30 a.m. and, although almost everywhere in the Establishment work proceeded as usual, there were some special arrangements to be made.

At the Main Gate the Constabulary were examining the credentials of visitors carrying bulky photographic equipment and notebooks, but the crowd gathering in the Police Lodge was nothing compared with that forming at the northern approaches of the Establishment. There, outside the security fence, wives of the staff could be seen lining the Sports Field, the children proudly flourishing their flags.

Towards the Main Gate a lady secretary hurried to make last minute changes, while at the end of the flower-decked approaches to the Main Admin. building two figures pulled on a rope; with the halliard on the jackstaff broken, they were finding it most difficult to haul down the Union Jack.

Your reporter too, had his own last minute arrangements to make and exchanged his document marked "Press" for the special lapel badge that was to assure free passage during the hours that followed.

Regaled by coffee and biscuits that were provided in the Canteen, our group, Press Party 'A', drove off in its single decker coach. The two cars for which Harwell was waiting must by this time have passed through Wallingford on their way down from London, and be approaching Didcot and the crowd-lined corner of Rowstock.

On our arrival at the Cockcroft Hall, the onlookers were still gathering to form the largest crowd ever seen there. Suddenly some cars turned into the Establishment at the Curie Avenue Gate, a short distance before the main entrance — their arrival heralded by the cheers and flag waving of the children. Then in a hushed silence the Royal car drew up at the Cockcroft Hall — Her Majesty the Queen had arrived.

* * *

Hatless and smiling His Royal Highness Prince Philip stepped out of the Royal car behind the Queen and cheering broke out from the crowd.

Her Majesty was greeted by The Marquis of Salisbury, Lord President of the Council and by Captain Benyon, Her Majesty's Lieutenant of the County; Sir Edwin Plowden, Chairman of the Authority; Sir John Cockcroft, Dr. Schonland and Mr. Airey Neave, M.P. for Abingdon Division.

In the Conference Room of the Hall, after refreshments, there was then a short talk about the work of Harwell given by the Director—

"I should like to welcome your Majesty and Prince Philip to Harwell and to speak, very briefly, about what you will see.

"One of our principal tasks at Harwell is to provide new ideas and to develop the technology for new kinds of nuclear power stations.

"You will remember visiting the great Calder Hall nuclear power station and switching its electricity into the National Grid. Already the Electricity Authorities are building an improved type of nuclear power station which will have four times the output of Calder Hall. We are now working on the technology to make still further improvements possible.

"The heart of a nuclear power station is the reactor, which takes the place of the coal furnace. The reactor is built of bricks of graphite and uranium fuel rods. In the future designs we would like to increase the operating temperature of the fuel rods by 200 degrees, since this would more than double the electricity output. So our metallurgists have to develop new kinds of fuel rods which are able to withstand these higher temperatures.

"We must thus test new materials and other components in a research reactor. You are to visit first our newest research reactor, DIDO. A companion reactor, PLUTO, will be completed this year and it, too, will be used for testing the components of future power stations.

"We are also collaborating with the Admiralty and industry on propelling a submarine by nuclear energy, and are studying the problems



Dr. J. V. Dunworth explains the working of a scintillation counter.

of propelling merchant ships such as a large tanker. For such propulsion we have to use a very much smaller reactor than Calder Hall. After you have seen DIDO, you will go to see some of the work being done with this other reactor. LIDO is a water moderated reactor in which the fuel is suspended deep into a tank of ordinary water. This reactor has also been built to study some of the problems of nuclear propulsion, such as shielding.

"We are also working on more advanced kinds of nuclear power stations with a view to obtaining still cheaper electricity. One of these systems is called the "High Temperature Gas Cooled Reactor" in which the fuel elements would be red-hot at full power.

"Looking even further ahead, we are working on the exciting project of drawing power from the abundant light element, hydrogen, instead of from the heavy element, uranium. The sun and stars do this very successfully. If we could heat hydrogen gas to a temperature of many million degrees, the hydrogen atoms would fuse to give helium and so release energy. This is a fascinating research project, but it is not possible yet to guess when we will achieve practical results".

Our press party set off immediately. Passing Building 77 in the coach, one noticed the Royal Standard broken at the end of the flagstaff and flying bravely in the wind. At the Main Gate a halt was arranged to hand

over the first photographic plates to the waiting despatch rider and then we were off again along the wide perimeter road through the Romney Gate on our way to DIDO.

Here at a vantage point on the Royal route were gathered children from Chilton School. Either because they had heard of the Queen's use of a coach on the State Visit to Portugal, or more likely because of the general gaiety of the day, they greeted our press party with a grand flourish of flag waving. To the children's delight the Queen slowed the Royal car down as it followed a few minutes afterwards.

At the entrance of DIDO office block, Dr. Dunworth, head of Reactor Division, was presented and led the party round the reactor which was completed last November. At the control room the method of control was demonstrated, and there the Queen pressed a button to raise the reactor power level.

This £1,500,000 heavy water reactor, the party learned, is now being used for a wide variety of experiments, and is helping to cut down the time required to carry out tests of components for the nuclear power stations of the future. Its "part-time" function is to increase the production of radioactive cobalt.

All round the circular walls of the reactor the staff of the division stood on catwalks and galleries to get a clear view of the Royal party and occasionally the Queen looked up and flashed a smile.

After looking at the reactor itself the party was shown the method of removing irradiated fuel from the reactor. Mr. R. A. C. Welsher, head of remote handling section, demonstrated the use of master slave manipulators, costing £1,200. These are designed for handling highly radioactive material inside lead or concrete cells, and here safety is combined with the sensitivity of human hands. To illustrate the delicacy of the manipulators two candles were lit with a box of matches. Eager to try for himself, the Duke picked up a test tube from the rack at his first attempt, "I am surprised I was able to do it," he said, and replaced it — unbroken.

On a T.V. screen the Queen and Prince Philip saw typical fuel samples after their removal from the reactor.

From DIDO, the most powerful research reactor in Western Europe, they came to the swimming pool reactor, LIDO. This, they learned, cost £200,000 and tested light-weight shielding for nuclear propulsion units for merchant ships or submarines. LIDO's uran-



Mr. H. J. Grout, after being presented by The Director, explains a model of LIDO to Her Majesty, whilst Captain Harrison Smith, who is in charge of the Naval Section at Harwell, talks with Prince Philip.



ium fuel is suspended in a large concrete tank of water similar to a swimming pool.

At the entrance of LIDO, the Director presented Mr. H. J. Grout, associate head of the division and Captain Harrison Smith, head of the Naval Section, who conducted the party to a model of the reactor and then to the reactor itself — 25ft. above floor level. When they reached the top of the stairway, all lights were turned off so that the Queen and the Duke could see the Cerenkov radiation — an eerie blue glow from the core of the reactor.

As the Royal party emerged from the building which houses LIDO, crowds of workmen on the adjoining site, where another reactor — PLUTO — is being built, dropped their tools and crowded to the fence between the reactors. On the top of the reactor dome on the new site, nearly 200ft. above ground, seven men in overalls — one with a broom — waved as, smiling, Her Majesty and Prince Philip stepped into the Royal car.

Our press coach followed a different route — via the historic R.A.F. runway, from which the first British troops to land in Normandy took off for the liberation of Europe. Back at the Main Gate photographic plates and news-reel tape were awaited by a motor cycle despatch rider for the evening's newspapers and television.

Before lunch in Ridgeway House the wives of the reception party, Members of the Authority and senior Harwell Staff were presented to Her Majesty and the Duke by Sir Edwin Plowden. Among those with whom the Royal couple chatted were the Marchioness of Salisbury, Mrs. Benyon, Lady Plowden, Lady Cockcroft, Mrs. Schonland and Mrs. Neave.

The lunch was free from speeches and even toasts but during it Sir Edwin Plowden, on behalf of the U.K.A.E.A., presented a small battery-operated Geiger counter and a pack of playing cards to the Royal guests. The Queen of Spades was marked with a harmless thread of a radioactive isotope, Cobalt 60. The Geiger counter would thus give a "tell-tale" click on coming near it and enable the card to be picked out from the pack placed face

downwards on the table. This conjuring trick of "finding the lady" illustrates the technique that has made radio-isotopes valuable in medicine and many sections of industry, and one can assume that the trick has already intrigued Prince Charles and Princess Ann.

Lunch over, the tour continued with a visit to the Reactor School where graduate engineers from British industry and from overseas study the latest developments in reactor technology. The Royal party was welcomed to the school by Dr. D. J. Littler, its principal, and asked many questions. Here, beside complicated apparatus and equipment, they came to a table on which was displayed a Burmese chopper. Both the Queen and Prince Philip laughed on learning that the chopper was presented by a past group of students "to split the neutrons" — in place of complex electronic machinery which had been found somewhat unreliable in the past.

Some of the Commonwealth representatives at the Establishment, at the Reactor School and at the Isotope School, were then presented. Representing six Commonwealth countries, they were Commander Robert Stephens



Captain Mohammed A. Qureshi, a radiologist in The Pakistan Army Medical Corps and a student at the Isotope School, is presented by Dr. D. J. Littler, 12 overseas countries are represented on the courses at A.E.R.E.

(Canada), G. C. Lutz (Australia), S. R. Paranjpe (India), Captain M. A. Qureshi (Pakistan), Dr. J. J. Thresher (South Africa) and G. J. McCallum (New Zealand).

The Royal party was now conducted by Dr. R. Spence, head of Chemistry Division, to the plutonium laboratory. Here special remote handling techniques were shown, involving the use of apparatus maintained by "frogmen". Through heavy glass panels the Queen and the Duke watched work in the sealed workshop from which communication, with attendants watching outside, is maintained by telephone. Wearing their heavy rubber suits, face pieces and transparent plastic "overcoats", the "frogmen" were maintaining apparatus used in the laboratory.

In the main glove-box area the Royal party saw how scientists work on irradiated material. Here, closed cabinets contain argon gas which, at a lower pressure than the outside atmosphere, averts radioactive seepage. Their hands protected by plastic gloves fitted to holes in the cabinets, scientists were seen working on materials with a relatively high level of radioactivity.

A number of exhibits were described by Dr. H. M. Finniston, head of Metallurgy, including heavy water, and a collection of gems that had changed colour through pile irradiation. The Duke touched a piece of plutonium wrapped in its plastic shield which, because of its continual radiation, feels warm to the touch. Beryllium is about ten times lighter than the same volume of uranium and the Queen handled a bar of each to test their relative weights. On being asked if she could take the samples home for Prince Charles, Dr. M. Waldron, head of the plutonium section, promised that both bars would be specially packed in presentation cases for her.

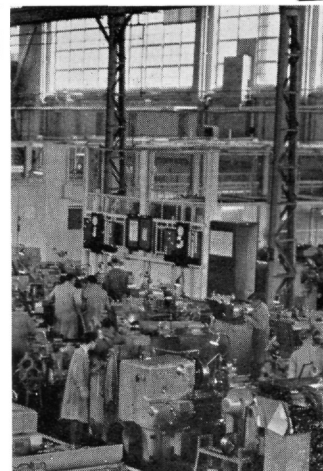
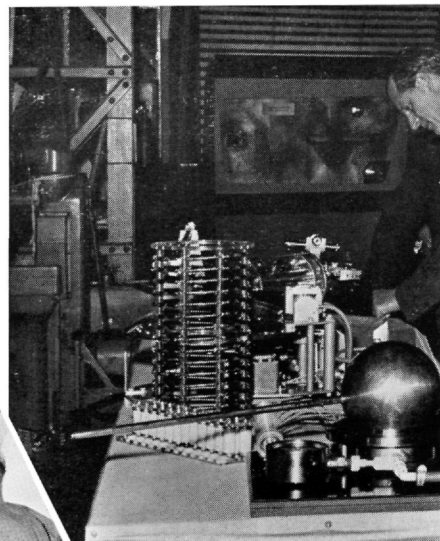
Dr. H. M. Finniston explains to Her Majesty some of the special materials used in Building 220, including Heavy Water and Plutonium.



During their tour so far the Royal party had, in the various scientific groups visited, seen a wide variety of specialised equipment. Now in the main workshop they were to see where much of it is manufactured. Amidst a hushed silence the Royal car drove into the large hangar that was used for engineering work back in the days when the site was an



Mr. P. Bowles, head of the Engineering Services division, showed the Royal visitors a group of exhibits illustrating the high degree of craftsmanship achieved. The Duke showed great interest in the precision work and, in particular, asked questions about a small experimental heat exchanger coil which was accompanied by an X-ray photograph. This coil is similar to those used in the early experiments on the Calder Hall power station.



R.A.F. Station before being converted for its new auxiliary role.

Joint Industrial Council representatives were presented — V. McCarthy (Vice-Chairman), W. Joyce (Joint Vice-Secretary) and R. B. Horn and A. W. Knight (Staff Side Whitley Council) — and then both the the Queen and Prince Philip went on to talk with craftsmen and apprentices.



In the workshop the visitors met the largest group of Harwell staff assembled within the buildings they had entered that day. All round the shop staff were lined while on the balcony above Harwell people were waiting to see the Queen and the signing by Prince Philip of the apprentices book, which contains a record of all apprentices who have been at Harwell.

Here, as elsewhere, the Royal party found obvious interest, both in the people they met and in the exhibits they saw.

The Press and the Royal Tour

On this day, when Harwell seemed as open and bright as the spring sky above, even the representatives of the local and national press appeared reasonably dressed. Old sports jackets, in which we have seen them adorned at fashion parades, were sacrificed in honour of the Royal Visitors.

During the day, your reporter took the opportunity of becoming acquainted with the pressmen and found them, far from being stereotyped, as varied as the papers they represent.

Over lunch, the writer was studying the types at the tables around him, when he found himself addressed by a fellow-member of Harwell. "You must have come here on a number of occasions", he observed, surveying the writer's press badge. "*I thought at first you were one of us!*"

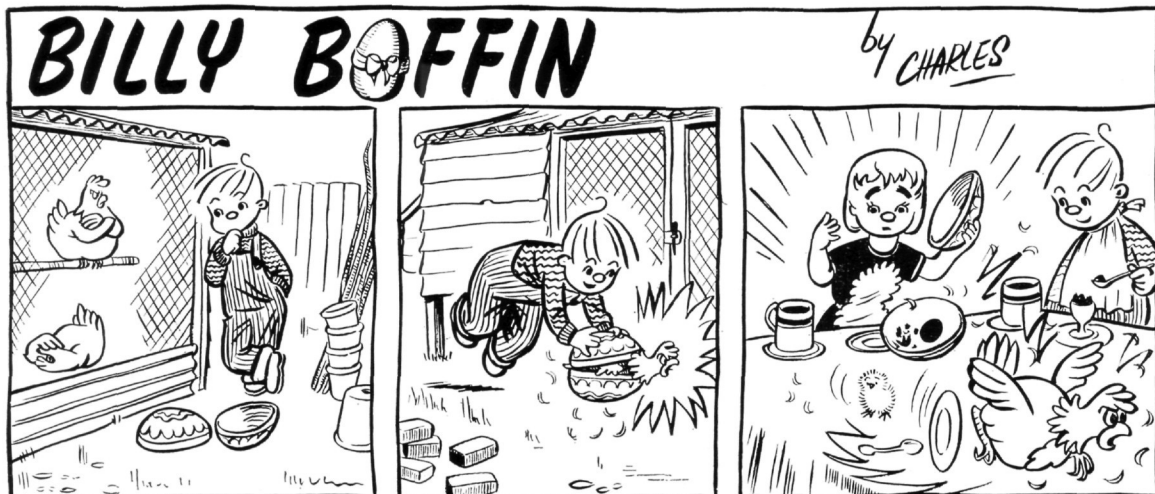
The same man was more astute in countering awkward questions put to him by the pressmen. "I'm somewhat confused about that", he would confess. "I have to rely on *what the newspapers tell me!*" (Perhaps "Harlequin" should appear more frequently?).

The U.K.A.E.A. Press Officer from London, however, was more helpful and on being asked during the day to describe for the pressmen the function of a complicated piece of apparatus, he went off to find out. The newspaper-



men, expecting to be blinded by science, waited in awe for his return. "It's to find out the properties of boiling water", he announced amidst laughter from the waiting coach. This line of research appears to be both complicated and vital for the scientist designing a new-type reactor, but far from being given the exaggerated importance that some matters receive, it was relegated to the status of third-form science by the pressmen.

In the rush of the day, it was inevitable that some of the captions to photographs should be wrong and that some of the people photographed—such as the Chairman, the Deputy Director and "Mr. Grunt" should be wrongly represented. Perhaps it is poetic justice therefore that the photograph at the top of this article does not represent the pressmen at all, but students of the Reactor School busy taking their own photographs of the occasions!





Unlike a human model, George, as he has become known, does not distort with loud groans as the air is pumped out of him. He omits only a respiratory whistle and can remain indefinitely with his "lungs" deflated while the operator considers the next move. Whereas a human model would be pulverized at the hands of a class, and perhaps be in need of real first aid, George survives — as robust as ever. Some hundreds have already passed through his hands — gaining knowledge of life or death importance..

INTRODUCING GEORGE . . .

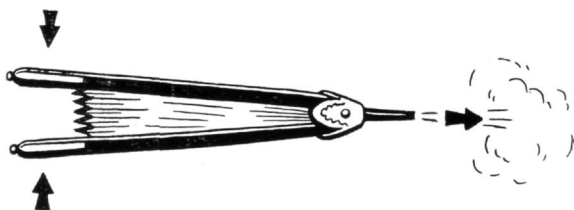
Pen Portrait by D. A. TYLER

THIS model, the only one of its kind in existence, is designed to teach the technique of artificial respiration. When breathing stops — whether through drowning, electric shock or other causes — even seconds are important. Life may be saved by a brief knowledge of the theory referred to in this article, but practice in applying the correct pressure is desirable.

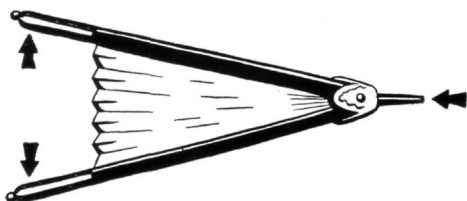
Essentially, George is a working model with an air bladder for lungs and a whistle that enables the operator to hear his "breathing". An improvement on nature is the attachment of a manometer that indicates when the correct pressure is being applied. For this reason, and for others that will become apparent, George is more effective than any living model could be for practising the required technique.

Estimates of weight always show great variations. Even in the Civil Defence H.Q. attempts at guessing the weight of an iron bar,

equivalent in weight to the pressure required for artificial respiration, give variations of from one half to five times the actual weight. Practice on George avoids the ineffectual touch of the light-fingured and the rib-crushing pressure of the heavy-handed.



George, and the function of artificial respiration, can be likened to a pair of bellows in which, after air has been expelled, the handles are drawn apart for fresh air to be sucked in.



Artificial respiration entails an imitation of this by alternately squeezing air out of the lungs and allowing it to rush in again. Space prevents an adequate description here, but a chart describing the technique will be found in some buildings of the establishment and "Harlequin" has been able to arrange for free copies of a duplicated sheet to be made available for those interested.*

Briefly, the recommended technique is back pressure and arms lift, kneeling at the patient's head. This is the Holgar-Nielson method, so-called after the Lt.-Col. of that name who developed it. We learn that it draws in a full quart of fresh air to every pint that entered by the older methods. On applying pressure to the shoulder blades, stale air is forced out and the arms are then pulled up behind the patient's head for fresh air to be drawn into the expanding lungs.



When practising on George, pressure is applied to his "shoulder-blades" to deflate the air bladder that serves as lungs. One becomes aware of success by hearing George's respiratory sigh, as air is forced through the attached whistle — a sigh similar, we are told, to what one would hope to hear in a real-life attempt at artificial respiration. When pressure is released, air is sucked into the bladder by the second movement of raising the arms, George once again emitting a realistic respiratory whistle. In order to demonstrate the correct pressure for expelling air, George is attached to the coloured-water manometer. In practice as little as 30 lbs. is required and this can be checked by glancing at the gauge.



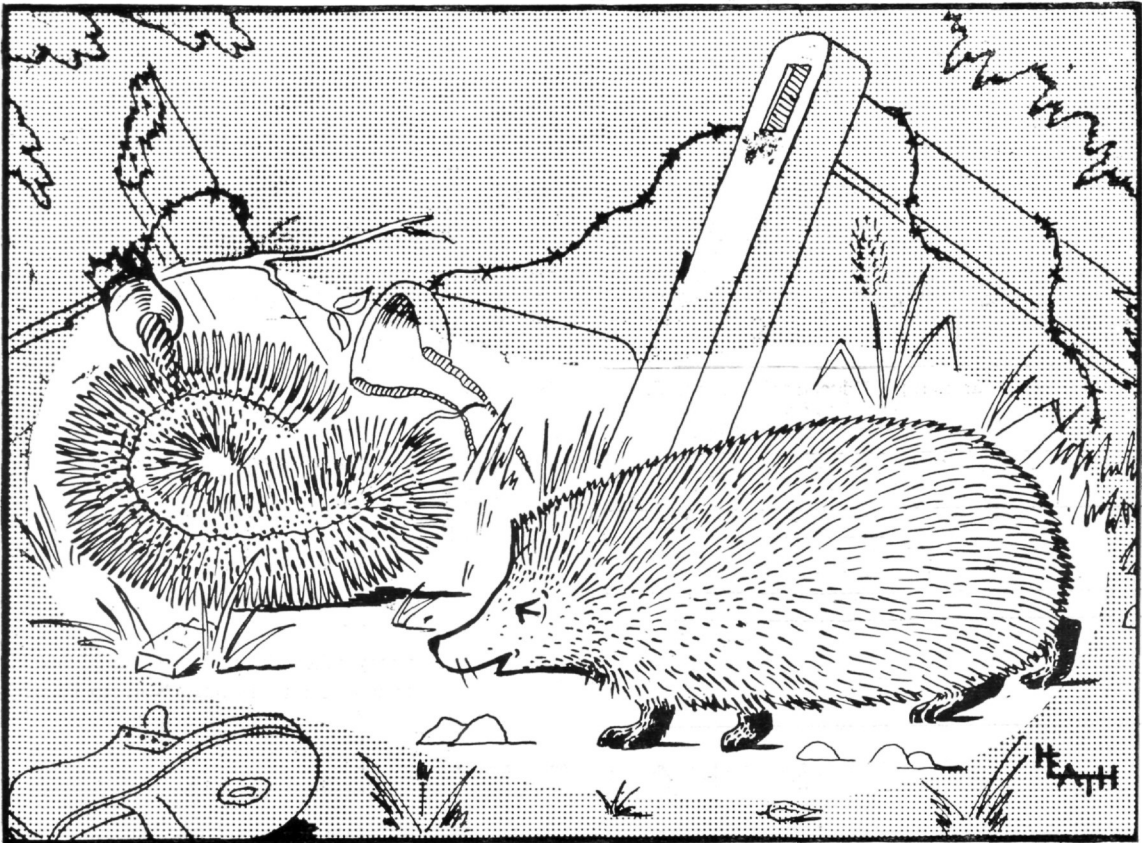
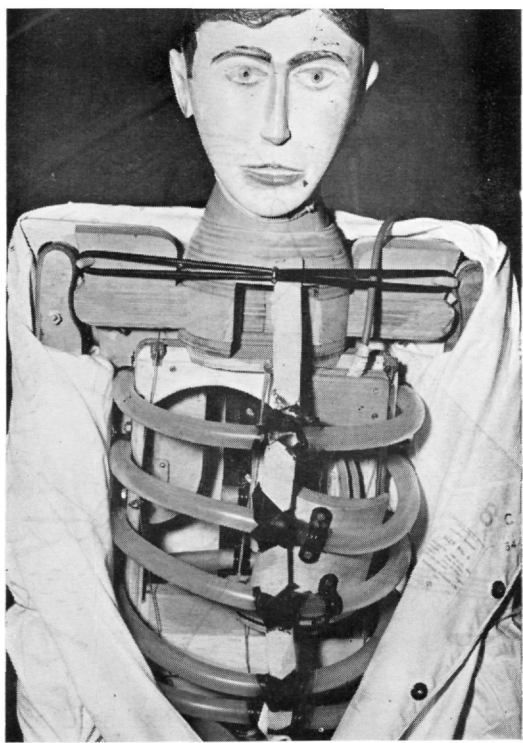
*Write to W. G. Gale, Civil Defence Officer, Bldg 171.

The aim of this article is to introduce George and it is hoped that the reader will now take the opportunity of becoming acquainted. Not only is there to be found in Building 171 an ingenious piece of constructional work by the craftsmen of Hangar 9, but the means of developing — perhaps in a few minutes — a technique by which life can be saved in those vital few seconds of an emergency.

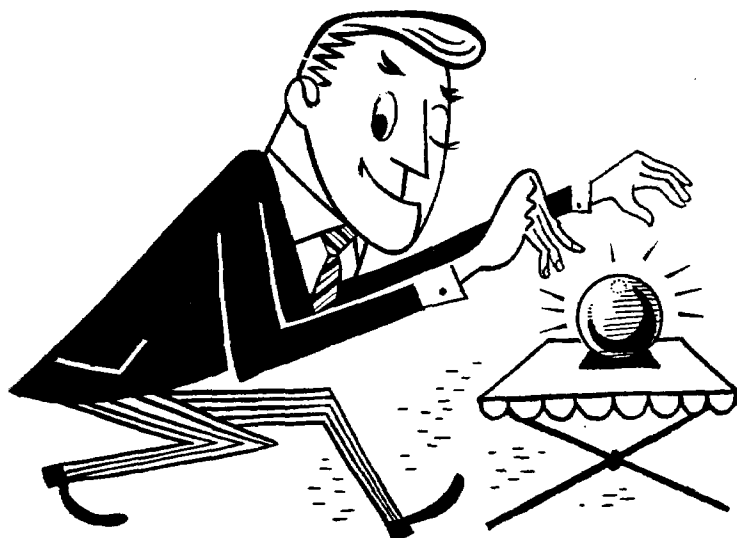


George is to be found at the combined H.Q. of the Civil Defence and St. John's Ambulance Brigade — situated outside the security fence to the east of Icknield Way House. "Harlequin" has been able to arrange for lunch-time demonstrations of George for any readers who are interested.*

*Write to W. G. Gale, Civil Defence Officer, Bldg 171.



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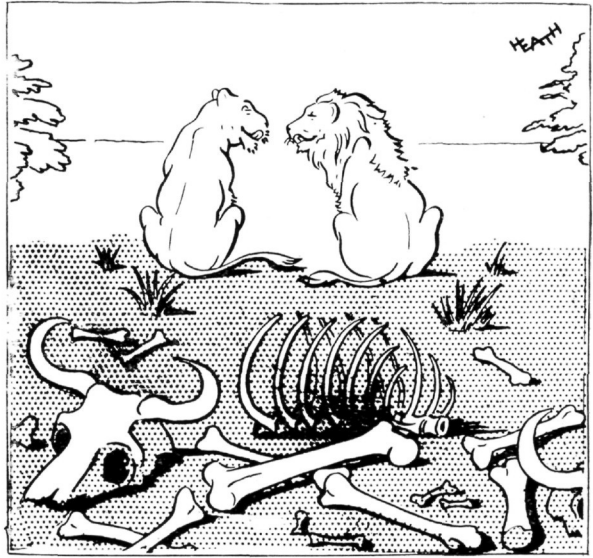
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such as the one at Abingdon — what their relationship was to each other and what they did at Harwell we shall probably never know. We cannot even be sure they have all been found, for, although the garden itself has been thoroughly searched, there may be others in other parts of Harwell.

We can be certain, however, that had the finder of the earthenware pot failed to report the find to the museum immediately, these too might never have been found and as is the case with so many burials that leave no trace on the surface — might have held their secret for ever.

Owing to the co-operation of the owner of the land, a proper investigation has been made possible. Together with relics from most of the local sites mentioned here, the Harwell finds are today preserved for posterity in the Ashmolean Museum.

EDITORIAL NOTE. *The Ashmolean is in Beaumont St., near the centre of Oxford, and the Anglo-Saxon Exhibits will be found on the first floor — in the Antiquities Dept. The Museum, which also has an interesting Fine*



... AND THIS IS END OF THE GNUS

Arts Dept., is particularly to be recommended for the rainy Sunday afternoon when, as on all other days, it is open till 4 o'clock — admission free.



PHOTO QUIZ—WHO? WHEN? AND WHERE?—(Answer on page 37)

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by D. S. BATEY (Nuclear Physics)

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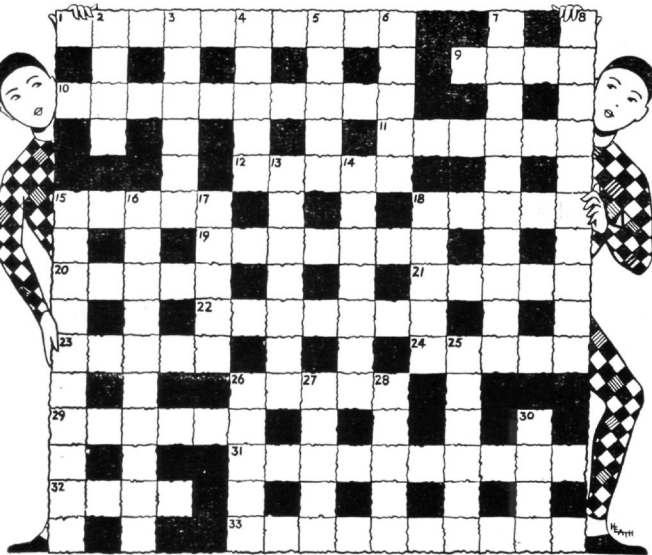
ACROSS

1. All to Clear. Anagram (10).
9. "E'en from the — the voice of Nature cries" — Gray (4).
10. Resolute (10).
11. Not a permanent inhabitant (6).
12. Savour (5).
15. Used in waiting (5).
18. Could be slugs (5).
19. Laid open (7).
20. Rubbish or each way (5).
21. A native of the Middle East (5).
22. Very rough (7).
23. "_____, _____, O" connected with cockles (5).
24. Severe (5).
26. Brief (5).
29. Is the Far Eastern red curtain made of this? (6).
31. Declare in what is often described as broken (10).
32. Strong smelling position (4).
33. Early British meal (3, 3, 4).

DOWN

2. A smelly sounding river (4).
3. Something to be made up? (6).
4. Allure (5).
5. Early characters (5).
6. For supping with the Devil? (5).
7. Assemble (11).
8. Mental deviation (10).
13. A very quiet ramble (7).
14. Henry VIII's shillings (7).
15. Cotton uncovered (10).
16. Hard won talent (10).
17. Do what is required (5).
18. Entrances (5).
25. Canonical service (6).
26. A light to lighten the darkness (5).
27. Actually one thousand (5).
28. Fairy like (5).
30. Ice . . . (4).

CROSSWORD



SOLUTION TO LAST HARLEQUIN CROSSWORD

Across: 1—Suffice; 2—Go Round; 8—Merry; 9—Flail; 11—Bled; 13—Davy; 14—Barrage; 16—Lentil; 17—Effete; 18—Contender; 23—Lascar; 25—Attain; 26—Legends; 27—Aide; 29—Born; 30—Earth; 31—Robin; 32—Dullard; 33—Station.

Down: 1—Stubble; 2—Fled; 3—Corral; 5—Oblige; 6—Ovid; 7—Draymen; 8—Meant; 10—Layer; 12—Prevented; 14—Bifocal; 15—Effects; 19—Bloated; 20—Aside; 21—Barrow; 22—Unknown; 24—Rector; 25—Adroit; 28—Earl; 29—Bint.

Winner: V. H. S. Burroughs, to whom one guinea has been awarded. Another problem has been prepared for the next issue.



Harwell Main Gate — Prior to Petrol Rationing.

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by A NEW CONTRIBUTOR

"FOR SALE, RILEY NINE, IN GOING ORDER, £60. APPLY . . . ETC." — within an hour of reading this advert. in the local evening paper, the car was mine. That's how it was in those fabulous days when second-hand cars of any description were snapped up at once.

I knew that this car would only start if pushed, but felt reassured when I considered the simple basic design. No fan, no petrol pump, no water pump, no dynamo belt, no coil, no automatic advance and no retard mechanism. I asked myself: "What **can** go wrong?" The Vendor said he had always looked after the car carefully, and as an example of this, cited the fact that he drained the water out of the radiator every night in winter. He omitted to add that filling up with hot water each morning was the only way of starting her!

I took my new acquisition straight to the local garage for a 3-day battery charge; three days after collecting the vehicle, the battery was flat once more. However, a retired chauffeur friend, well-up in theory, explained that the car had "magneto ignition", and thereby generated its own electrical supply. He then proceeded to prove his practical ability by closing up the sparking plug gaps to 'visiting card thickness', after which Riley Nine could be started on the handle. This was indeed a useful step forward. Under expert tuition, I practised handle-starting for a good half-hour, little realising how soon I was going to get all the practice in the world.

I prepared a list of jobs to do, but restricted activities to the jobs at the top of the list: I cleaned the interior with the vacuum cleaner, varnished the dashboard, and gave the external surfaces one coat of black lacquer. To hear my mother-in-law name the car "The Hearse" damaged my pride a good deal and at a later date, my wife and I tried to create a less

funereal effect by painting each spoke with aluminium paint.

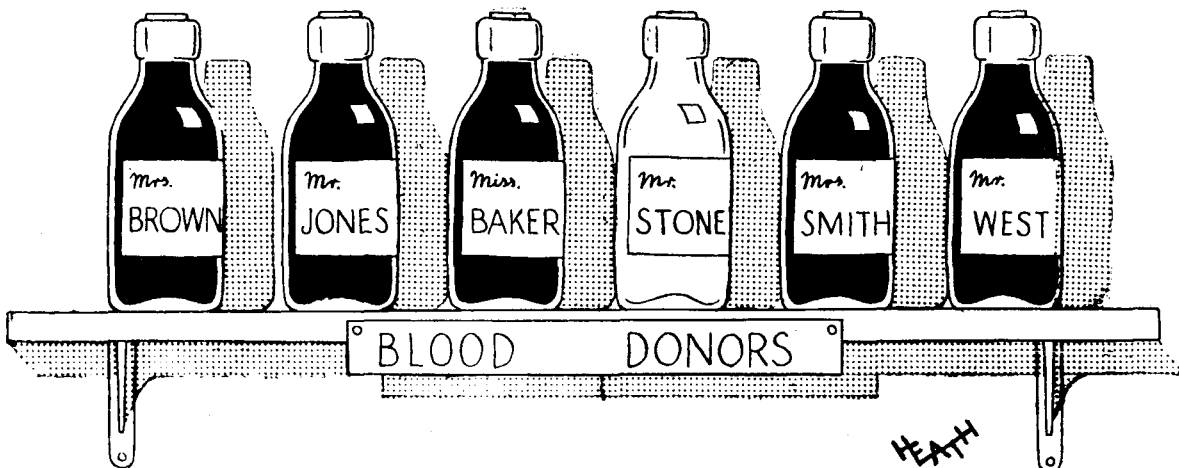
The first long journey I took was actually 48 miles and proved a painful induction into the new world of Motoring. Every eight miles, the radiator had to be filled up, until a kindly garage mechanic poured in the contents of a can containing a patent "seal-the-leak-while-you-drive" fluid. Every steep hill I went down was a nightmare, for the gear jumped out of second. Then I ran out of petrol, because although I knew the gauge was not working and had even provided myself with a dip-stick, I had omitted to **calibrate** it. But the climax of the journey came with the fire—when puffs of smoke suddenly emerged from below the dashboard—the wiring harness had given up the struggle after 20 years. I was really alarmed, for the petrol tank on that model was carried under the bonnet—just in front of the scuttle. After switching off the petrol tap, I leapt smartly out and was relieved, when the smoke blew away, to find I still had a car.

Each time I took the family out in "The Hearse" we regarded the expedition as an adventure into the unknown. We experienced warm feelings of satisfaction every time we got home in time for tea, for the magneto was gradually losing its magic powers and with damp weather gave up the struggle.

I was proud on the occasion I towed a 4½ litre racing car which wouldn't start and proud when I climbed a hill 1 in 4½ without having to change into bottom gear. But I was ashamed when I had to break queue at the local confectioners to stop small urchins tearing strips off the coachwork (it was essential to carry scissors and bostick to deal with such emergencies).

When petrol rationing came, I performed the public spirited action of laying "The Hearse" off the road, but this was not only a national service, but also a **personal** one. Today I am no longer impoverished by the cost of petrol and spare parts. Nor am I nervously exhausted by the strain of keeping a car safely on the road in competition with other road users. At the same time I am today getting most agreeable exercise on country walks—and for the first time have noticed the scenery of our Berkshire countryside.

But what now will become of "The Hearse"? At a later date, perhaps, I will produce for "Harlequin" an article on . . . "Scientific Poultry Keeping".



WAREHAM, WOOL and
SOUTH EAST DORSET

MILES & SON

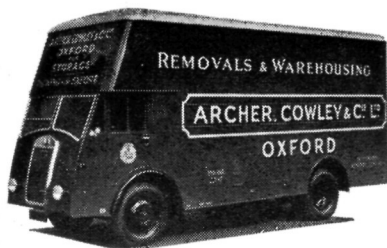
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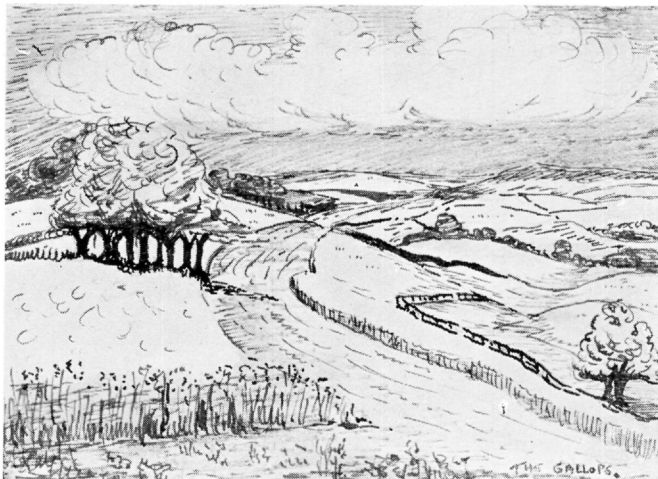
Escape from Harwell

by F. Roberts

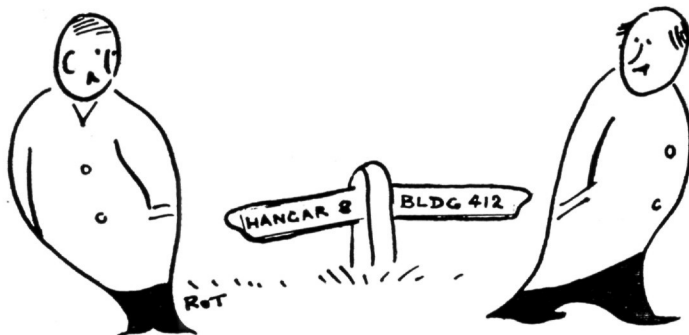
It is not difficult to find outdoor places to go in the vicinity of Harwell for a relaxing afternoon during the summer months. Most of the riverside haunts, however, are crowded; much of the Downs and Chilterns are inaccessible to cars, at least in the more attractive parts, and the easily-reached areas are perhaps not so interesting. The writer suggests three spots which are rarely crowded, are within the range of cycling families, give plenty of room for the youngsters to play games, and present enough beauty to inspire artist and amateur photographer alike.

1. THE GALLOPS, five miles from Wantage.

Take B4507, going westward from this town. After about two and a half miles, turn left onto the Lambourn road, B4001. The crossroads will be found in a little dip in the road, just opposite Childrey village. The Lambourn road bears right after half a mile to climb steadily up Hackpen Hill, with the Devil's Punchbowl on the left. The view over the Vale of the White Horse, looking northward from the summit where the road crosses the Ridgeway, is magnificent, on a clear day. (800ft. above sea level). There is plenty of room at this point to drive the car off the road, and the nearby copse will be explored with great excitement by any children in the party. By continuing a further half mile or so along toward Lambourn, a more unusual view can be obtained. Along the right hand side of the unfenced road runs a line of tree clumps, with cultivated downland in between. In summer, the long green track of the Gallops, parallel to the main road, cuts neatly through the yellow corn, and disappears toward the Valley of the Seven Barrows (see sketch). The Lambourn Downs make a fine background to the scene.



People with time—and energy—will enjoy making a round trip of it by returning home via the Valley of the Seven Barrows. To do this go one and a half miles on toward Lambourn, then turn very sharply right. This narrow, winding road offers plenty of interest to amateur archaeologists, containing as it does examples of both long and round barrows. Finally, the road passes over the downs escarpment, down Blowing Stone Hill (shades of King Alfred!) at the bottom of which a right turn must be made to rejoin B4507 going in the Wantage direction.



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2. THE FAIR MILE, seven miles from D'icot.

For those fond of the Downs, an outing to the Fair Mile will be found very rewarding, although a mile or so of unsurfaced road must be traversed. Abingdon or Wantage residents should first make for Didcot, or Harwell village, and then proceed to the village of Blewbury. Here, take the Reading road (A417) eastward for two and three-quarter miles until a cross-roads is reached. Turn right off the main road, and here owners of very delicate vehicles may prefer to park and make the rest of the trip on foot. The road begins to climb gently up on to Kingstanding Hill, which is covered with trees and provides an excellent view across Moulsoford Bottom toward the village of Moulsoford, which can be seen one and a half miles away in the middle distance (see sketch). There is ample shade and space for picnicking here on a hot day, before going on to the more exposed downlands. To reach The Fair Mile, a straight stretch of springy turf, which really is a mile long, one must push on over Cholsey Downs, along the track which, although it is rather rough, does provide enough room for two cars to pass. Eventually, the track terminates at the Fair Mile, where there is enough room to turn round, to play games, laze about, or if it is autumn time one can profitably go blackberrying on the slopes of Unhill Bottom, just on the left looking southwest. If it rains while you are up at the Fair Mile, the track may prove a little greasy on the way down so don't rush it!

The distance to the Fair Mile is about seven miles from Didcot, which information should help family cyclists to plan their day out.



Solution to Photo Quiz, page 29.

General Lopez on his visit to Harwell in 1955. As President of Portugal he welcomed the Royal Party on their State visit to Portugal in February of this year.

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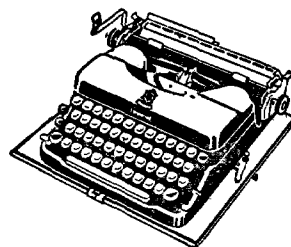
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Proof Reader's Competition

Our last competition attracted entries from much further afield than usual. Entries arrived from the States, Liverpool, Surrey and Hertfordshire, Dr. Sykes writing from his new residence at Yerkés Observatory.

Again no all-correct entry was received and the first prize of one guinea has been awarded to Dr. Sykes who listed 17 acceptable errors. Second prize of 10/6 went to K. L. Aitken, Bldg 154, with a total of 15 errors.

Wrong founts were not nearly so prevalent as in the previous issue — the second *e* in *Surveyors* (Miles and Son) and the $\frac{1}{2}$ in $\frac{1}{2}$ *H.P.* ("Varatio-Strateline") were two.

Ten of the more widely spotted mistakes were as follows: —

P.4. "Nighthawk" — *Cadium* for *cadmium*.

P.5. "Educational Supply" — *Stationary* for *stationery*.

P.8. "Ekco" — Full stop for comma in the address.

P.10. "W.A.S.M." — *Anouncing* for *announcing*.

P.34. "Miles" — *Surveyers* for *surveyors*.

P.34. "Archer Cowley" — *Furnature* for *furniture*.

P.40. "Bretts" — *Practise* for *practice*.

P.38. "Adkin, B. & B." — Inconsistent punctuation.

Inside back cover

"Camp Hopson" — *Classware* for *Glassware*.

Outside back cover

"Varatio Strateline" — Single inverted comma after *David*.

One error was discovered only by W. R. Crofts, Bldg. 10.28 — namely the odd pair of brackets around *Oxford* in the Hunt's (type-writers) announcement. A book token has been forwarded to the above eagle-eye.

A new rule for the *new* Proof Readers' Competition based on this issue will be found on



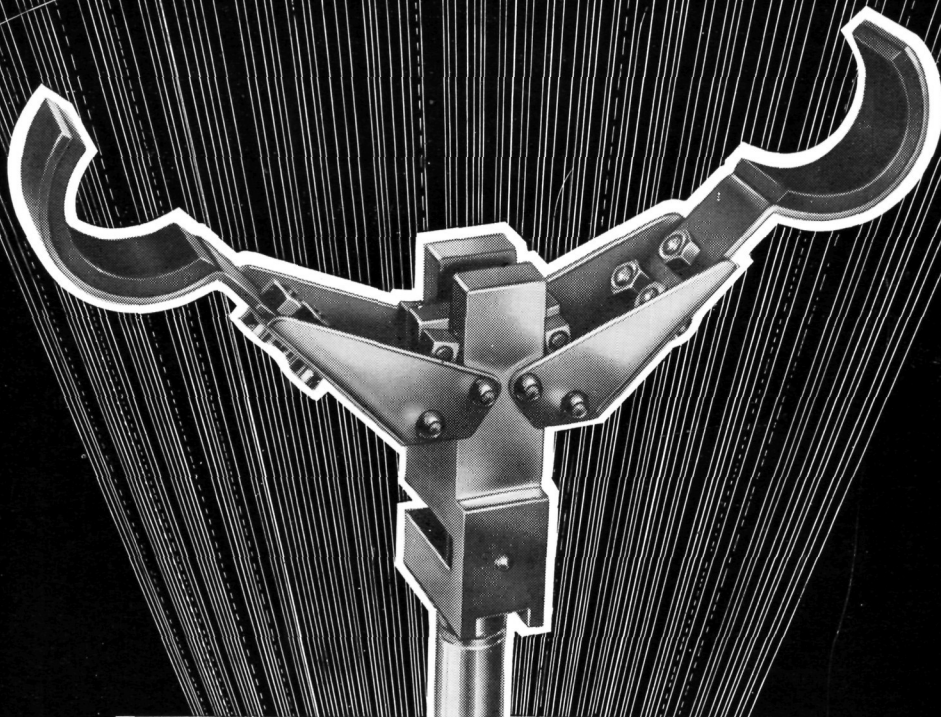
— and the proof of the pudding.

The New Canteen

page 4. First prize of 21s. will be awarded to the person giving the most complete list of acceptable errors, with 10/6d. for the runner-up. Entries should be sent to "Harlequin Competitions, c/o Central Registry, AERE", to arrive not later than May 31st.

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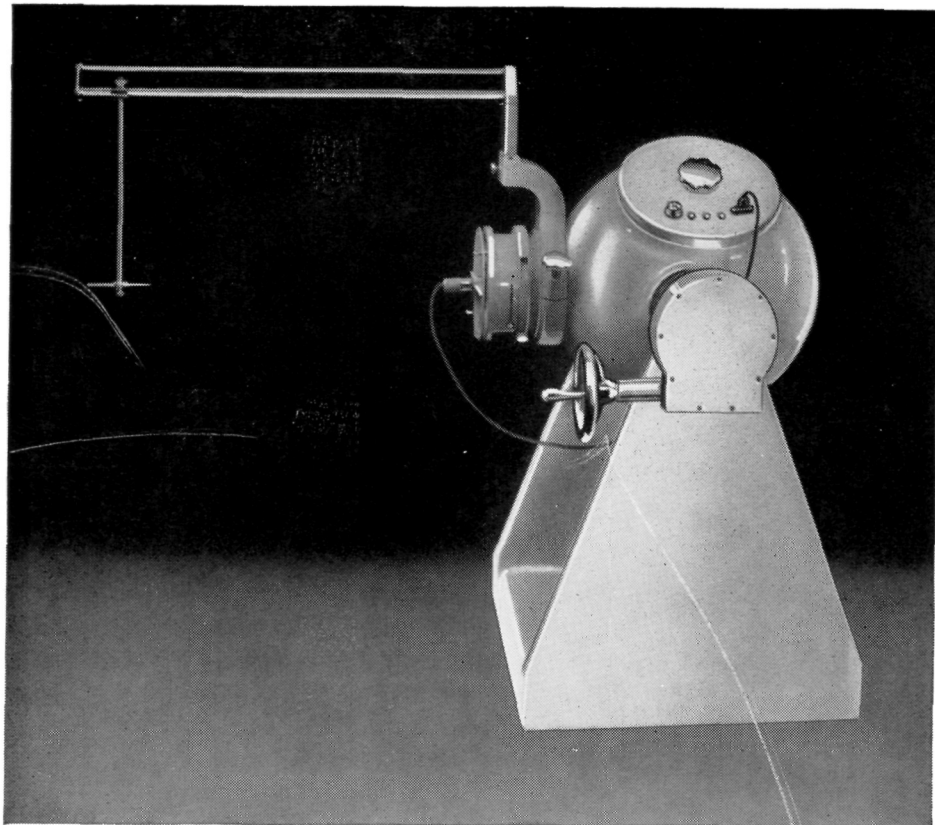


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Do you know your Particles, Ron ?

Does he Eth? It's that moustache of his.

No, Ron, I mean atomic particles, alphas and betas and such. For instance, what is a neutron?

It's a little thing like a lizard that lives in ponds, Eth! Mum says Dad comes home as tight as a newt every Saturday night, but he doesn't go in the pond, he goes in the Wagon and Horses. I wonder how newts do it.

No Ron! Neutrons are parts of atoms. They have no charge. Electrons are negatively charged and protons are positively charged. They all spin round together. Does that bring it home?

When Dad is positively charged Eth, he spins round by himself till he falls down — then they bring him home.

Ron Glum! Here am I trying to educate you and all you do is scoff.

It's only a sausage roll that was left from tea, Eth.
I didn't mean that sort of scoff, but hurry up and finish it and let's get down to business.

Right-oh Eth, here I come.

Oh Ron !

R. O. T.



With apologies to the B.B.C., "Take it from Here", Frank Muir, Dennis Norden, Norman Mansbridge, The Co-operative Permanent Building Society and all right-minded people.



"Harlequin" c/o Central Registry, A.E.R.E., Berks.
This is the address for all correspondence.
May 21st.

This is the closing date for all competition entries and contributions of all kinds needed for—
The next issue of Summer 1957.



Before leaving us, the Royal party were taken to some of the work on controlled thermo nuclear reactions — long-term work of immense potential importance. As the cars drove out of the Main Gate the Royal Standard was lowered over the Establishment — the Royal Visit had ended.



TO SIR EDWIN PLOWDEN CAME THE FOLLOWING LETTER FROM BUCKINGHAM PALACE:

THE QUEEN DESIRES ME TO TELL YOU HOW MUCH BOTH SHE AND PRINCE PHILIP ENJOYED THEIR VISIT TO HARWELL . . .

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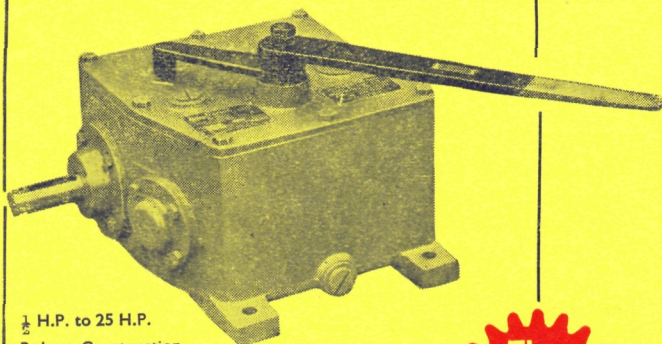
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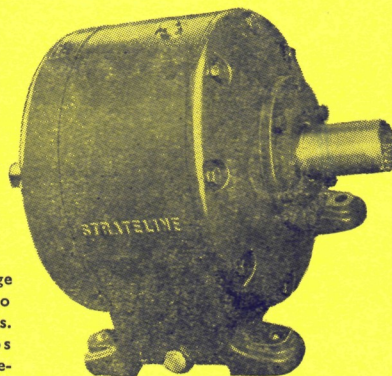
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