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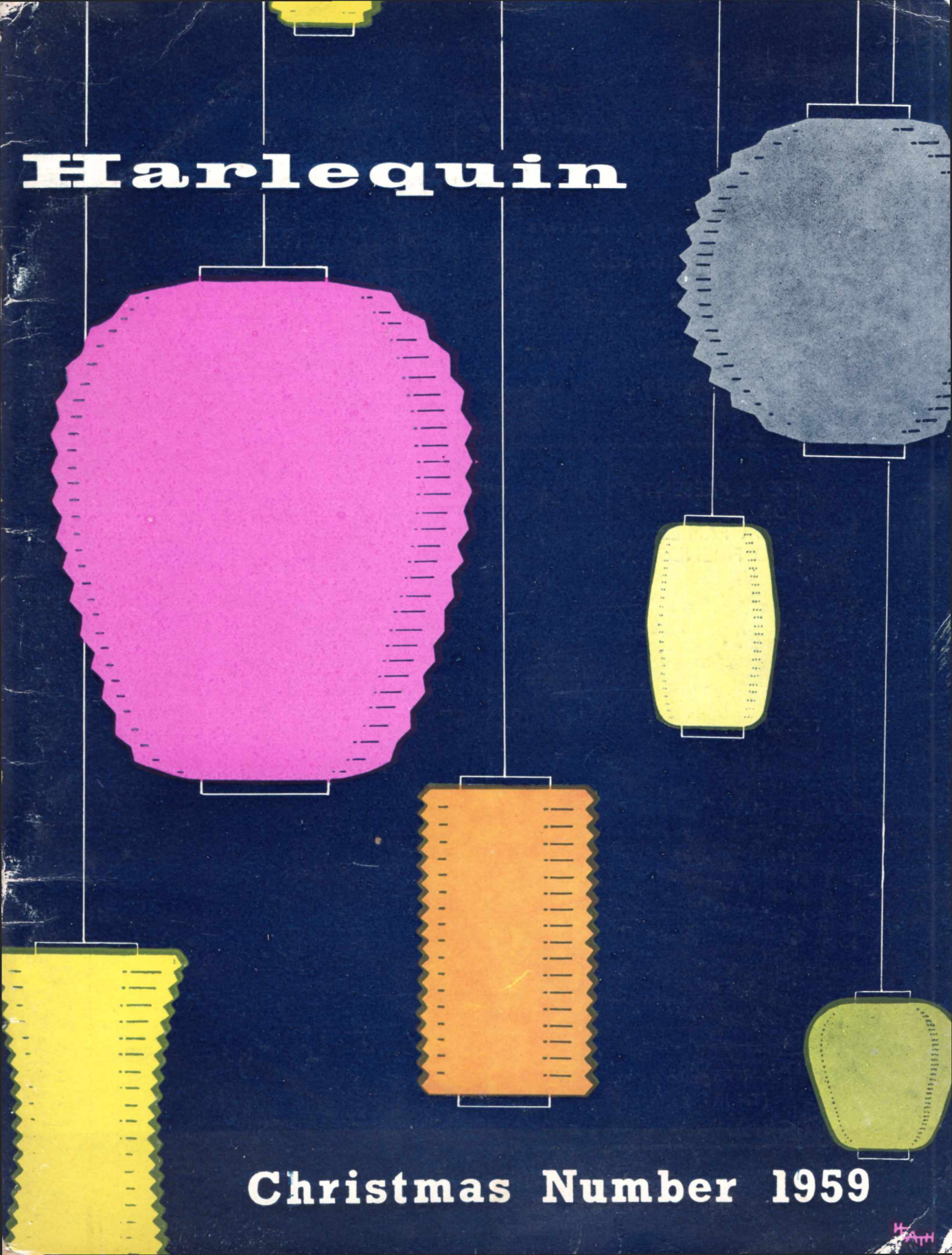

Christmas Number 1959

HARLEQUIN

NUMBER 28 CHRISTMAS 1959

Leisure Magazine of the United Kingdom Atomic Energy Authority Research Group

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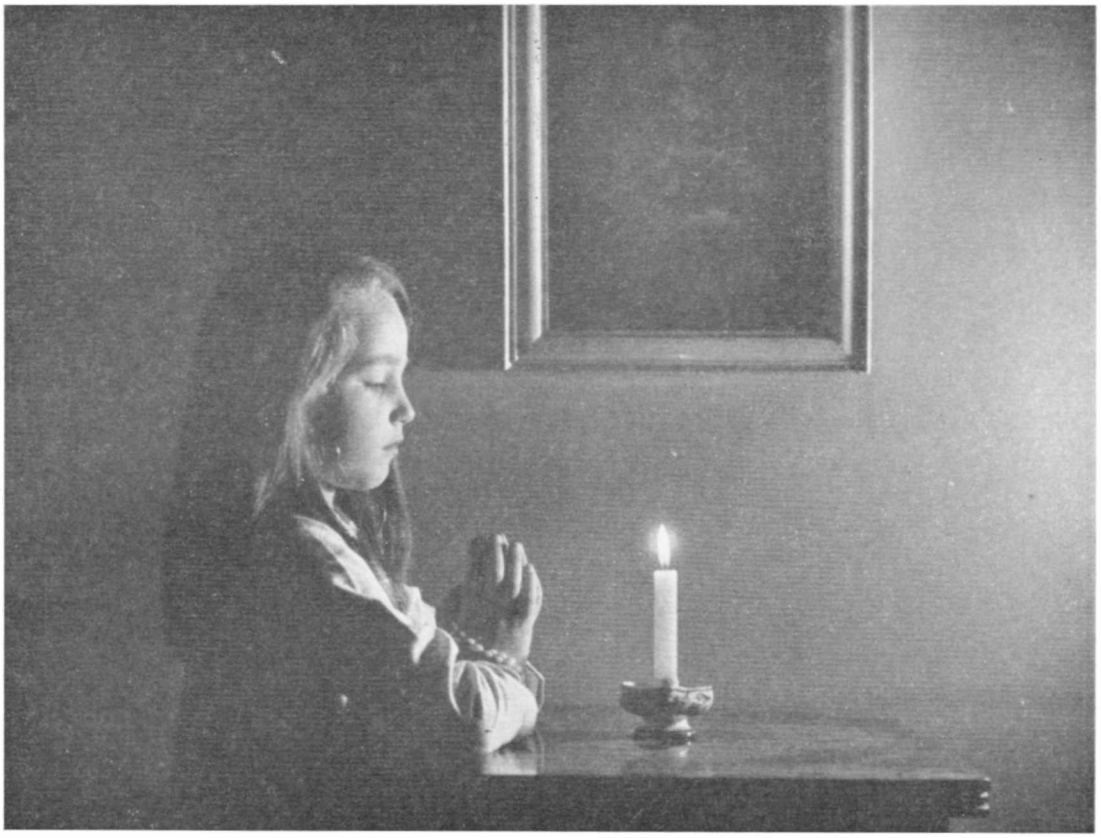

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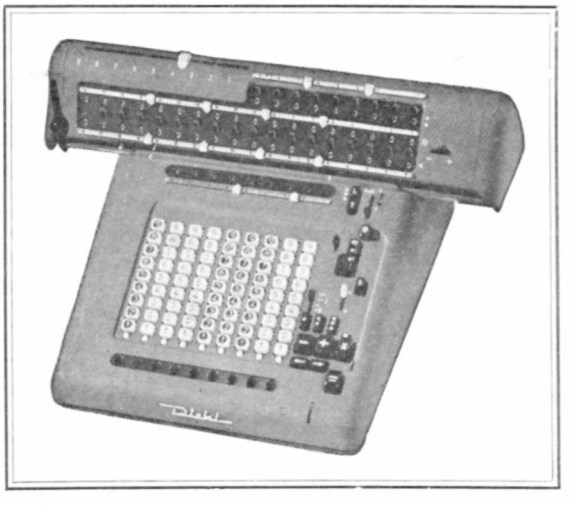

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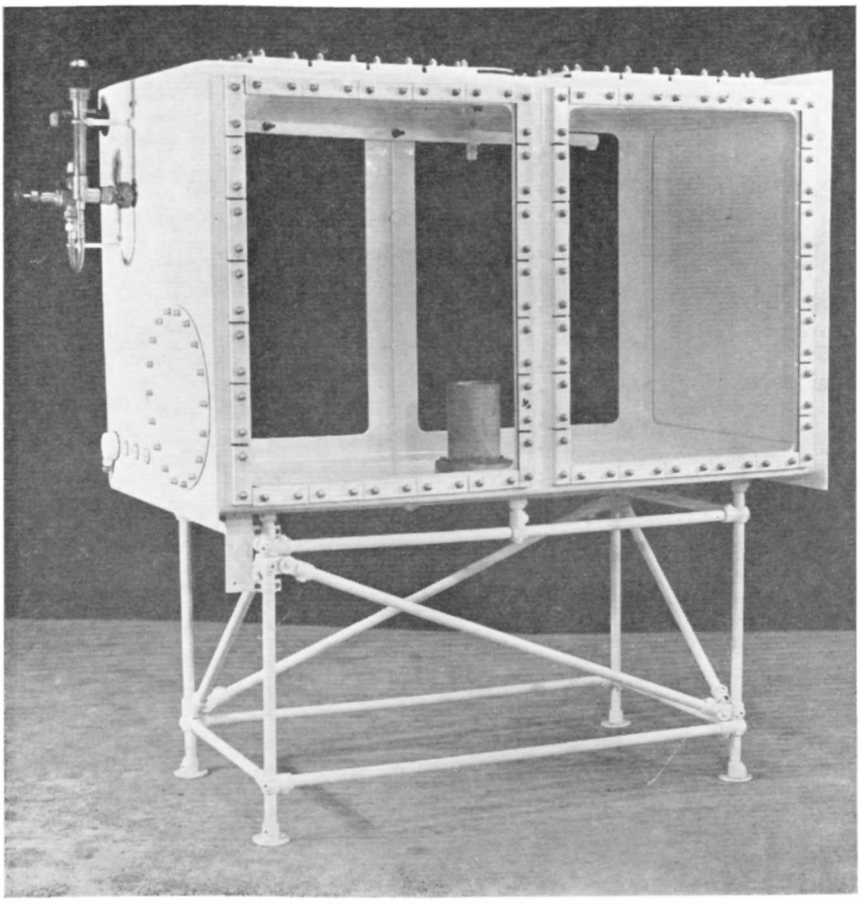

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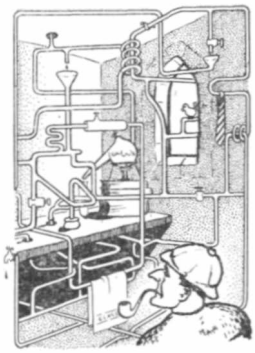

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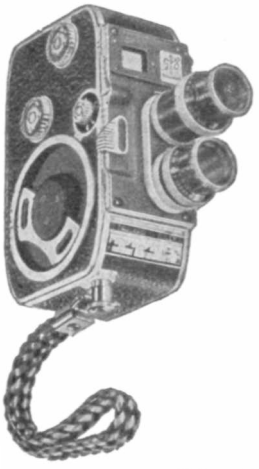

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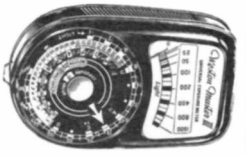

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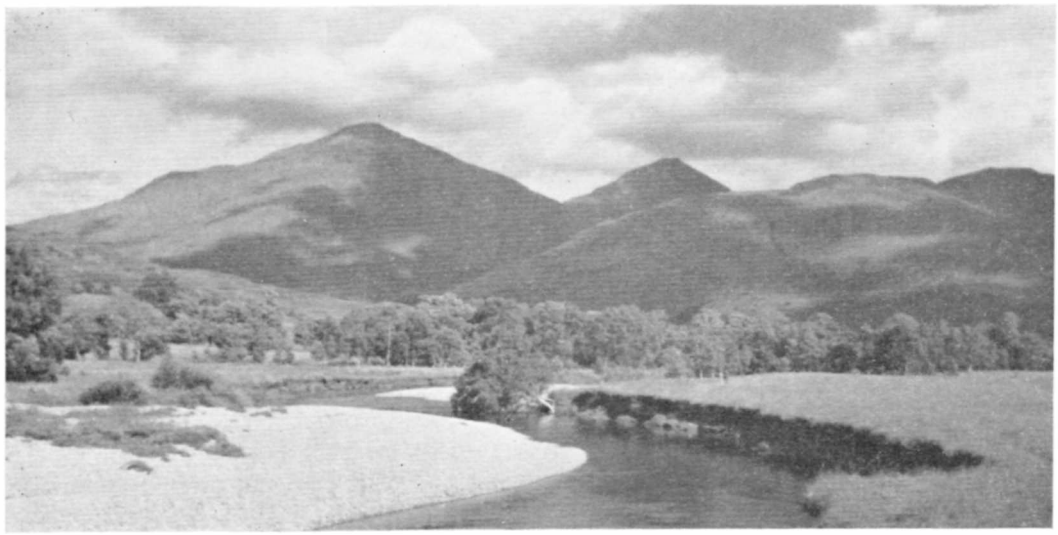

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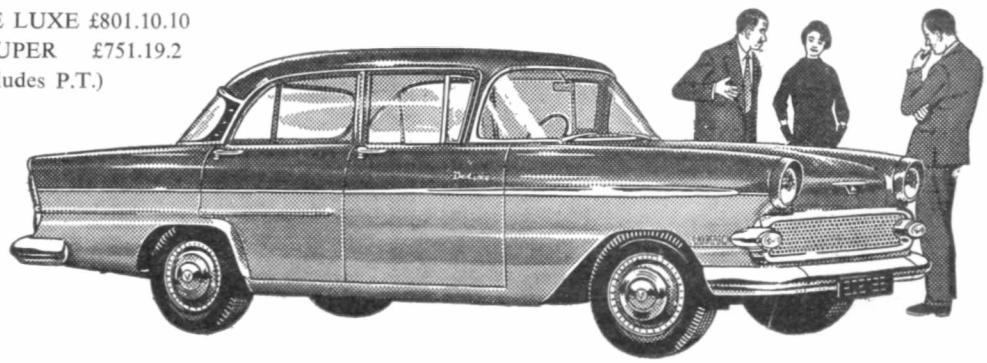

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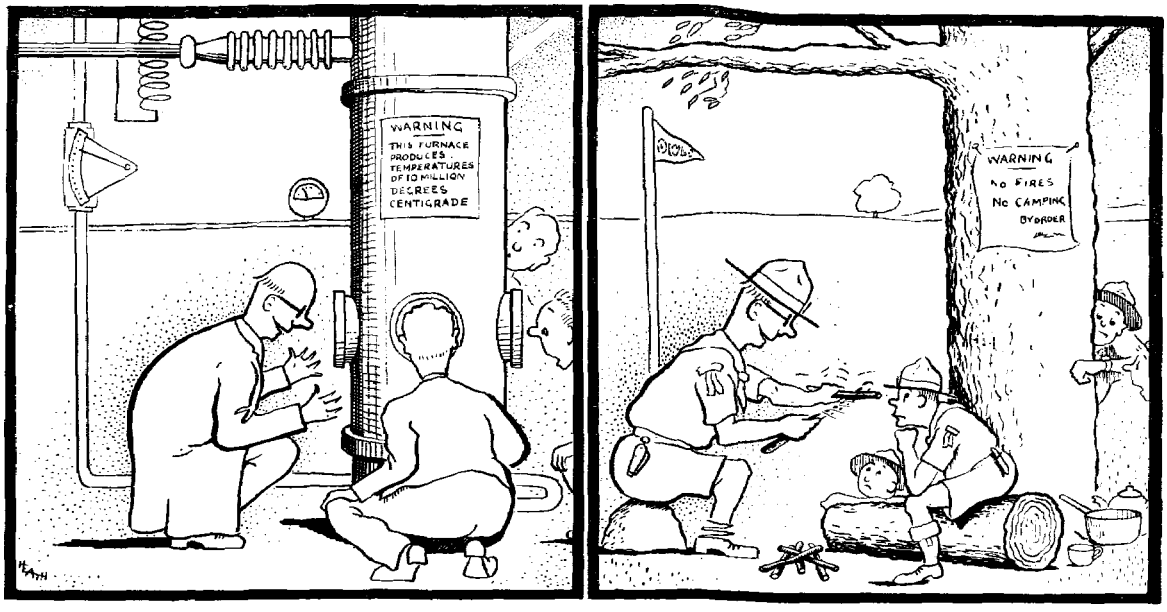
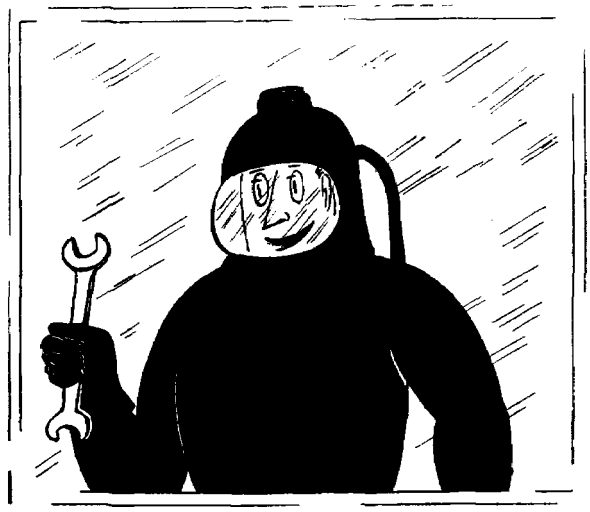


—AWAY FROM HARWELL TO THE GREATER WORLD OUTSIDE



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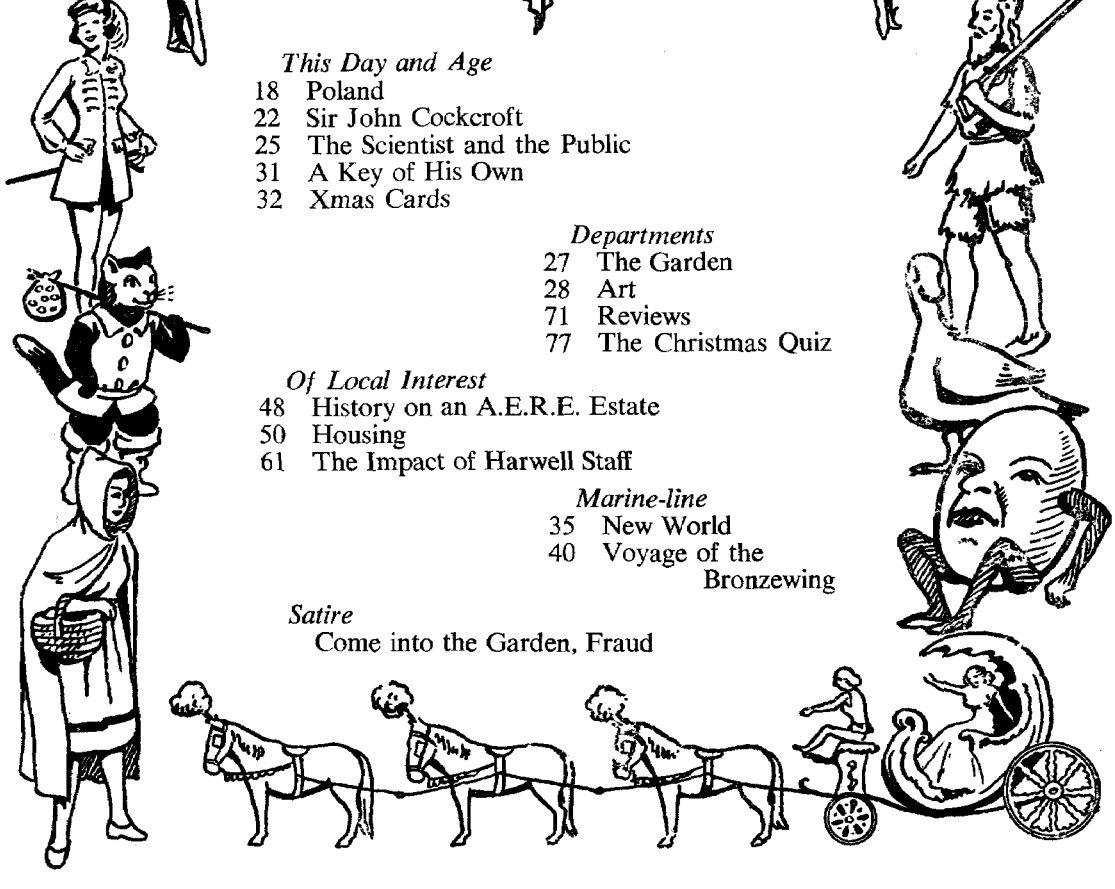

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FOREWORD

BY SIR WILLIAM PENNEY, K.B.E., F.R.S.

The Editor of *Harlequin* has invited me to write a foreword for the Christmas issue.

It is pleasant, so soon after coming to Harwell, to greet members of the Establishment through their magazine. I am only too conscious that I have not yet met more than a small fraction of the people who work in this great research centre.

By the New Year, I hope that I shall be able to devote my full effort to serving the Research Group and the Authority as Member for Research. When my wife and I move into 1 South Drive, we shall also be able to take more interest than we can do at present in the community life at Harwell.

Science is of its nature egalitarian and honest. In a large first-class scientific institution, such as Harwell, leadership and guidance must come from the top, but all have the opportunity to advance the boundaries of knowledge, whether it be by new ideas or fine craftsmanship. The outstanding quality of our Establishment is one of the many things we owe to Sir John, and all of us are sorry that he is leaving us. Our regret is tempered by the thought that he will still continue to serve on the Authority as well as piloting Churchill College, with all its potentialities for the advancement and application of science. On your behalf, I send our warmest good wishes to Sir John and Lady Cockcroft for their new work, and we look forward to a steady flow of Churchillians to the scientific and administrative staff of the Authority.

We look forward also to a continuing and vigorous scientific life in the Research Group. There will no doubt be some change of emphasis; there have already been changes in the responsibilities of individual establishments. Atomic Energy is now a major area of technological advance, but much exciting work, both basic and applied, still remains as a challenge to all of us. I am certain that Harwell's name will continue to be internationally respected as a guarantee of scientific ability and integrity, and that before long, Winfrith and Culham will gain similiar reputations.

My best wishes to you all for Christmas and the New Year, full of happiness, hard work and achievement.

EDITOR: D. A. TYLER

TREASURER: L. P. THOMPSON DR. R. B. JACOBI SALES MANAGER: J. DALEY

EDITORIAL

TOO many familiar faces are beginning to disappear from the Harwell scene. Whilst each departure must leave its sense of loss somewhere, it is in the nature of things that their goings will be felt more directly by some than by others. We watch with interest and pride the activities that they pursue, albeit elsewhere, in the years to come.

Christmas is a time when families meet and friends call on one another. This has been so since the strange, heart-stirring drama of the first Christmas when, under a harsh dictatorship, along a winding route that stretched as far as from Harwell to Winfrith—but by roads a good deal rougher—a humble man made his way on foot with his wife. They found no welcome, and no fit place for their child to be born, but the Christmas of today has become, by the events which followed, the brightest event in the world's new calendar.

It is right that this issue of 'Harlequin' should have its emphasis on the home and the greater world outside. Christmas, with its starlight, firelight and candlelight, glows in the heart of winter; yet it is more than a family festival. Existentialism and other isms and philosophies can also claim men's minds, but from the message of Bethlehem individuals and nations can take heart, if with wide horizons and new generosity we make our way into a New Year.

Palace of Culture and Science

POLAND

SOME few months ago I had the pleasure of spending a few days in Poland at the request of the Polish Government, and your Editor thought my impressions of the visit might be of interest to the readers of "Harlequin." The visit was brief and the majority of the time was taken up by discussions and lectures during the daytime and various dinner parties in the evenings, so that I had little opportunity for more than a cursory look at the various places visited. The language barrier, in addition, was very formidable. However, in the time available my hosts were very accommodating and did, in fact, put themselves to some trouble to accede to my requests to visit one or two places I was interested in. For example, the schedule drawn up for the visit confined the activities to Warsaw and Swierk, but I expressed a wish to see Krakow while I was in Poland and the schedule was altered and air-passages re-arranged to allow this to be fitted in.

The flight to Warsaw was by way of Brussels and East Berlin, the first part by Sabena and the second by L.O.T., the Polish airline. It was very fortunate that on the day chosen the weather was fine and visibility excellent. Flying at 10,000ft., one had a beautiful view, and since there were only 10 passengers from Brussels to Schönfeld and 8 from Berlin to Warsaw, one could move freely in the plane and choose one's seat without any trouble. Unfortunately, from my point of view, it was dark when we arrived at Berlin, and I saw very little of that city apart from the airport. This appeared to be rather neglected and had an air of down-at-heel shabbiness. The only outstanding feature was an enormous neon sign announcing that it was in the "Deutsche Demokratische Republik." There were one or two Soviet planes on the runways, but of course I had no chance of looking at them, being confined in the transit lounge minus passport for the hour or so we stayed at Schönfeld. The last leg of the flight was in darkness.

My return flight was by the newly started B.E.A. service direct between Warsaw and Heathrow. B.E.A. are not allowed to fly over E. Germany so the route is via the Baltic, crossing Denmark and Holland. Unfortunately, we were flying above the clouds for most of the way and I only had brief glimpses of the landscape over which we were passing.

The people with whom I came into contact were very charming and hospitable and intensely patriotic. In spite of their chequered history and the fact that for long periods they have been under foreign control, the Poles appear never to have lost their individuality and have never been absorbed. They are very proud of the part Poland has played in European history and particularly of their national heroes John Sobieski and Kosciuszko. The former's palace at

Outside of Sigismund Chapel, Krakow Cathedral

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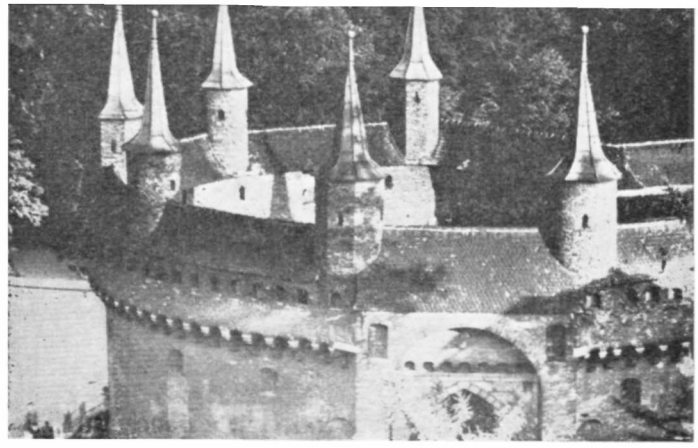


Krakow Barbican

Villanova, some few kilometres outside Warsaw, which was badly damaged, is being restored as a national monument. It contains a beautiful little open air theatre dating back to about the 17th century. Kosciuszko is commemorated by a man-made hill outside Krakow. I am not sure when this was built, but I was told it was made by people bringing small amounts of soil from all over Poland and heaping them one on top of the other until a hill about 300 metres high was built.

Another Pole of whom they are very proud is Chopin. His birthplace, about 70 km. outside Warsaw, has been restored and a beautiful park established round it containing every type of tree and bush found in Poland. I was fortunate on my visit to this place to be entertained to a Chopin recital by one of Poland's leading pianists.

The city of Warsaw itself is rather drab and uninteresting. The old Ghetto area was completely destroyed during the war and there are still large areas in which there is nothing but mounds of rubble. A considerable building programme has, however, covered the majority of this area but the buildings consist largely of big blocks of flats which are not particularly beautiful to look at. The shops, which are all nationally owned, are also very uninteresting; they appear to be very few, considering the size of the city. They appeared to be well stocked with foodstuffs, but other consumer goods and clothing were not so obviously displayed, whether because of shortages or for other reasons, I could not tell. In view of the exchange difficulties it was not possible to compare prices, but I got the impression that, apart from food, the majority of the goods appeared to be more expensive than British goods. This applied particularly to clothing and in this case there was very little variety. One item in the food shops which was prominently displayed was Nescafé!

The old city, i.e. the original Warsaw of the late Middle Ages, which was also razed to the ground during the last war, has been rebuilt to as near as possible as it was before the war. They must have spent a considerable amount of money on this project and have certainly done a good job. In the main square, the buildings have been reconstructed complete with copies of the various friezes, beams and external decorations, and I was assured that its appearance now is almost identical with what it was before destruction. The buildings themselves appeared to be used largely as museums, but one of the most famous—the house used by the Mayor of Warsaw during the 16th–17th centuries—is now a cafe and a night club called the Crocodile.

Sport appeared to be well catered for. On the east bank of the Vistula a new sports

Houses of Parliament

stadium has been built capable of accommodating over 100,000 people, and in the western part of the city is another large stadium and sports arena including a large swimming bath.

Warsaw is dominated by the Palace of Culture and Science, a building some forty storeys high, in the heart of the city. This building was, I understand, built by the Soviet Government during the late 1940's as a present to the Polish Government. It houses the majority of the scientific and cultural societies and institutions and contains a number of lecture theatres. The Ministry for the Utilisation of Nuclear Energy is housed there, and I spent the majority of my time in Warsaw in this building. The building is well furnished and finished except for the lift accommodation. The Russians must be great believers in walking up and down stairs since there were not nearly enough lifts to take care of the numbers needing them and there were queues and crushes at every one.

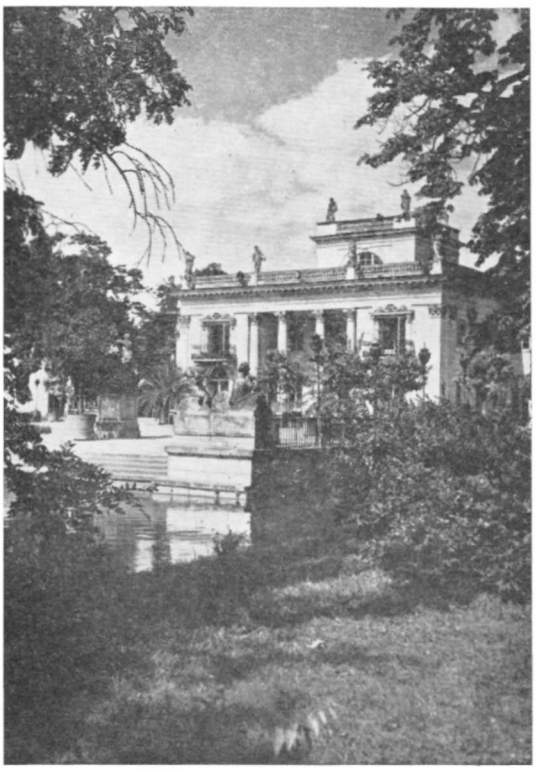
The journey from Warsaw to Krakow was by car, a "Warszawa", which is almost a copy of the Vanguard Mk I. The journey emphasised what I had already noticed, that the roads in Poland are, generally speaking, in a very bad condition. This road, which is one of the main routes in the country, is in places worse than some of our unclassified roads and even the good stretches are about comparable with our 'B' roads. In spite of the fact that we passed through only two towns of any size, and comparatively few villages, and that there are long stretches of perfectly straight road, the journey of about 250 km. took well over 7 hours.

The brief glance that I had at some of the villages on this journey showed that conditions were in some cases very bad indeed. I had noticed this on my way to Swierk, where their new research station is being built. Near Swierk is a small town called Otwock and this appeared to consist mainly of disreputable wooden houses in a bad state of repair. The roadways were almost non-existent consisting of cobblestone and mud lanes, and the general appearance was depressing. These same conditions appeared to apply to the villages on the Warsaw-Krakow road, but the further south one went the more the conditions appeared to improve.

Krakow itself was very little damaged apart from the old Jewish quarter. It was the headquarters of Frank during the war and this probably has something to do with its lack of damage. Poland's early history was centred round Krakow and it was the capital for some hundreds of years. Its main attractions are the University (the second oldest in Europe), the Cathedral and the Castle. There are numerous churches of varying styles and, just outside what is left of the old walls, is one of the few comparatively undamaged Barbicans in Europe.

My host at Krakow was the Director of the Nuclear Institute and the senior Physics Professor at the University. He arranged for me to see around the old original part and to have its treasures opened up. These included a number of instruments used by Copernicus who was one of the University's most distinguished members.

The castle is largely 15th–16th century and was the home of the Polish kings before the capital was moved to Warsaw. Nowadays, it is largely a museum and art gallery. The cathedral was the place where the Polish kings were crowned and underneath are vaults in which they and their families were buried. This cathedral and the vaults appear to correspond to our Westminster Abbey and, since there has been no royal family in Poland for nearly two centuries, the vaults have been used for the



An ex-Royal Villa in Lazienkach Park, Warsaw

most distinguished citizens. Marshal Pilsudski, for example, is buried there.

I mentioned earlier that Krakow has a number of churches of varying styles. Two of them are perhaps worth mentioning. Firstly, the church of St. Mary Magdalene and, secondly, the church which I believe is called the Church of St. Mary the Virgin. The former has a magnificent reredos about 10 metres high and about 8 metres wide when opened. The centre panel is 10 metres by 4 metres with hinged side panels, each 10 metres by 2 metres. This reredos was removed during the war and taken to Heidelberg and, according to the Poles, stored so badly that woodworm got in. They had to spend a lot of money and conduct what was to all intents and purposes a dentistry operation before it could be replaced. The Church of St. Mary the Virgin has two towers of unequal height, and according to tradition these towers were built by two brothers. There was rivalry between them as to who could build the higher tower, and the result was the murder of one brother and the suicide of the other by jumping off the top of the tower.

A unique custom in Krakow is the blowing of a bugle from the top of the clock tower in the main square every hour on the hour. The bugler blows a few notes and then suddenly stops. This is to commemorate a trumpeter who was on the lookout during the Tartar invasions of Europe and who warned the inhabitants of the approaching army, but was killed by an arrow in his throat.

Outside Krakow is a new town, Nowa Huta, attached to a large steel works. The new town houses around 100,000 people, but consists almost completely of enormous blocks of flats with a shopping centre round a main square, and with a few other smaller shops spread around. It was impressive, but very stereotyped, and would not, I think, satisfy the aesthetic sense of our Harwell architects. The steel works certainly looked impressive and huge in size. Their annual production at this one works was $1\frac{1}{2}$ million tons at the time of my visit, and they are planning to increase this to $3\frac{1}{2}$ million within a year or two.

I saw little of the Russian influence on my visit, apart from the Soviet-supplied reactor at Swierk and the cyclotron at Krakow. The machine tools in the engineering buildings at Swierk and at the Nuclear Institute in Krakow were largely from Czechoslovakia, and were spoken of very highly. Their own machine tool manufacture was apparently not so good.

Palace of Culture and Science

The visits to Warsaw and Krakow coincided with the official visits of Voroshilov to both places. There appeared to be little enthusiasm over the visits and, while the usual flags, etc., were in evidence, the general public was somewhat apathetic, particularly in Warsaw.

The general impressions I got were not those one would be led to expect in an "iron curtain" country. There appeared to be more police around than are normally seen in English cities, but they were not armed. The general public appeared to have a healthy respect for them, however, and twice during my visit the car in which I was riding at the time was stopped and the papers of the driver and passengers examined. Criticism of the Germans and Russians was quite free in the restaurants I visited, that is, in English, of course, by the people with whom I mixed. There was a lot of talk about October 1956, when the Poles threw off some of their dependence on Russia and—unlike the Hungarians a little later—got away with it. This was exemplified by the re-naming of some streets and towns after the uprising. ★

After 13 years Sir John and Lady Cockcroft moved this Autumn from their Harwell home. Although taking up his new duties as Master of Churchill College, Sir John will remain a part-time Member of the Atomic Energy Authority and will continue to be Chairman of the Authority Committee on Health and Safety. He will also remain a Member of the United Nation and International Atomic Energy Scientific Advisory Committees and a Member of the Scientific Council of the Cento Nuclear Centre (Teheran).

By arrangement with Phoenix House Publishers, "Harlequin" pays tribute with the following extracts from the 100 page biography by Ronald Clark:

SIR JOHN COCKCROFT

JOHN Douglas Cockcroft was born in 1897, the year of Queen Victoria's Diamond Jubilee. The son of a Todmorden cotton manufacturer whose family had for long lived in this part of Yorkshire, he was one of five sons, three of whom later entered their father's business. John was shortish, tough, and from his earliest days marked out by an ability to combine "swotting" with the heartiest of sports activities. He picked up scholarships with an almost disconcerting ease; but he also captained the school football team, played for the local First Eleven in the Central Lancashire League, and on one glorious occasion knocked up 100 in a match with the neighbouring team from Littleborough.

All this, he notes, provided a good physical basis for later life. It provided him, also, with that broad-based outlook which was to consider science, and all that it stood for, as an important part, but only a part, of the full and happy life. For it was to science that he increasingly turned, and it was on a scientific career that he had finally decided when in 1914, at the age of 17, he won a scholarship to Manchester University.

The atmosphere of international co-operation in which Rutherford's Department was steeped strongly influenced the young Cockcroft, and throughout his life he has stressed that nuclear science has been marked from its earliest days by a co-operation that has ignored international frontiers.

All now seemed set for a straightforward academic career. Then the cloud on the horizon, no bigger than a man's hand, suddenly loomed over all Britain, and the country was at war with Germany. Early in 1919, he came back to Todmorden, now commissioned, toughened for life, and with, as he says, much more knowledge of human beings.

When he joined the Cavendish team in 1924, one of his first tasks was to work with a remarkable young Russian, Peter Kapitza, born in Kronstadt only thirty years previously, yet already a Fellow of the Royal Society—the scientist popularly but erroneously known today as the man who made the Sputniks.

It was soon after he had taken over Kapitza's work that Cockcroft received one of the most coveted of the many academic honours and awards which were to come to him. In 1928 he had been made a Fellow of St. John's. Now he became a Fellow of the Royal Society, the Fellowship being given for his work with Walton in 1932. This was an augury of things to come, for in later years he was to be knighted, awarded the Nobel Prize for Physics, and made a member of the Order of Merit, that select body which never numbers more than twenty-four (living) eminent British men and women. He was also to receive an honour of a more local kind which he prizes very greatly—the Freedom of the Borough of Todmorden.

At times the strain of work showed, and there is one photograph taken with Rutherford and Walton after their famous experiments, in which the long hours and intense mental strain are clear for all to see. Usually, however, he would not have been taken for a scientist, and there were, and still are, few men of his mental calibre who look less like the popular conception of one. Round-faced, twinkling-eyed,

Lord Rutherford (centre) with Dr. E. S. Walton (left) and—as he was then—Dr. J. D. Cockcroft (right) after the first artificial transmutation of the atom had been carried out in 1932.

slow-speaking and confident of himself, he might well have been taken for one of the successful farmers from the neighbouring countryside, men who spent most of their lives in the open air and who were—except for a routine grumble about everything—contented and happy in their work. Cockcroft was happy in his work, and it is perhaps as well to stress that he worked with both brain and hands.

Throughout the early months of 1939 Cockcroft had continued, almost as usual, with his work at the Cavendish Laboratory. He was now one of that group, totalling only a few score, who knew how Britain was developing a defensive weapon that would give the country an immense advantage were it attacked by enemy planes.

Finally it became clear that the British would have to send one of their own scientists to direct the Canadian side of the Anglo-Canadian atomic project if they were to secure full American co-operation. The choice fell on Cockcroft.

From the first, Cockcroft played a bigger part than might have been expected in seeing that the community developed in the right way. About two thousand men, women, and children of many nationalities had to live together in conditions that were strange to most of them; that they did so happily was due quite considerably to the influence of the man who was responsible for the whole enterprise. Science is not the whole of life, Cockcroft stressed years later when he was speaking on the implications of science to a group of Grammar School boys. We require well-educated scientists who are able to communicate and discuss their ideas and work, and who will co-operate well with others.

This belief, that the Humanities have something to teach even the most competent scientist, was something that Cockcroft was to emphasize increasingly during the succeeding years. Here, at Chalk River, his beliefs became evident more clearly than before.

Without fuss, Cockcroft had quietly coaxed into effective action an organization on which Britain's impressive atomic energy industry was, eventually, to be largely based. Immense engineering and other technical difficulties would no doubt have to be overcome before man could draw from the atom all the power he wanted. But it was realized that at last the job could be done.

The site which Cockcroft was to help transform into what its enthusiasts call "Harwell University" lay in the lee of the Berkshire Downs, virtually on the Icknield Way, that trade route of prehistoric times, and on the outskirts of the thatched cottages of Harwell itself.

Since that time in the summer of 1946, he has been closely linked with every development in the exciting research establishment which has sprung up on the disused airfield. As Britain's plans for using the power of the atom have increased, factories and power stations making or using atomic fuel have been built in various parts of Britain and Cockcroft has, of course, been connected with all of them. It is on

Harwell, however, that he has left his special imprint. Few research institutions have been more definitely moulded by the ideas and outlook of one man, and just as the name of Rutherford is summoned up by the title of the Cavendish Laboratory, so do the words Cockcroft and Harwell spring to mind together.

He was interested in the past as well as in the future, and he saw the development of nuclear energy in its broadest context, a very important thing no doubt but not the most important thing, let alone the only thing, that should be illuminated by man's brief candle.

This ability to see in perspective such problems which science presents to non-scientific people does not come entirely from Sir John's continuing interest in both architecture and the countryside. It springs, rather, from his firm belief that science is but one of the things that should mould the outlook of what the Elizabethans called the 'whole' man.

'Children to-day are growing up into a world which is more and more dominated by Science, but in which we need more and more the moderating influence of the Humanities', he has said.

This is the belief which Sir John has been preaching in all manner of unexpected places and it is typical of the gradual change in emphasis which has taken place in his own life during the last few years. He has felt increasing concern that education in science should neither lag nor lose a sense of perspective. This growing interest in the balanced teaching of science culminated, early in 1959, in his appointment to the Mastership of the new Churchill College at Cambridge, a college where seven out of ten students will read the natural and applied sciences, while the other three will read arts subjects. Thus, it is hoped, the disciplines of one course of learning will impinge on the visions of the other, and students of both kinds will benefit from the contact.

Mastership of the Churchill College means for Sir John a withdrawal from some of the work of the United Kingdom Atomic Energy Authority. When appointed he had already given up the running of Harwell and become the Authority's Member in charge of Research. Now he has become a part-time Member. However, the picture of Sir John built up during the last few years is likely to remain basically unchanged.

It is the picture of a shortish, smiling figure stepping out of planes in distant places; speaking with quiet authority to scientists in Moscow, Baghdad, Tokyo, Copenhagen or the Hague; sitting on committees whose decisions prod along the destiny of man, and interposing the occasional vital question; packing more than twenty-four hours into a day that has been divided between his Harwell home, a headquarters office in London and the lecture rooms of the learned societies.

Sir John Cockcroft with his son Christopher, seen in their home at Harwell in December 1946, while the Atomic Energy Research Establishment was being built.

Now Cambridge will once again grow familiar with the man whom some inhabitants still remember as a young scientist striving with Rutherford to understand, and later to control, the mighty forces locked within the nucleus of the atom.

He is also—perhaps because of 'the enjoyment which the Arts can bring you throughout the whole of your life'—an optimist. The words which he used to that group of Grammar School boys a few years ago indicate some of the reasons why.

'I am an optimist, then, both for the future prosperity of our country and for the future well-being of the human race. I believe we can justify our status of homo sapiens and grasp the opportunities for a better life which science and technology will make possible. It is for you, the new generation, to achieve this.' ★

This Book is reviewed on page 71.

At this autumn's International Festival of Technical Industrial and Agricultural Films, held in Rouen, the U.K.A.E.A. won three awards with films of its activities.

The content of the article which follows is an address given by Sir John at the Harrogate Film Festival this year.

THE SCIENTIST AND THE PUBLIC

SIR JOHN COCKCROFT, O.M., K.C.B., C.B.E., F.R.S.

THE problem of making films forms only one part of another wider problem—that of communication between the scientist and the layman. People concerned with the making of films are among the many concerned with the communication of ideas, and the wider problem frequently arises in this age of technological advance which causes the pattern of our economy and our society to change rapidly and continually.

I have been closely associated for some years with the development of atomic energy, and the rapidity of advance in this field alone can be judged by the fact that it was only just over twenty years ago that Rutherford expressed the view that the prospect of finding useful applications for atomic energy "did not look promising."

Today the major industrial nations are building, or planning to build, power stations which produce electricity from nuclear energy. We are contemplating the possibility of crossing the Atlantic in three hours, and even thinking of space travel. The mind of the scientist (let alone the mind of the layman) is surprised and impressed by the rate of development of the applications of science.

This may be an appropriate moment to bring up a point which is sometimes overlooked—that scientists are only human and they too have their problems of understanding.

When I worked in the Cavendish Laboratory under Lord Rutherford thirty years ago, we were a group of 30 to 40 comparatively young scientists working in one of the growing fields of science, nuclear physics. It was possible not only to know everything going on inside the Cavendish Laboratory but to know most of the workers in this field through the world. After the war I became Director of Harwell and saw it grow to a staff of over 5,000 whilst the Atomic Energy Authority as a whole built up to a strength of 30,000 and a great national industry was founded. During this time the interests of physicists such as myself had to widen to take in radio-chemistry, metallurgy, biology and nuclear engineering at the same time as nuclear physics which was still on the frontier of science and developing fast. Scientists have therefore to learn to understand, at least in broad outline, what their fellow scientists are doing.

As scientists we often have an uncomfortable feeling that the rest of the population regards us as a race apart—long-haired gentlemen without any normal human desires or weaknesses who go coldly about our esoteric researches without any contact with the community in which we live.

This is, I assure you, an entirely false picture. Our houses are enlivened by children; we play football, hockey, cricket, tennis or golf (according to age or inclination); we cultivate our gardens; we sing in the local choirs and play in the local dramatic societies; we even fill up income tax forms like everybody else. And in these days when so many of us, whether we like it or not, have to appear on television there is really no excuse for the perpetuation of the legend that we are forbidding supermen.

Nor, if you think for a moment, can you truthfully accuse us of being remote from the life of the community in which we live. Atomic energy, for example, touches the life of the community at innumerable points.

The fact (already mentioned) that nuclear power stations are springing up in this and many other countries means that the scientist has first to concern himself with the problems of economics and of industrial development. Secondly, he is faced with a multitude of social problems—for example, where nuclear power stations are to be sited, how they can be made safe neighbours, and how we, as scientists, can become acceptable to the communities we move into.

We even become involved in the world of diplomacy. The United Nations devotes a good deal of attention to atomic energy development and has set up an International Agency to deal with this subject. We have to attend, somewhat impatiently, conferences such as that on suspension of nuclear tests. There is also a whole network of agreements between various countries designed to assist research and trade in this new field.

Six months ago I visited Russia with some of my colleagues to hear what they were doing in the exciting field of nuclear fusion. I also gave a lecture on what Britain was going to develop in the field of nuclear power. This lecture was greatly helped by my being able to show the film *More Power from the Atom* with a Russian sound track. This drove home the points in my lecture, especially to those whose knowledge of spoken English was small. I was asked immediately after the lecture if it could be shown again to scientists in the Institute who were unable to attend the lecture. From Russia I flew to Japan to give a similar lecture to an audience of over 600 and this time the film had a Japanese sound track, again easing the problem of communications. Since that time I have been in Ankara to lecture to students of the University. My lecture was translated paragraph by paragraph by an admirable interpreter, and again I had films with me—including one on applications of radioisotopes which provide the more immediate benefits of atomic energy to countries in the Middle East.

So we no longer lead the cloistered, monastic existence which is traditionally supposed to be the scientist's lot. We have a situation in which both the scientist and the man in the street are aware that science is affecting the daily life of the community.

The *problem* which arises has two sides. On the one hand, the scientist, for the purposes of communication with the other scientists, uses a language which is not the language of everyday life. In one way it is a kind of shorthand, in which a few words can indicate a considerable complexity of concepts. But it is also an instrument of precision in which a particular word can have one precise and limited meaning and no other. The word "neutron" means an enormous lot to a scientist and is even beginning to be understood by the layman. "Meson" and "hyperon" are still, however, very much "Third Programme" words and convey little to the average audience.

On the other hand, the ordinary man is apt to build up an inferiority complex about science. An attitude of "Oh, I shall never understand what they are talking about" forms a barrier which the scientist finds hard to surmount.

Scientists are, I am sure, making a sincere attempt to overcome this obstacle. In the everyday business of administration we have perforce to make the effort to explain our work in plain-language terms to politicians, civil servants, diplomats and businessmen, and in most cases I think we succeed. Many of us also spend a good deal of time in addressing audiences of the general public—often quite small audiences in village halls and so on—or in undergoing the gruelling experience of answering the questions of all-comers at exhibitions. All this is very good for us and I think many of us are learning, by painful experience, the techniques of making ourselves understood.

I am not equally convinced that there is a similar push from the other side of the fence, from the ordinary man. We find great eagerness to learn and ready comprehension from the young, but the not-so-young are still, it seems, unduly burdened with this inferiority complex.

It is, I would submit, of urgent importance to this country in particular, and to the Western world in general, that the effort should be made to understand what science is about and what it can achieve.

In visiting the Soviet world one is impressed by the tremendous efforts being made to popularise science and to increase their scientific potential. The Western world had a flying start in science, based on the work of the European scientists in the 19th and early 20th centuries. But we are fast losing this lead and in some fields of high priority in Russia we are already well behind. We need in the West to provide more nourishment for science and this can only come by a better understanding of science by the politician and the man in the street.

Communication and understanding can be greatly helped by combining simple visual pictures with the spoken word—the method of the documentary film. The working of a nuclear power station can be explained in terms of uranium rods getting hot and glowing red, while a simple kind of fan is shown making gas circulate past the hot rods and then past tubes full of water where steam is produced. The work of metallurgists in developing new metals and applying them to atomic energy can be made visually exciting. The life story of mesons and the reasons for scientists' interest in them could be similarly illustrated.

So when I travel about the world I usually take one or two films with me. We in the Atomic Energy Authority produce these for training purposes and also for the large international conferences such as the 1958 Geneva Conference. The films produced for this conference seem to be so much in demand that I have not yet been able to borrow many of the films produced by other nations for that occasion.

I think we could with profit produce many more such films, and in this way help to break down the serious barriers between the scientists and the rest of the world. ★

Annual Show of the A.E.R.E. Horticultural Society
(Photo: A. R. Kenyon)

GARDENING AS A MEANS OF SELF-EXPRESSION

Whether it be the house-wife in her home, the man in his business or workshop, or the artist in his studio, each and all aspire to self-expression. To express ourselves is what we all long to do, and self-expression is the aim, consciously or unconsciously, of all of us, however circumscribed our lives. It is not important how this is done so long as one does create. In this respect gardening offers great scope, not only for self-expression, but also for giving pleasure to others.

One might argue that flowers are not a creation of man, but of Nature, and that the hue is not given to a rose, nor the scent to a wallflower, but to a large extent one *can* create. By cultivation and breeding, and by careful tending, the tiny plant or seedling can be nursed to mature bloom. Let a man own a plot of land, however small, in which he can plant and arrange and cultivate whatever he likes best, something truly his own. He will know the lure of gardening, the keen sense of ownership, and the wonderful feeling of watching the results of his efforts, and of seeing choice blooms spring from what was, perhaps, barren soil. Add to this the pleasure of hours spent in the fresh air and sunshine, and gardening seems to be truly a worthwhile occupation.

Perhaps you say, "Who wants to do what thousands of other people are doing? I want to be different." But one *is* different, for it is your idea and your arranging and your planning which go to the making of a garden. Whether you own a large estate or a few square feet of land, it can be made to express *you* and *your* personality, and can be essentially yours.

D. H. WATSON.

An exhibit in the Winfrith Art Exhibition
(Photo: J. V. L. Hopkins)

HARWELL ART GROUP EXHIBITION

Two facts sum up this 2nd Exhibition: a painting, non-abstract, was found after some days to have been hanging upside down; a painting by another amateur was purchased by a professional.

K. P. J. ELLIS, whose work was highly praised in the last exhibition, was commissioned to write the following review:

Few who had the opportunity of visiting "Gallery 150" failed to resist the urge to 'go round' a second time and experience once more the healthy atmosphere, triggered off by these spirited efforts in paint.

Beginner and accomplished side by side gave us the thrill of surprise and delight as we gazed through their eyes upon scenes that had inspired them.

We must be honest and say that in some instances tonal relationships were strained, backgrounds monotonous, and colour perspective overlooked in an enthusiastic search for detail. Good drawing suffered under an over anxious brush, and in some cases good application of pigment found itself misled by unhappy drawing. But be that as it may, the standard of work was on a higher plane this year. Elevated undoubtedly by the less experienced exponents, artists placed their discoveries before all else, following freely their own ideas, without the slightest suspicion of fear apparent in earlier works. Choice of subject, composition and key clearly indicate a progressive movement, born of determination and concentration towards the achievement of artistic merit.

Indeed, there are many pictures that would stand the test of time in Dining Hall or lounge, and remind us that although we are members of a scientific and technical community we are not just a collection of formula-happy robots, but have an eye for the natural beauty that surrounds us.

Could anyone miss the wealth and harmony of colour in a delightful Sanderson, in a Whitby, in the vitality of a Douglas or in the atmosphere created in Seton McConnell's "Bepo", Abson's "Castell-y-Gwynt" and Flowerday's "Woman's Institute"?

We are all indebted to Mr. G. C. Ashworth and the Harwell Art Group for this most enjoyable exhibition yet, and can hope for even more progress by next year from the individual efforts of Research Group artists.

MR. G. C. ASHWORTH, M.B.E.

Mr. G. C. Ashworth, Group Establishment Officer of the Research Group will be retiring at the end of December.

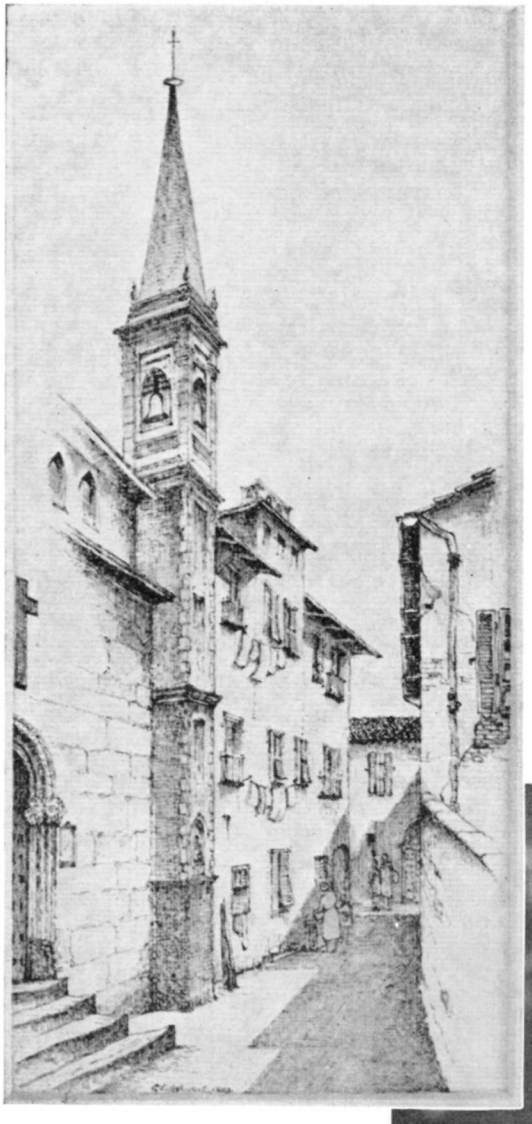
He joined the Atomic Energy Research Etsablishment at Harwell as Establishments Officer early in 1954.

Before coming to Harwell he had been concerned for a number of years with administrative matters relating to scientific staff in the Civil Service, and during the war years and those immediately following, was Administrative Assistant to Sir Henry Tizard and later to Sir Ben Lockspeiser. In the latter capacity, Mr. Ashworth spent some time in Australia in the early days of the Woomera Range and was, in fact, amongst the first half dozen or so U.K. staff to reach the Range area. He was also closely concerned with administrative problems arising from the dismantling and destruction of aeronautical research establishments in Germany in the late 1940's including the major Establishment at Volkenrode.

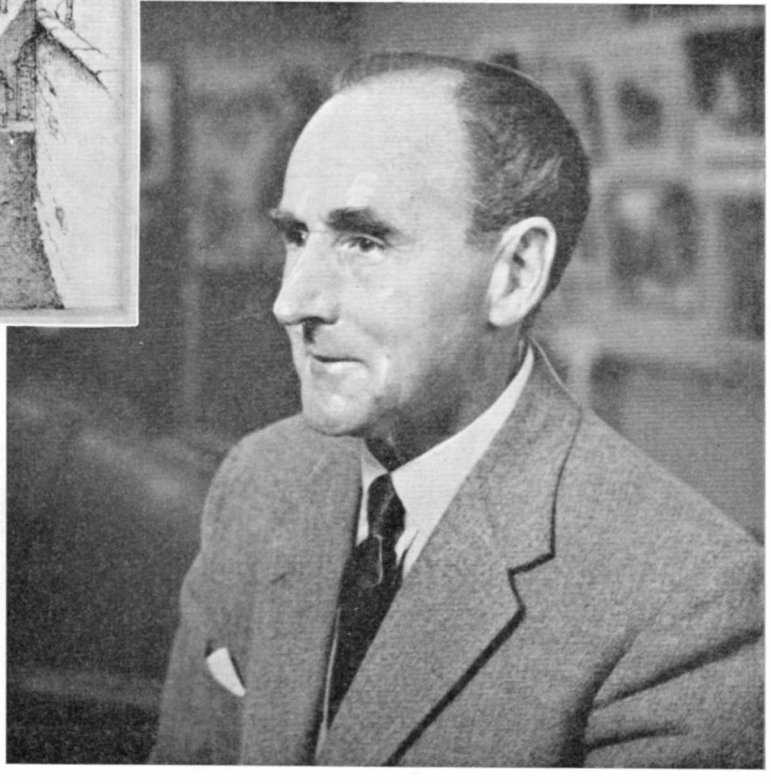
His early days at Harwell were concerned with the change-over to the Authority from the Ministry of Supply. Since then he has been involved in the constant changing pattern of events as Harwell and the Authority grew in size and experience. An Establishments Officer's job is always a difficult one, he has to satisfy the broad needs of the Authority and at the same time consider the frustrations, disappointments and hopes of the individual. George Ashworth has gained our respect for the sympathetic, courteous and helpful way in which he has always dealt with staff problems.

He has been associated with the spare time art activities of A.E.R.E. for a long time and is the Chairman of the Art Group of the Recreational Association, as well as Chairman of the A.E.R.E. Golfing Society which he helped to form some years ago.

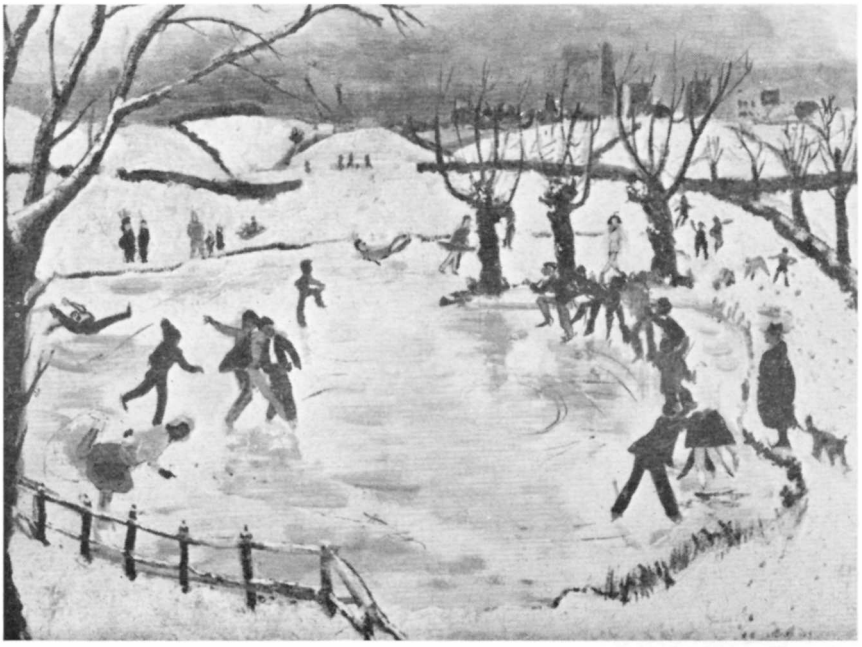
We wish George Ashworth many years of happy retirement in which to enjoy to the full all the many activities in which he is so keenly interested. D.A.T.



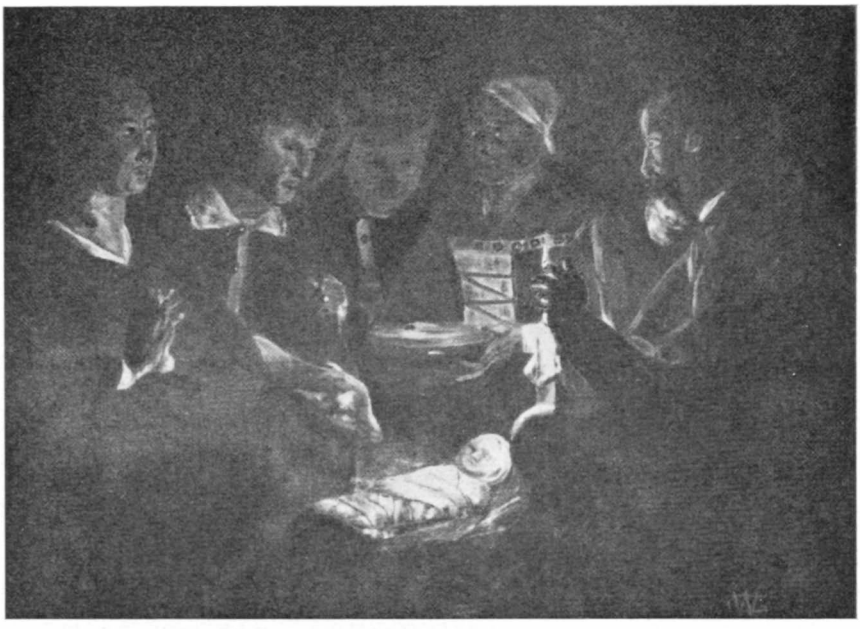
SAN MICHELE,
LUCCA,
NORTHERN ITALY



G. C. ASHWORTH
(Photo: R. KENYON)



SKATERS — E. STORY (*Eng.*)



ADORATION AFTER DE LATOUR — G. WILLIAMS (*Eng.*)

Official estimates say there are about 45 million refugees in the world today — the population of Britain, with a barbed wire fence around it.

A KEY OF HIS OWN

BADEN HICKMAN

"And what," said the refugee worker, "would you like now?"

The boy put down his spoon. He looked tired, for the move from the refugee camp to this orphan boys' block of barracks had involved a long rail journey.

"More pudding? More hot tea?"

He remained silent, a little nervous. And then he turned to the kindly man by his side and said simply: "I would like a key, please."

"A key, son?"

"Yes. You see, I've lived in these refugee camps ever since I can remember. I've never had a place to put my few things. I've never had a room of my own to sleep in. I should like a key, please, to my own room."

The story is true That night, the anonymous boy who spoke the desires of so many millions like him slept in his very own room for the first time. There was a key in the lock, too. He was at peace.

But as he slept, and as you read these very words now, somewhere in the world at this moment a child is dying from starvation.

Practically every day a baby dies from malnutrition in the over-crowded, shameful shacks of North Africa. Over in Hong Kong, about 14 refugees will have dropped dead from tuberculosis alone before you go to bed tonight.

These two basic issues, giving stateless people the sacred key to their rightful place in society again and the conquering of wide-spread under-nourishment and sheer starvation, rank supreme in World Refugee Year.

For this 12 months' period of hope, which is now catching the imagination of the world from Britain to Brazil and Holland to Haiti, is not just an effort to solve a problem of 45 million refugees who are in need of help. Men and women and children are not mathematical problems: you cannot say: "If we do not help them this year, we will try in the next"—they may die in the meantime.

They may lose whatever hope they have left, and wither completely under the corrupting atmosphere of camp life in cubicles. They may, as a result of this under-nourishment, these primitive conditions where only disease flourishes, fall ill and become chronic invalids.

They may become drink addicts, embittered and anti-social, cursing the world which has left them to rot away.

Behind curtains of cardboard and blankets, you may find an ailing wife, an imbecile child, quarrelling and embittered people, human chaff to blow around the globe.

You will certainly see them become the victims of perhaps the greatest of camp maladies—disillusionment ("campitis"). This is the moment when all faith and all hope have ebbed and oozed away, when the ordinary men and women whom we call refugees change . . . and are no longer ordinary men and women. And that is why you cannot treat 45 million people as a mere mathematical problem.

World Refugee Year is really a call to friendship, a challenge to brotherhood. It beckons the artisan to extend his hard hands to his fellow craftsman who cannot take up his tools again—because there are no tools; it beckons the musician to extend his delicate hands to those talented refugees, the forgotten elite, who have become inert, weak, uncommunicative, because of their now sterile art; it beckons, it commands, it implores us to give, at this historic and human hour in the history of mankind, not only money and effort (for without either the cause is lost) but also, and most of all, friendship.

How does one become personally indentified with an international problem spoken of in millions? Is not all this starvation and all this misery over the horizon? Are not the individuals and the marooned masses unseen, unknown?

True, but so are Giorgio and his donkey. Their story symbolizes World Refugee Year. Since the end of World War I, this old and crippled Russian refugee and his donkey have done the errands in a tiny, poor village near Rome. There is no payment. There is little money anywhere. Instead, Giorgio and his donkey are given their daily meals. Together, they have become a living legend to the poor people who are all their friends.

His story was told by an Italian policemen who took the trouble to call at the busy Rome office of the World Council of Churches, the biggest single agency at work among refugees. A field worker set out to find the old pair, and discovered that the kindly officer's story was word for word correct. She also found that the donkey would not live very much longer; and then, what would happen?

Giorgio and his donkey were talked about some while later many miles away in Canada. Schoolgirls listened and were greatly moved.

Today, as the old pair still slowly take the daily errands, there rests in a Rome bank account, known until now to only a few, the item: "One new donkey, $35." Giorgio will have a donkey as long as he lives.

Compassion, one for another, had been shown.

When, in years to come, someone turns to you (as they are bound to do) and asks "What did you do, friend, during World Refugee Year?" do not say "I showed pity." Refugees have for too long been surrounded by a rampart of pity, by watch towers of blankets and parcels.

Act and pray and give now, so that you will then be able to reply humbly: "I helped to make keys".

"Keys?"

"Yes. There used to be a lot of people who had nothing to eat but what they found in the gutter; there used to be others who were sick, others who had nowhere to sleep.

"I stretched out my hand one day. And a voice said: 'This is the key to my future'." ★

XMAS

"HARLEQUIN" IS AWARDING FIVE GUINEAS FOR A NEW DESIGN

NOWADAYS you can get cards for everything —"Sorry I'm Late", "To Mother on My Birthday", "To My Great-Uncle on His 73rd Wedding Anniversary", "So you Failed the Driving Test Again?", "Get Well" and possibly even "Get Knotted". Even so the sales of cards at Christmas outnumber all these put together, and it will be an unfortunate household this Christmas which hasn't got a couple of dozen of these on the mantelpiece, or on great loops of string stuck on the wall.

Christmas cards seem to fall into several well-defined groups, some of which are illustrated. One such is "The Official"—usually sent by rather distant friends or relatives wishing to impress you with their new jobs or old regiments. Also by the lazy, who buy them by the hundred and send nothing else. Next comes "The Funny", and this includes all those with cartoons on. These from friends with a sense of humour; amusing to receive but having no more connection with Christmas than a zoo-keeper's gum boot. The 'Madly Contemporary'class includes all the abstract cards, those with stylized animals on and ones like

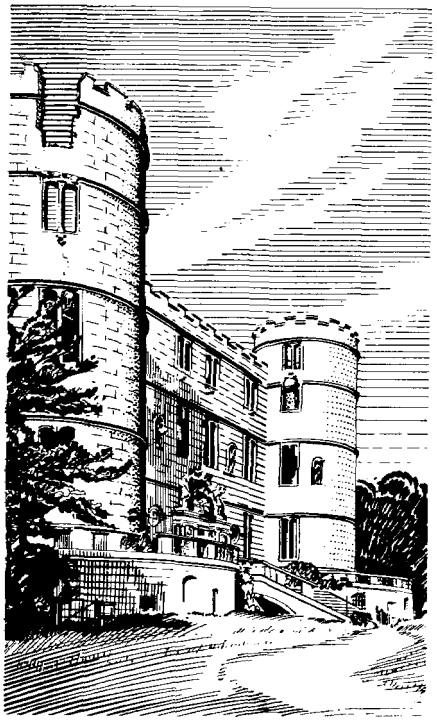
CARDS

DETAILS OF THE COMPETITION
ARE GIVEN ON PAGE 78

the new Crown wallpaper book. All, of course, come from young couples in Ideal Homes, who have pots of creeper everywhere, soft lights and long, low, laminated coffee tables.

By far the greatest class of cards is "The Woolworth", where, by contrast, you get the whole treatment: stage-coaches, crinolines, snow, robins, gilded holly leaves—the lot. The most Christmassy of them all—if a little overdone. Usually the sort we send, and receive, from the neighbours. Then there is "The Sentimental"—invariably with small furry animals, fauns, or babies. Usually from children, maiden Aunts, or people with small furry animals and/or babies.

From people who are fed up with the increasing commercialization of Christmas come "The Home Made", usually ultra-cheap to make but very often the most pleasing to receive because they are *original*. From friends who are doers rather than watchers—i.e. who probably have no telly. Finally "The Religious" — from people (oh so few) who believe Christmas is a religious occasion. Blessings be upon them.



LULWORTH CASTLE

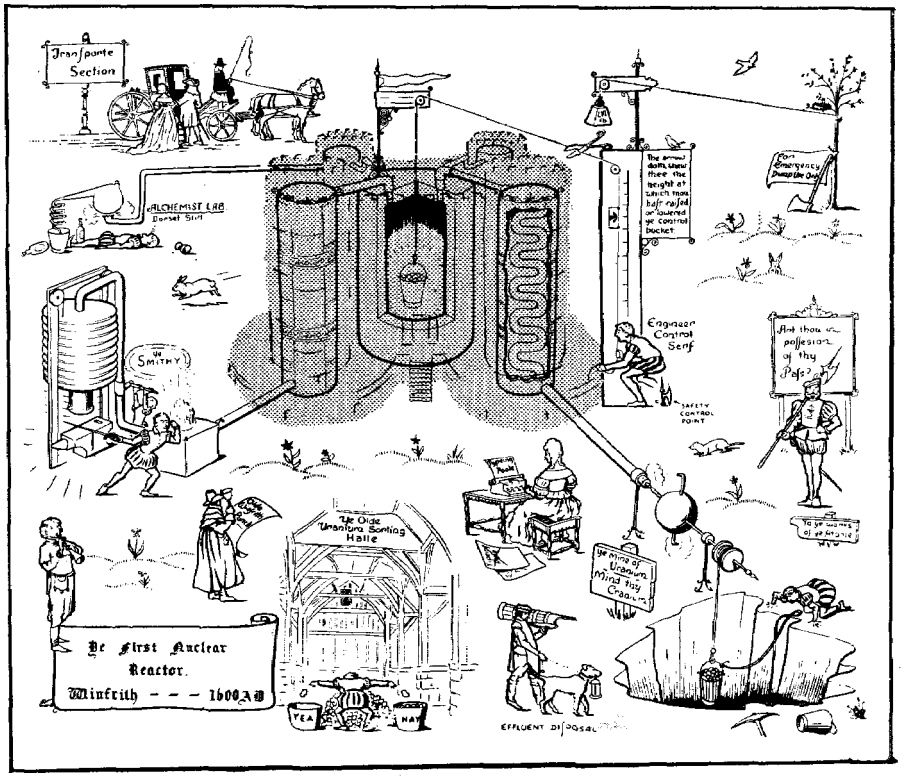
NEAR WINFRITH

AS IT IS

AND

AS IT MIGHT HAVE BEEN

W. Legge



R. Heath

MARINE-LINE

A "Harlequin" Supplement of the Sea

A NEW WORLD

IN 1943 a Frenchman named Cousteau perfected an apparatus that enabled him to breathe underwater without any connections to the surface. His invention consisted of a valve connected to a high-pressure cylinder that he carried on his back and which allowed him to breathe at the pressure of his surroundings. He little thought in those early days that his invention would result in the development of a new world-wide sport: aqua-lung diving as a sport quickly spread along the shores of the warm Mediterranean; no longer was underwater exploration, already a popular pastime, limited by the time that the adventurer could hold his or her breath. New horizons were opened up as more and more people discovered the fascinating new world that lies below the surface of the sea. Scientists too were quick to appreciate the potentialities of such equipment, which has since proved of immense value in fields such as archaeology and marine biology.

People in Great Britain slowly penetrated the waters that surround our coastline. In 1953 the British Sub-Aqua Club was formed, and has since developed into the largest single underwater club in the world with a membership exceeding 10,000. It is obvious that a period of instruction is essential before venturing into deep water with an aqua-lung. At the various branches of the B.S.-A.C. all over the country members are trained and taken stepwise through a comprehensive series of tests in the baths, so that they can cope with any emergency likely to arise in open water. Visits to the sea in summer, discussions and shows of films taken above and below sea level are regular features of club life.

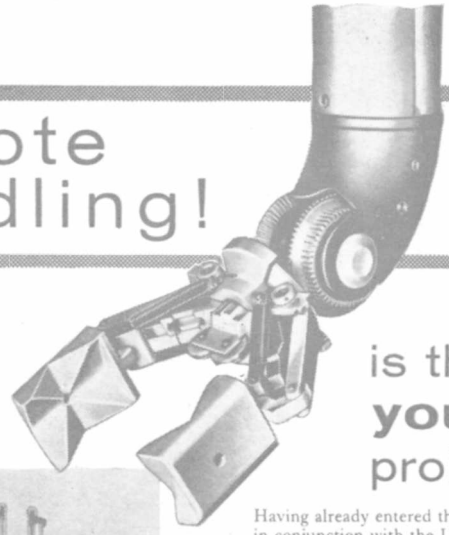
But what is it that attracts so many people into our waters? The desire for adventure is the first factor that encourages them to take the plunge. Within a few feet of the tide line of our many miles of coast lies an unexplored territory that stirs the imagination and challenges investigation. Here few people, if any, have travelled, and the thought of exploring the unknown is both exhilarating and stimulating. Coupled with the desire for adventure and excitement is curiosity. Here on their doorsteps is a region that they know virtually nothing about. We all like examining the rock pools left by the tide, and most people enjoy a visit to an aquarium, but does a combination of these two give a true picture of life in the sea? There is only one way to find out and that is to go down and see for oneself.

A lot can be seen with the aid of a face-mask, a pair of fins, and a snorkel tube, but the fascination of the scene instils a desire to stay down longer, and graduation to the use of an aqua-lung follows. To a person familiar with the use of such basic equipment underwater breathing apparatus presents no difficulties, the first feeling of trepidation soon passes; the door to the new world is open.

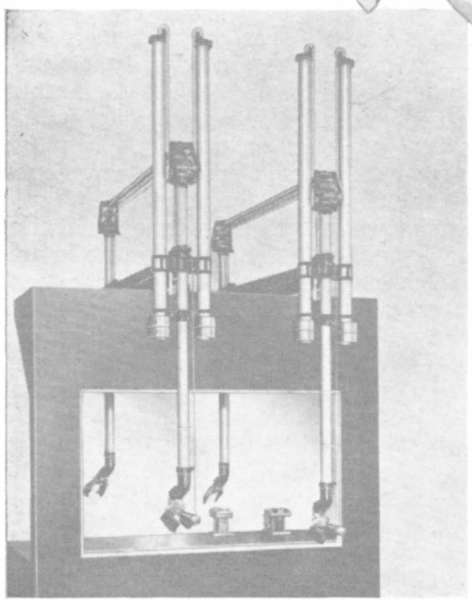
Your first dive in the sea.

As you leave the surface, ties with the old world are cut; you leave behind its noise and frustrations, and become part of a new medium that engulfs and enchants you. There are no sounds except the regular gurgle of air exhausted through the valve. Here there is peace. The gentle movements of the sea-weeds as the tide moves in and out are like trees moving in a slight wind—and yet there is no sound. The silence is the most impressive feature of this new world. Gravity has shed itself—weightless you can fly. A flick of the fins, a sweep of the

remote handling!



is this **your** problem?



HOBSON-CRL
Master Slave Manipulator
MODEL 7

Having already entered the nuclear engineering field and, in conjunction with the United Kingdom Atomic Energy Authority, produced reactor control systems and associated equipment, we now have pleasure in announcing our association with Central Research Laboratories Inc., of Minnesota, U.S.A., with whom an arrangement has been reached whereby we can proceed with the manufacture and development of manipulators to the C.R.L. basic design.

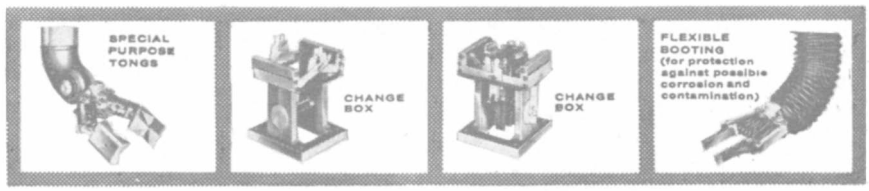
In introducing the HOBSON-C.R.L. Model 7 Master Slave Manipulator, we feel assured we are able to supply an urgent "must" in the field of safe remote handling.

This lightweight mechanically-operated manipulator, with its handling capacity of up to 10 lbs. per arm, delicate balance and remarkably sensitive "feel" characteristics, is particularly suited to hospitals and kindred establishments concerned with cancer research and treatment. Such problems as the remote handling of medicinal isotopes, preparation of radium needles and the dispensing of radioactive medicines, are operations well within its capabilities.

There is undoubted scope too in other industries, notably explosives and chemicals, where the remarkable versatility of this manipulator could be a boon to the safer handling of sensitive explosives and toxic chemicals. These are but a sample of its undoubted potentialities.

If, therefore, YOU have a handling problem within this sphere, we shall be pleased to discuss it with you.

Designed primarily for "over the wall" application, this manipulator can be adapted, equally well, for "hot cell" operation.

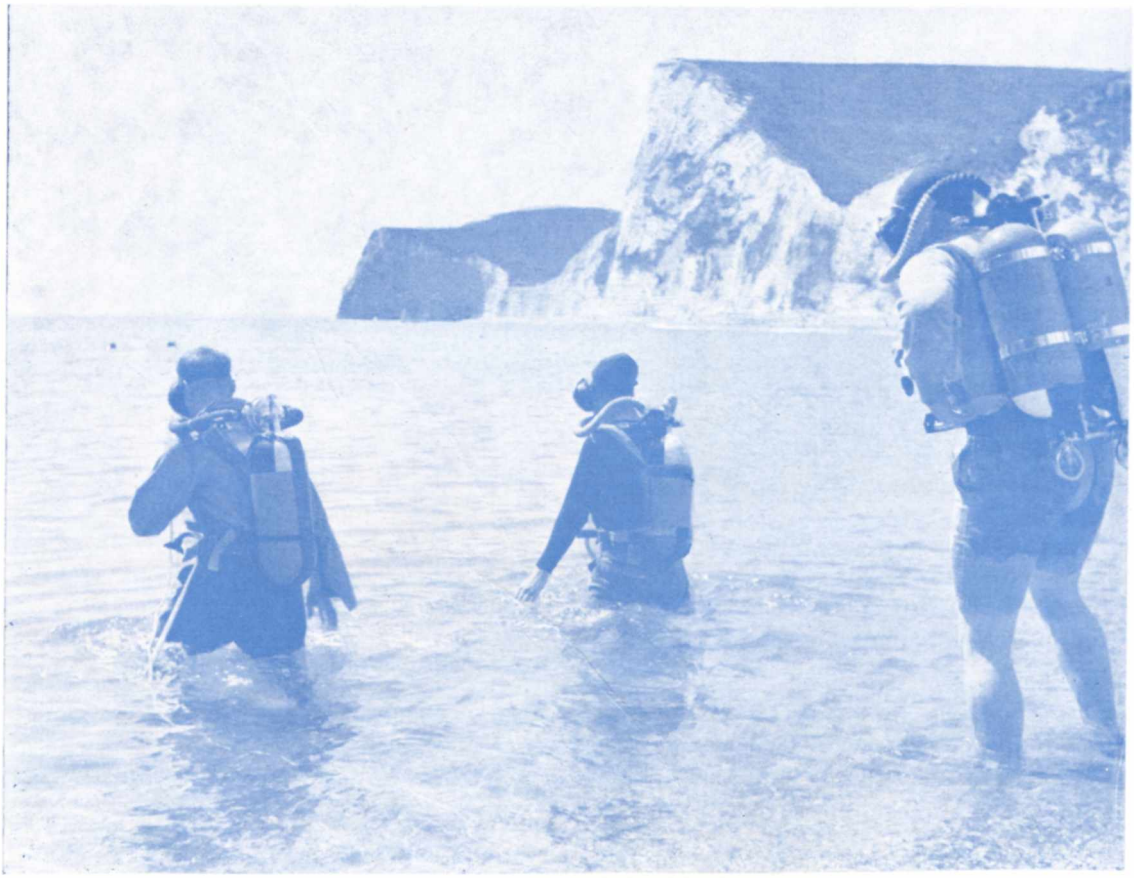


Hobson C.R.L. MASTER SLAVE MANIPULATOR Model 7

H. M. HOBSON LIMITED • FORDHOUSES • WOLVERHAMPTON

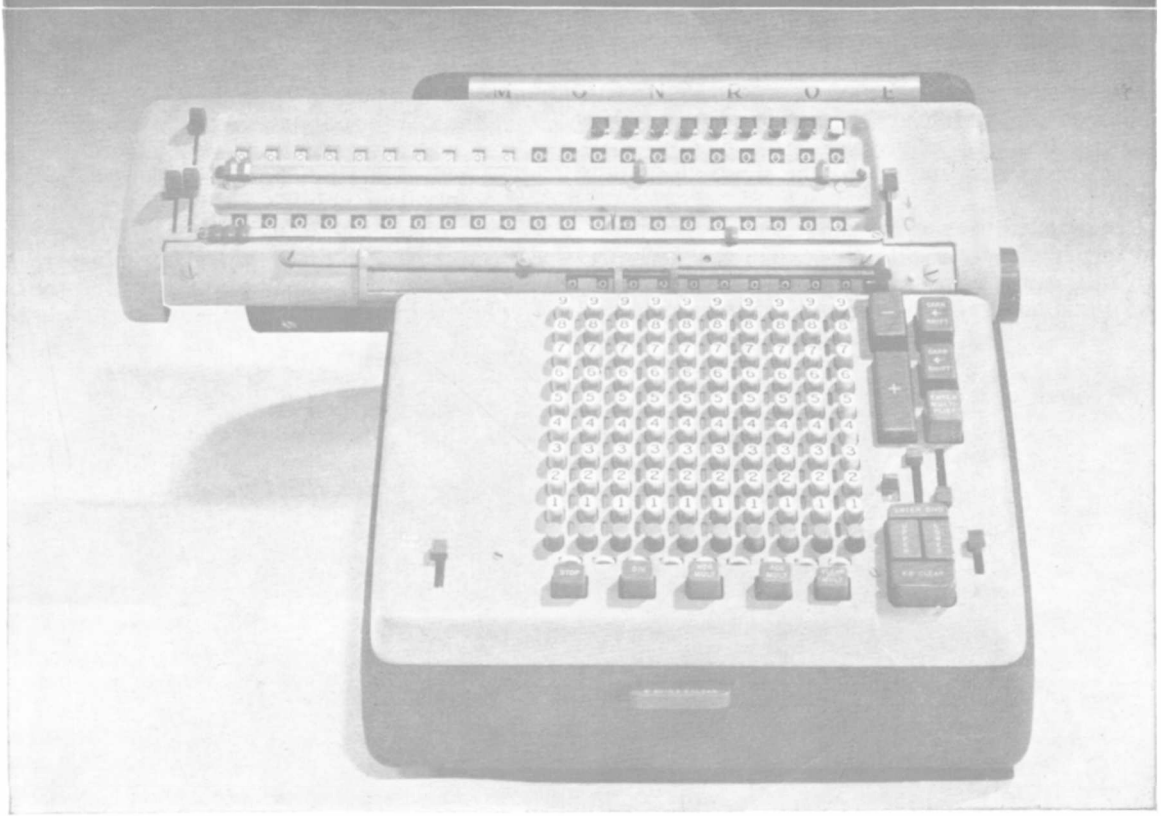
hands and any position is attainable; you can hover over this pinnacle of rock, and fly down into that valley—you have the freedom of a bird. Still the silence is with you, except for that intermittent gurgle-gurgle. You look up and see a stream of scintillating, twisting, swelling bubbles, oscillating irregularly as they chase one another through the limpid water to the shining silver roof and explode at the interface between air and sea. The sun appears as a large, diffuse red-yellow disc on the surface, its edges constantly moved by the ripples on the sea.

Suspended over a rock is a shoal of tiny fish whose bodies flash with silver, like sequins set in the pale blue cloth of the sea. A brilliantly coloured wrasse moves slowly, unconcernedly across the scene, suddenly he darts forward biting at a crustacean on the rocks. He moves backwards a few inches and shoots forward again in a renewed attack, determined to have that tasty morsel that clings stubbornly to the rock. You swim towards him and he continues to ignore you until you extend a hand to touch him, then suddenly he becomes aware of your presence, and shoots off with a single powerful flick of the tail to hide in the shadows under a rock and watch you continue your flight down into the sea. On land, flora and fauna gradually change with altitude; below the sea, the change is much more pronounced; the seaweeds you saw at a depth of feet are nowhere to be found at twenty-five. You notice that the red colours are fading. Following the rocks



Members of the Oxford Branch of the British Sub-Aqua Club at Durdle Door, the nearest coastal point to A.E.E., Winfrith (3 miles north). Durdle Door is 1 mile west of Lulworth Cove.

Effortless figuring



With a Monroe 8N-213 you get all the advantages of a fully automatic adding-calculator. Drudgery disappears from routine figure work and even the most complex calculations become merely a matter of feeding figures and pressing easy-to-select keys. Exclusive Monro-Matic features mean that there is less to remember, less to do, less possibility of human error. Here is a machine that cuts costs and saves time in every department where figure work counts.

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MONROE CALCULATING MACHINE COMPANY LIMITED,
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you drift gently down to the sea-bed. Life seems to stop and start at the boundary between sand and rock. Across the barren, lifeless sand you glide in the empty blue-green sea. In the distance you see an outcrop of rocks, and it is as if some mysterious hand has injected them with the serum of life, for here it abounds. At the edge of the rocks, a shiny black lobster prances, menacingly waving an open claw at you, defying you to touch him. You approach him, closer, closer; with a flick of his tail he rockets backwards leaving a little cloud of suspended sand to mark his previous position. A shoal of striped mullet watch nervously as you approach, ready to move off at the first sign of danger. A languid bass swims lazily along, indifferent to your presence. Everywhere on these rocks there is life in one form or another, there are sea-squirts, barnacles, and fish of all sizes. You move back towards the shore, over the barren sand. A lonely plaice flutters over the bottom, like a discarded newspaper caught by a gust of wind. It settles on the sand and buries itself until just two eyes are visible—there is life in the sand after all. Back to the rocks, you climb up through a cloud, an uncountable number of wriggling, shining eels, the largest one no greater than three inches long and a tenth of an inch thick. They are like a mass of animated strips of silver ribbon, guided by some mysterious force, all swimming at the same speed in the same direction. The colours come black; flashes of sunlight reflected from the waves above dance across the rocks in a constantly changing series of patterns. A spider crab, his pink shell encrusted with a burden of pretty parasites, crawls contentedly over the rocks and disappears into the weeds. You rise higher and higher, suddenly you break the surface and enter the harsh noisy world above the waves—your first visit to the silent world is over.

HORACE DOBBS (*Iso. Research*)

A SPIDER CRAB FIFTEEN FEET DOWN

This photograph is reproduced from a 35 m. colour transparency.

Quoth the Skipper, Charles Booth:

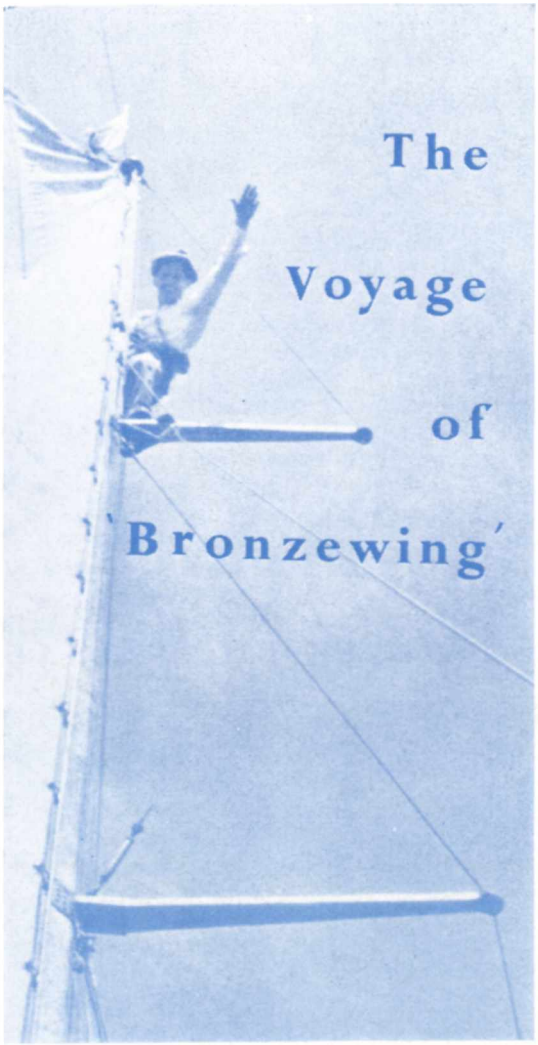
This is the story of the voyage which resulted from an announcement in the A.E.R.E. News:

"A large sailing cutter of 20 tons is available this summer and a week's cruise, possibly to France or the Channel Islands, is envisaged. It is hoped to encourage all with or without experience to take up this best-of-all sports holiday. Especially welcome are the novices and ladies: they will be given all help and advice. The total cost per head will be in the region of £11 and no passports are required."

After working south-westward and toward the Casquets—well known to Channel Island yachtsmen—visits were made to Alderney, Sark and Guernsey and to Omonville de la Rogue in France before returning to England.

There were three ladies and seven men. A few were members of the Harwell Sailing Club; five of the crew of ten had no previous sailing experience whatsoever and two others only a little. All acquitted themselves to perfection during the voyage and I am especially grateful to Mate David Barnes and Navigator Roy Panter for their loyal support as experienced watch-keepers. I shall be pleased indeed if the arrangements now being initiated for next year produce a crew of equal calibre.

For the story of this year's voyage: overleaf to Dorothy Roper, the Ship's Writer:–



Came the evening of May 26th and we were off—a motley crew of old hands full of salty wisdom, novices and inbetweens—ten of us and piles of baggage jammed into a Dormobile and a Consul roaring down to Chichester. Work was behind us and ahead, the sea!

Our ship, a twenty-ton yacht with clean lines, white hull and towering mast, awaited us in Birdham Pool. She was little disturbed that night. We simply clambered into our bunks, sank into the Dunlopillows and were asleep.

Six o'clock the next morning brought the Skipper with pint mugs of tea to our bedsides. He soon had us all up, fed and active. The ship was inspected, stores loaded into the galley amidships, baggage stowed, engine and equipment checked, flags hoisted, ropes coiled,, sails bent—an enormous mainsail, masthead jib and staysail—and at last, after a huge meal, we were ready to sail.

We 'locked-out' of the quiet yacht-filled pool and promptly stuck on the mud by the jetty outside! *Bronzewing* needs almost high water to clear the approach, so with commendably concealed impatience we waited alongside for extra water. Then we were really under way down Chichester Channel to the sea, slowing only at Itchenor for Customs clearance and a goodwill wave from the Customs Officer. Our aim was to clear the east of the Isle of Wight, then to work all night toward the Casquets in the south-west. The wind had been a favourable north-easter for the past fortnight, but now it veered into the south-west. An all night "beat to windward" in light air was necessary. Sails were set and the engine silenced. The voyage had begun. In a good breeze the ship lurched across the grey water. The sun sternly withdrew. Soon there were a few unhappy bundles curled into corners on deck with pallid faces peering mournfully at the sea. Pills were swallowed and teeth gritted. Ignoring supper, the sufferers rolled into bunks, leaving the stronger constitutions to enjoy the sea air and wind.

Into the night with the Skipper's watch—on into the Channel, big and empty—Middle watch—becalmed! Black sky, still blacker water, throbbing steamers, distant lights; canvas flapping idly, the ship lazily swinging; lonely blanketed figures huddled over soup—all quiet. Time passed. 4 a.m., the Mate's watch was ruffled out of bed to welcome the dawn. Those going below rolled straight from the cockpit into the vacated bunks and were asleep.

Morning came and we were in the Channel —somewhere! On we sailed when winds permitted, the water trickling past the bows, the sails just filling. The sun shone hazily. The dinghy was lowered, outboard motor shipped and the crew took turns on the open almost smooth sea. Navigation equipment was tried out—radio fixes taken in the absence of landmarks. So, on lazily into the second night, a sudden quick downpour of rain during the middle watch, a view of the French lights, and into the morning. Now there was more activity, land was identified, position fixed, course plotted, and so we came to Alderney and Braye Harbour. Land! The sun was high, the water clear and all was peace. The anchor cable

was laid out, a position manoeuvred and—"Let go!" Anchor and chain plummeted overboard into the harbour; we were there.

We went ashore to investigate. The harbour showed unexpected signs of the German occupation. The skeleton of a large mill left unusable on evacuation by the Germans grimly dominated the open scene. There were no signs of humanity, but cobbled streets led up between stone, white-washed, bare cottages to the winding alleys and little shops of St. Anne. Here were people, friendliness—and wine, perfumes and cigarettes. The day was whiled away shopping, sunbathing and, of course, drinking. Faces glowing from sun and spirits, the party swung back over the cobbles, singing, down to the harbour steps, into the dinghy and back on board with bottles and packages.

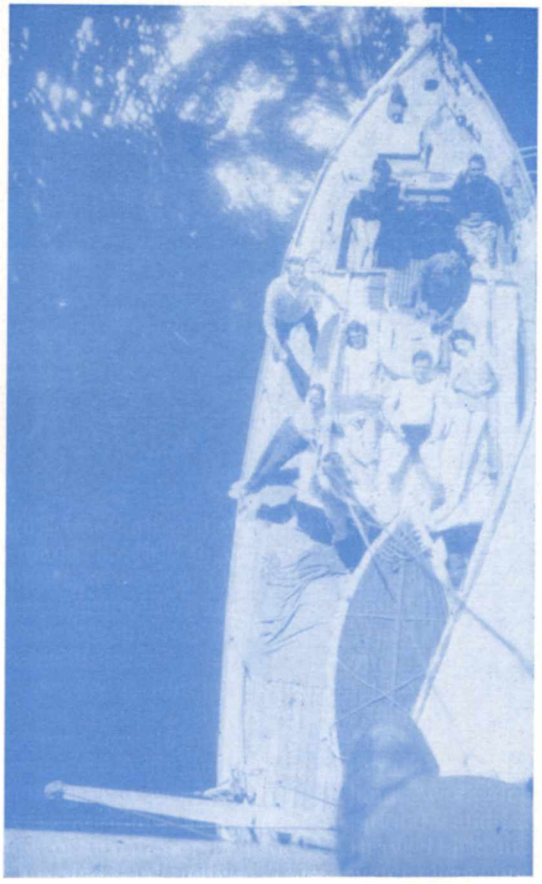
We were off again at four o'clock in the morning, first light and the Mate's watch, en route for Sark. The course was around Quenard Point and through the Aldernay Race. A beautiful morning and the Skipper, already on deck, streamed a mackerel line. The largest pot was put on to boil and soon the fish were rapidly coming aboard. At each cry of "a bite", the Mate whipped into the galley, grabbed the pot, and in was thrust the victim, neatly cleaned. The massacre ended with a full pot of fourteen, and by the time tousled heads appeared it was to find the Watch already breakfasting on fresher-than-fresh mackerel virtually straight from the sea.

We approached Sark close under the shore and anchored on the south-east side in Dixcart Bay. The coast was wild and rugged with steep flower-mottled green slopes giving way to precipitous brown cliffs which dropped abruptly into the sea. Tunnels and caves gaped wide, shags gathered black upon La Conchee rock and above all—the blue, blue sky, calm and quiet.

We went ashore in the mid-day haze. Here were no cars, only pony traps, dusty lanes, soft-coloured cows, green fields, friendly folk, one or two shops—an ageless island of extreme beauty still run by a Seigneur on a feudal system little changed since mediaeval times. Viewed from the cliff tops, our ship far below in its bay looked like a millionaire's yacht in the Mediterranean, white and gold against blue.

Another early start was necessary next morning to catch the tide down to Guernsey. The colourful dawn was disturbed at 5 a.m. by the sound of the anchor chain coming inboard. It was to be north about, then down the Great Russel past Herm and on to St. Peter Port, Guernsey. With the anchor aweigh, we turned gently up the east coast of Sark, nosing in on the way for a close look at Greux harbour, the smallest in the world. Then just beyond to the new La Maseline harbour, which, although having water at all states of tide, must surely vie with Greux for smallness.

Thick mist engulfed us as we cleared north Sark. The navigator got to work with pencil, tables and charts, uttered mysterious incanations to himself and plumped for a course. With the first flush of the south-westerly stream we ran down the Great Russel on careful dead reckoning. Sure enough, before the tardy members of the crew were up, the walls of St. Peter Port harbour and Castle Cornet loomed up dead ahead some half a mile off. We



Setting Sail

We could either stay the night in St. Peter Port and sail for England in the morning, or visit France which meant a departure that night. By a close majority we agreed to sail for Omonville, and 9.45 p.m. found the Skipper mustering the crew from their drinks to go aboard. As the last light died, we slid quietly out to sea and north through the Little Russel.

Watches were set and, with the course planned through the challenging Alderney Race, the Skipper decided to stay on watch all night. With the wind in the west we bore away toward the north-east and daylight found us in the neck of the Race in line with Alderney and Cap de La Hague. By 6 a.m. the wind had freshened and soon we gybed on to a broad starboard reach and were rushing along, heeling

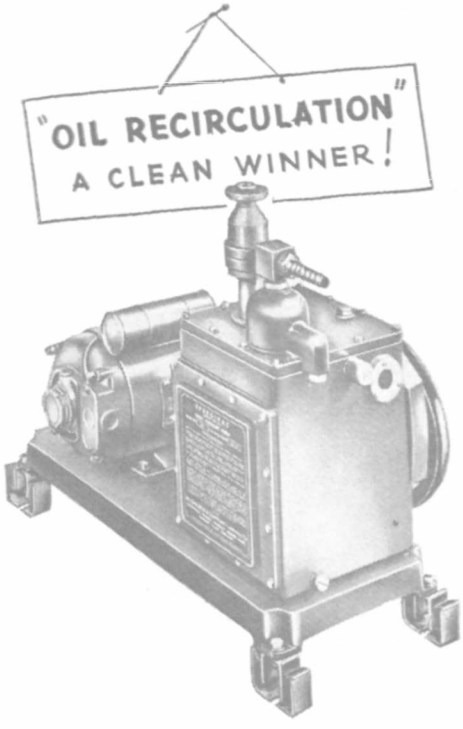
rounded to and cautiously moved into the enshrouded harbour. Having anchored and breakfasted on thick, sticky porridge—who was that duty cook?—we awaited the sun.

By mid-morning the fog had given way to glorious sunshine revealing a large, picturesque, yacht-filled harbour with a stately waterfront, in the centre of which could be seen the club-house of the Royal Channel Islands Yacht Club. The tall buildings of the town were juggled up and down on the hill behind. The town was much larger than our other ports of call but, it being Sunday, all was quiet. The Yacht Club alone offered us refreshment, so there we went at the end of the day after taking fresh water aboard. The ladies delightedly wallowed in steaming hot baths from which they emerged clean and shining.

In a light breeze on the English Channel

An advertisement in the Edwards "Mike Ron" and "Milly Torr" series

"A system that can't lose!"



" You can't use headlines like that for Edwards, Mike Ron. People will think they run a betting shop. If you have something to say, put it in a clear dignified way that intelligent scientists and industrialists can understand."

" All right Milly Torr, what about this :—Edwards have a patent pending on an Oil Re-circulating system for two-stage " Speedivac " High Vacuum Rotary Pumps that ensures a discrete quantity of oil continuously re-circulates through the high vacuum stage where it is continuously purged of volatiles by the stripping action of the inter-stage vacuum. And that means of course that a good vacuum is maintained even if the oil in the main reservoir is severely contaminated. At the same time, prompt ' make-up ' of any oil loss from the high vacuum stage is assured."

" That's wonderful, Mike Ron. You put things into such a beautifully large nut-shell."

"SPEEDIVAC" (Regd.) HIGH VACUUM ROTARY PUMPS

EDWARDS HIGH VACUUM LTD., MANOR ROYAL, CRAWLEY, SUSSEX, ENGLAND. *Crawley 1500*

MR 9
44

over, approaching Omonville, a tiny fishing harbour near Cherbourg.

We ran into the harbour and were soon digging out the few passports we had for the benefit of a gendarme whom we saw patrolling the beach. The ladies went first, smiled sweetly, and stuttered a few words of schoolgirl French. He seemed perfecty satisfied and the crew came ashore! The harbour, or rather bay, was very fishy—Van Gogh boats with coloured bows, lobster pots and nets.

There was more local colour in the little stone village—*blanchisseuses* banging their washing with wooden platters in the stream, pinafored schoolchildren, blue-overalled, cloth-capped, clogged fishermen, blankets airing out of windows, the *boulangerie* with enormously long loaves of bread—and, of course, wine! Merry indeed was the party that day.

With a good breeze we reluctantly sailed again as night fell, and the ship, laden with wine, headed for England. Through the night and into the day we ploughed on. The wind dropped to light, and tanned, salted, sunsoaked bodies littered the deck. The Skipper had the crazy notion of going aloft in a bosun's chair. Up he was hauled and there he stood perched on the top yard, happily photographing us and fixing our position against the English coastline distantly visible from aloft, until he had had enough and was rescued.

Toward the end of a sunbeaten calm day the Needles emerged pink out of the sea. We reached the Solent and forged steadily up, now under power, as the sun sank lower, a red ball against a streaked blue and orange sky. As we reached Cowes, sails were stowed and the lead readied for sounding. We leaded ourselves into an anchorage in Cowes roads and let go when the doubtful cry "Something might happen at six fathoms, I think!" had gone up.

The sky darkened and lights glowed, ships were silhouetted against the sky and the bell buoy sounded dully over the quiet water. There was a final drink of French wine all round and then we turned in for our last night. Nostalgia took over. This had been such a wonderful trip—so free, away from it all. We could not bear the thought of leaving the sea, sun, salt air, freedom and our new home and returning to the world of landlubbers.

Return we did, however, the next morning on the high tide, and back we were at last in Birdham Pool, the sun still streaming down as we sat thoughfully eating the last of the stores and remembering it all.

The sea has won us—we are going again next year! ★

Harbour wine shop—Omonville de la Rogue, France —with "Mademoisselle de la bar" in the centre

At St. Peter Port, Guernsey.
The crew (with building Nos.):

o Charles Booth 412r
o David Barnes 383
o Lilian Johnston 429
o Cyril Hudson 383
o Dick Coates
o Michael Newman 470.1
o Malcolm Richardson 429
o Priscilla Moore 383
o Dorothy Roper 328
o Roy Painter H 10

The Contemporary Social Centre

LETTER FROM WINFRITH

After a brief fortnight here last Christmas, I find myself once more down at the A.E.E. This time it is for six months during a sandwich course. How the place has changed! The number of buildings has trebled—carefully laid out over a vast (when one is on foot!) area. And there are many more people here.

One cynic, in the contemporary Social Club, has been heard to remark, "It's the first time I've eaten a pork pie in a synagogue!" but the jibe was not seriously intended. Numerous locals, passing nearby on the railway, have given most imaginative suggestions as to the purpose of the building.

The Reactor Group Offices have also drawn favourable comments from staff. Most of us have, at some time or other, been observed quietly sneaking across there to try out the new "Paternoster" lift — a continuously moving column of cubicles; and we have all verified that going up to the top does not result in one's coming down on one's head on the other side.

Three wagtails have, in the Harwell tradition, found their way into the Zero Energy Hall. They have not, a wit informs me, yet been issued with film badges, although Health Physics and Security are as vigilant as ever down here. The rightful inmates, incidentally, are still irked these days by the inference that "Zero Energy" refers to themselves and not to the reactor!

Last Winter there was a theory about the weather getting progressively better on the drive down here from the north. This has been amply sustained during the past summer. In fact, the September sun was often complained of as excessively hot!

The younger of us down here look forward to the construction of the new hostel. In the meantime, there is the long and pleasant journey over the hills in the morning from lodgings or, for the lucky ones, home.

The summer traffic jams were not quite so bad as they were expected to be—although this may be the biased opinion of one who had the benefit of travelling on two wheels rather than four.

What of our staff from overseas? A few have arrived, and we look forward to seeing more of our continental friends. Unfortunately, one Senior Gentleman's anticipation of a glamorous Italian secretary will not materialise: the guests will hold more elevated positions.

Athletic recreation finds its way mainly to the sea. Here, snorkelling underneath and sailing on top are the favourite aquatic amusements. For "city" life we travel either northward to Salisbury or eastward to Bournemouth. There is plenty to do and see. Then back again to Hardy's Heath, where the map is changing every day.

PETER HARROP.

Demolition of this mediaeval manor house was the subject of controversy in the national press. The Authority erected a plaque to mark the site, now surrounded by houses of Harwell staff.

HISTORY ON AN A.E.R.E. ESTATE

FITZHARRIES, ABINGDON

1066 is, without doubt, the most easily remembered date in the whole of English History: when William of Normandy wrested the Crown from Harold Godwinson, who had worn it for less than a year.

In the years immediately following the conquest, William's policy had three major facets: to reward the men who had flocked to his banner in Normandy, to overawe the native English, and to make sure that none of his chief followers became powerful enough to threaten him. The small Norman mound on the Fitzharries Estate is a relic of all these aims.

The feudal system of land tenure equated the ownership of land with the performance of military service: William decreed that all land should carry this service, even those lands owned by the Churches and Monasteries. By so doing he housed some of his followers, and, by making their holdings independent of his warrior Barons, formed a small band whose allegiance to him was less likely to be broken in favour of an immediate overlord.

Abingdon Abbey was assessed as able to support 30 Knights. One of these, Oin, or Owen, had three pieces of land from the abbot to form his "Knight's Fee". The largest of these was at Abingdon: the others were at Hull in Warwickshire and a very small piece at Drayton. On the Abingdon land he threw up a small mound, surrounded by a moat and capped by a small keep. He seems to have been the only one of the 30 Knights who held tenure of the Abbot of Abingdon to feel the need of this type of fortified dwelling. Almost certainly his aim was to dominate the small township growing up round the gates of the Abbey, and to protect himself from the townsmen, who probably considerably outnumbered his followers.

By the middle of the 13th century the successors of Oin, who had now taken the patronym of Fitz-Harry, had built for themselves a more peaceable dwelling by the side of the mound. The call of arms was still strong, however, and the head of the family decided to join the Crusading armies in the Near East. To raise the money for this adventure he chose to sell the Manor of Fitzharries.

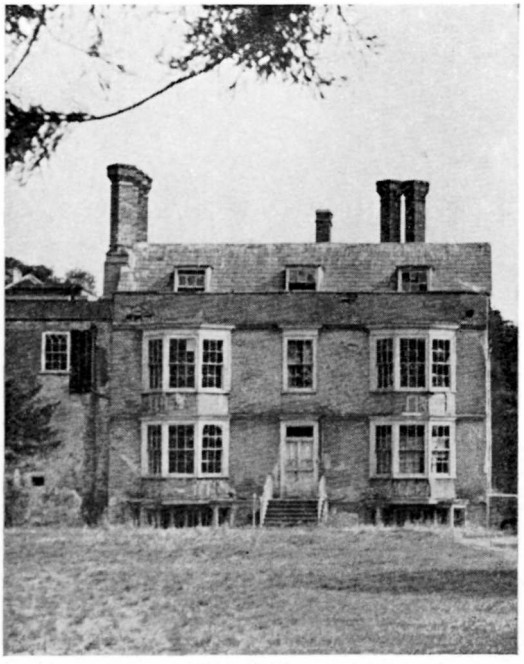
It was widely rumoured that Richard, Earl of Cornwall who was a man of very great tyranny, was intending to add Fitzharry to his other holdings, a possibility that caused no pleasure to the monks of Abingdon. Though they were themselves "in the red", the Chapter decided to buy the property themselves if this could be arranged.

The purchase price was 1000 marks, about £600, but nearer £6,000 at our values; this was quite beyond the coffers of the Monks. However, they thought that they could raise 300 marks by a loan and pay the rest off in instalments, and this they arranged to do.

A date for the first payment was agreed: if it was not paid by the Feast of St. Michael the whole deal was off. Hurriedly the almoners scoured the countryside, seeking friends who were solvent and who would lend them the money. By the time laid down they had in fact raised the money, but it seemed that Fitzharry had had a better offer. In fact, in order not be able to receive the money from the Abbot, he had surrounded himself with friends and retainers and re-occupied the mound.

However, he was finally persuaded that a bird in the hand was more valuable than a promise from someone else, took the money, and signed over the land to the Abbey.

From then on the mound was deserted; possibly, as it is now, just a playground for the children living near by on the A.E.R.E. Estate. ★



FITZHARRY'S HOUSE

THIS PLAQUE MARKS THE SITE OF A MEDIAEVAL MANOR HOUSE BELONGING TO THE ABINGDON ABBEY. WHICH WAS REBUILT IN THE FIFTEENTH CENTURY BY THE TESDALE FAMILY. ONE OF WHOSE MEMBERS WAS THE PRINCIPAL FOUNDER OF PEMBROKE COLLEGE OXFORD.

HOUSING AT HARWELL

R. S. CAMPBELL

SENIOR HOUSING ADMINISTRATOR

HAVE you rung Extension 2820 recently? If you got through first time you were more fortunate than most of our callers. It is the telephone extension which was allotted in 1946 to the Housing Section—known then throughout the Establishment as the Estate Office—and those who work in it are convinced that it has been ringing continuously ever since. Not very long ago a friend jokingly suggested, after a long and frustrating attempt to reach us, that we must be in the habit of taking the 'phone off the hook or having the line plugged to save us the trouble of answering. Neither is true, and in this article I would like to take you behind the scenes, show you something of the work that goes on in the Section, briefly mention the people who do the work and in so doing perhaps explain why the 'phone goes on ringing.

To help me tell you about the work as it is today I must first of all take you back to the time when—as *The Times* in a recent article about Harwell put it—"the decision was taken not to build an 'Atomic City'." Those who wisely rejected this idea had earlier made the more positive decision that, because of the acute housing shortage throughout the country after the end of the war, houses would have to be provided for scientists and their families who would be arriving at A.E.R.E. In order to avoid creating the 'city' it was decided that most of those homes should be built in neighbouring towns and villages.

All that Harwell had fallen heir to in the way of family accommodation were eighty R.A.F. houses along the Newbury to Oxford road, a number completely inadequate for an establishment which was to grow so rapidly, and so in 1946 the hunt was up for houses, or rather for sites on which to build them. The most readily available form of housing in the early days after the war was the prefabricated bungalow, and as a first step to providing the homes that were needed two estates, each of 100 aluminium Mark IV bungalows, were built—the first outside the present security fence at Aldfield Farm, the second near the village of Chilton. Satisfactory though they were in most respects they had one disadvantage—they were not large enough for a family with more than one child, and bigger houses became the urgent need. Whilst the prefabs. were being erected new sites were found; 140 traditional houses with three or four bedrooms were built on the land surrounding the Fitzharry Manor in Bath Street in Abingdon and 242 on a piece of land lying between the town of Wantage and the neighbouring village of Charlton. Both were completed in 1949, and from there building activities moved to Didcot and a small estate of 30 houses, now known as Queensway Estate, was finished in 1950. At about the same time a second estate of 100 houses on the Oxford Road, Abingdon, brought to an end for the time being the programme of directly built houses, of which there were then 800 in all.

From 1952 onwards there was no falling off in the need for houses, but there was a change in the means of providing them. Displaying its well known caution and believing, no doubt, that it was wise not to put all its eggs in one basket, the Treasury invited the more energetic and far sighted local authorities in the district to build houses, the tenancies of which were to be given to employees nominated by A.E.R.E. Between 1952 and 1955. in addition to their

BLEWBURY DOWNS

DR. A. M. THOMAS (M.R.C.)

WARM WORK — MISS W. STANTON (MED.)

CHRISTMAS FAIRY
H. A. BALLINGER (C.T.R.)

own normal building programme, the Borough of Abingdon built 380 houses, the Wallingford Rural District Council 135 houses (in Didcot) and the Wantage Rural District Council 30 houses in villages near the Establishment, and all of them were let to Harwell personnel. In this way, by providing houses for those engaged on Atomic Energy Research, the local authorities concerned helped during those years to further the Establishment's policy of integrating A.E.R.E. personnel into existing communities.

After the formation of the Authority in 1954 and the very rapid expansion which followed, houses were urgently needed in very substantial numbers in the quickest possible time, and the Authority took over from the local authorities by resuming a direct building programme. The beautifully laid out estate in Wantage was increased by 74 houses and this was followed by a break into new territory with an estate of 120 houses in Wallingford.

At the moment of writing building activities have returned to Wantage, where two small estates are going up in Stockham and Larkhill, and to Abingdon, where in Rush Common, out on the Oxford Road, 66 houses are under construction. When these schemes are completed in 1960 the Establishment will have made available 1,129 houses which it owns, and will have created housing estates whose attractive design and layout have made them an important contribution to post war housing development in this country.

It is round these eleven hundred houses and the five hundred and fifty which have been provided by the local authorities that the day to day life of the housing section revolves. The work we do falls into five fairly broad divisions marked or defined by the several different relationships between an employee of the Authority on the one hand and the house which he occupies or hopes to occupy on the other.

The first is concerned with the period before a family moves into a house—the application-to-allocation stage, one might call it. This can be a difficult time for a family who may be separated over a period which has varied throughout the years from as much as 18 months in 1953/54 to the halcyon days of early 1957 when it dropped to as little as 3 months.

To the section it means firstly the registration of individual applications followed by enquiries into eligibility of the applicant and, finally, the presentation of applications to the Housing Allocation Committee for their consideration. Not a little of a Housing Manager's time is spent in interviewing those who patiently —or impatiently—wait their turn. Most folks on the waiting list pay us at least one visit, and during these interviews we talk over such matters as educational problems, the kind and size of houses available, the district they are in, and, last but not least, the rent an applicant can afford to pay.

Interviewing a man with a housing problem is not a task to be entered into lightly, but at least for those who are entitled to a house there is always the certainty that the problem will be solved in weeks or months. On the other side of the picture there is the man who is not eligibile for a house from the Authority. For him there can only be an explanation of why he cannot have what he most urgently needs. The Establishment has always been consistent and frank in its policy on this vexed question, but in the light of personal need the explanation of policy is often cold comfort, logical though it may be. From the outset it has been made clear that housing at A.E.R.E. could not even begin to satisfy the needs of the local employees; they were the concern of those responsible for national and local housing policies, to be dealt with in the appropriate Town Hall or Council Office. The task of the Ministry of Supply, and then of the Authority, was a special one—to provide homes for the scientists and their supporting teams of technicians brought to Harwell from other parts of the country at a time when a house, even to purchase, was a rare commodity.

Although I imagine most people are aware of the present system of allocation a word on the subject may not be amiss. It begins with each Division Head presenting to the Housing Allocation Committee for consideration an order of priority from eligible applicants in the Division. From the various priority lists submitted and without departing from divisional priority the Committee, which meets about 6 times a year, recommends to the Director those who should be housed in the two or three months which follow a meeting of the Committee. Many hundreds of names have figured during the last 13 years in the lists which appear in the *A.E.R.E. News* from time to time. If your name has not appeared yet and you are eligible for a house, I hope it soon will. ★

In the next issue:

"MANAGEMENT OF THE HOUSING ESTATES"

That dungareed figure scrabbling in the earth, with dirt under his fingernails and thorn scratches on his arms, is no figure of fun but half a god. The sun beats on him, the rain wets him, arthritis works under his kneeling pad. Still, it is the task he has chosen and loves. To be able to walk round a border after dinner and smell the fragrance of his mignonette, to speak a personal word to each painted daisy, to congratulate the tuberous begonie he has steered into preposterous flowering—there are pleasures past explaining . . . but says HOMOLKA:

COME-INTO-THE-GARDEN, FRAUD

IN that unique book of Chinese etiquette, "Honourable Habits for Dishonourable Gentlemen", Hai Ya Bin gives this advice for those about to visit England: "The two most sacred institutions of the English are cricket and gardening. Laugh at his Government, jeer at his weather, shudder at his food —the Englishman will remain unruffled. But let slip one profane word regarding his batting average or his runner beans and you have made an enemy for life."

With all respects, the honourable Hai Ya Bin does not know the half of it.

Of the two institutions, gardening is the more tyrannical. You need not actually *play* cricket, as long as you speak of it with reverence. But to forgo the rustic rights of digging and sowing every year is to place yourself outside the pale. Happy is the Non-Gardener who lives in a lighthouse or an earth satellite. Wretched is he who dwells in an A.E.R.E. or Council house. The damn thing is there, whether he wants it or not, a vast expanse of earth, grass, weeds and bric-a-brac, haunting him accusingly like a rejected lady-friend, scorned, despised, yet troubling his conscience.

All this is bad enough, But, somehow, the folks who live on either side of a Non-Gardener are always horticultural fanatics of the most rabid variety. Smugly watering their prize lettuce, they cast shocked, disapproving glances at the wilderness across the fence. They register either indignation or pity (the pity reserved for a barbaric wretch who has never known the finer things of life—viz. gardening or cricket).

The effect of this on the poor N.-G. will vary according to his sensitivity. The average healthy fellow usually resorts to the instinctive cunning of oppressed minorities. He will stay at work until lighting-up time and develop arthritis at week-ends. Or he might join a dozen or so of the A.E.R.E. Recreational Clubs (but not, of course, the Horticultural one). Or, again, a sympathetic doctor, who would need to be an N.-G., may be persuaded to certify that he suffers from soil allergy.

Highly-strung, imaginative people, however, will brood. They will sit for hours staring out at the tangled mass of rye grass, dandelions and scrap-iron, longing for Bob-a-Job week or a wet summer. They will toy with the idea of covering the whole thing with concrete or buying a second-hand flame thrower. Some will even break down completely, borrow a spade, rush out and attack the rock-like earth . . . only to end up in bed ten minutes later with lumbago or a slipped disc.

And so the persecution goes on.

Now, have gardeners really any reason to feel superior? Let us examine scientifically the so-called benefits of gardening so beloved of the muck-spreading fraternity.

HEALTHY EXERCISE. Medical investigations by SPING (Society for the Prevention of Interference with Non-Gardeners) have shown that ten times more men die from gardening than from playing chess. This is not surprising when we consider that most men are well into their thirties before the insidious habit takes hold of them—an age, mark you, when a man should be relaxing with his feet up, watching television or doing his football pools.

FRESH AIR. SPING'S medical experts have shown that too much fresh air is actually

deleterious. To the human species, adapted by decades of conditioning to the safe warm fug of dance halls, pubs and smoky lounges, undiluted air is unnatural and hazardous.

FOOD. Time-motion studies (also by SPING) show that—taking into account labour, equipment, extra beer consumption, liniment, petrol and wear to car in fetching seeds, soap used and wife's time spent in removing mud from floors, etc.—it costs the average private gardener 2·3843 shillings to produce one cabbage. On a national scale this could ruin the whole economy of the country.

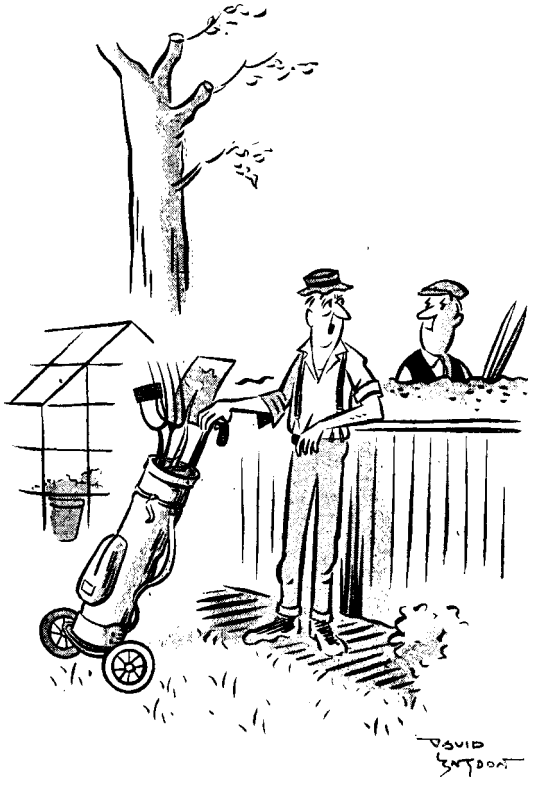
COMMUNING WITH NATURE. The benign, rosy-cheeked, pipe-sucking old chap with the battered tweed hat and philosophical expression may look all right on seed packets. In real life he is not so much communing with Nature as battling with Nature. Whole chapters of horticultural books are devoted to describing in gruesome detail the many horrors that can afflict the tender little seedlings you have reared by the sweat of your brow. When we consider that the weather, the whole insect world, most of the bird world, moles, rats and the cat next door are all lined up against you, communing with Nature will be seen in its true perspective.

TRADITIONAL. By tradition we are a race of sailors, land-grabbers, poets, cattle-thieves and merchants. Hoeing the rows was always left to slaves or lackeys. Is it not significant that man's troubles all started in a garden? When Adam started messing about with apple trees the writing was already on the wall. The great men of history realised this and avoided gardens like the plague. Would Alexander the Great have got even as far as his front porch if he had had to grow his own runner beans? Can you imagine Beethoven weeding whilst composing the immortal Ninth Symphony? Or Dante scribbling the "Inferno" on the back of a seed catalogue?

Why do men garden, then?

1. To get out of having to dry the dishes or paint the back bedroom.
2. To work up a thirst.

There might be something in these reasons. But the crux of the matter is that deep down most men are still dirty little boys at heart and cannot resist an excuse for playing about in the earth. ★



"I WAS DOWN TO SINGLE FIGURES, THEN CAME MARRIAGE, A HOUSE, A GARDEN."

Cartoon reproduced by permission of "Punch"

'Harlequin' Competitions

FACE THAT PLACE

The building in the last issue was correctly identified by D. Bindon of Reactor Division as Building 148.

CARTOON COMPETITION

All entries depicting *The Harwell Men at Home* were received after closing date. Closing date is therefore extended to 25th January and the field widened to include *The Harwell Men in the Community*. Sketches, such as those drawn by 'Harlequin' staff other than for this issue—pages 11 and 61—will be welcome and One Guinea will be awarded. The winning entry will also be eligible for the twenty guinea contest page 78.

CROSSWORD

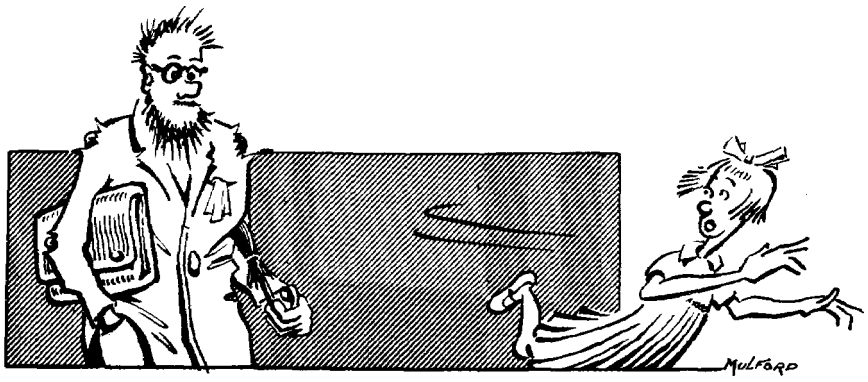
A prize-winning Harwell crossword has been devised for the next issue.

PLACE THAT FACE

These five people are to be found in or around AERE

One Guinea will be awarded the sender of the most complete and accurate list giving the *building* or *organization* to which each belongs.

Page 68 gives details of how to send in your entries



The Impact of Harwell Staff on a Local Community

A SURVEY BY HEATHER PULSFORD

This paper sets out to discover how well members of Harwell have become integrated into the social structure of the old town of Abingdon. The population of the town (1959) is 13,110 and Harwell staff and their families account for nearly a quarter of this total. A survey was made of the voluntary societies in the town and, from interviews with the leaders of each group, details of foundation, membership and activities were obtained. The societies are classified under such headings as Musical Societies, Youth Groups, etc., and, in order to gain a fairly accurate picture, as many as possible under each heading were investigated.

In the Introduction the reader is taken rapidly through a brief history of Abingdon and then given a picture of its present state with special reference to the newcomers. The method of approach is explained and some of the difficulties met are described.

An account of the findings follows, each group of societies having a separate section, and each specific society its own heading. A table at the end of each section gives some idea of the proportion of Harwell people in each society and their contribution to the group through committee membership.

At the end some conclusions are drawn; and finally it is remarked that, far from remaining aloof from their surroundings, Harwell members have become well integrated into Abingdon life, entering many voluntary fields with vigour and enthusiasm.

GOOD MIXERS

PSYCHIATRIC patients at Style Acre Hospital, near Brightwell-cum-Sotwell, have been "completely accepted" by the villagers, says the chairman of the St. Birinus Group Hospital Management Committee, Major-General R. Lambert.

Major-General Lambert recalls that earlier there was hostility towards the patients. Some people feared that they might be attacked.

Now the attitude had completely changed and patients had even been invited to play in the local football team. The patients had their own band, which played in the village.

"Oxford Mail" 12/11/59.

INTRODUCTION

The ancient market town of Abingdon, once the county town of Berkshire, has stood for more than 1,300 years on the junction of the Rivers Ock and Thames. In the early days it was almost entirely governed by the Abbey, which was dissolved in 1538. In 1556 Abingdon boasted a population of 1,400 and was granted a Royal Charter, thus becoming a Borough with a Mayor and Corporation.

The town remained much the same for about three centuries and was described in the Quarterly Review a hundred years ago as a "quiet melancholy place, rather going astern in these competitive days." During this century, however, the population has increased very considerably and, although many of the old buildings have been preserved, the town would scarcely be recognisable to one of the Abbots. New industries of car manufacture, leather production, concrete works and light engineering have encouraged the long established industries of agriculture, malting, brewing and printing to more vigorous enterprise. The population in 1939 was 8,723, and by 1953 this had increased to 10,915. This year (1959) found another increase of over 2,000 to 13,110.

The chief cause of this sudden increase is that since the war the Atomic Energy Research Establishment has been set up at Harwell, about 8 miles south of Abingdon on the Berkshire Ridgeway. A.E.R.E. was founded in 1946 to carry out research and development in the fields of atomic energy. The housing of employees is well catered for, and various housing estates have been built in the surrounding towns. There are two Authority estates in Abingdon. The first, called Fitzharry's Manor Estate, being built on the site of Fitzharry's Manor, consists of 140 houses. The 124 houses of the second estate are the first buildings one sees when approaching Abingdon from Oxford. In addition local authorities have provided dwellings in towns near to Harwell, and Abingdon has given the lead in this field by providing 380 houses for Harwell staff. There are also two hostels. One is an old house named Fellows Close and dated 1748; this holds 30–40 junior workers. The other, a new building erected on one of the estates, holds 180 older, single workers. In addition 300 people, at a rough estimate, live in lodgings. This gives a total of 644 households and 510 single people. To gain an idea of the number of Harwell people (that is workers, their wives and children) living in Abingdon it is assumed that there are 4 people to each household, thus arriving at a final total of 3086. As already mentioned, the population of Abingdon (1959) is 13,110, and so we may conclude that Harwell people now account for nearly a quarter of the townsfolk.

Not all who work at Harwell are newcomers to the district. For instance, a fair number of Abingdon girls are now included on the clerical staff of the establishment. These workers are mainly single and, as they are not permitted to live in the hostels which are specifically provided for those away from their own homes, they do not alter the figures given above. Moreover, it may be justly said that the great majority of those living in the specially provided houses are newcomers to Abingdon.

An increase in the population of a small town by 3,000 could hardly fail to have some effect; but the Harwell people have by their nature had an unusual effect upon Abingdon. They form a group with a common ground in their place of work, and, being housed in special estates and hostels, are a fairly close-knit group. In addition they are people of an unusual calibre and represent an intelligent cross-section of the public with varied but well-developed talents. A group of this kind might be found to remain aloof from its new surroundings and find satisfaction within its own midst. On the other hand it might look outside itself, and become well integrated in the social structure, possibly altering the face of this structure in the process. This paper sets out to discover how much the Harwell people have become integrated into the social structure of Abingdon, and what sort of influence they have had upon it.

The method used was as follows. A study was made of the voluntary societies in the town with special reference to their foundation, membership and activities. It was hoped to find out whether or not the society had been formed through the influence of Harwell people, what proportion of the membership was made up of Harwell people, what contribution they had made to the group and whether or not they formed an active section of the group. The societies studied were classified as follows:

1. Sports Organisations.
2. Musical Societies.
3. Women's Societies.
4. Men's Societies.
5. Youth Groups.
6. Religious Organisations.
7. Political Groups.
8. Others.

When the survey was commenced the basic idea was to look at only a few voluntary societies and study them in detail. It was soon realised, however, that this method of approach would fail to give a true picture of the integration of the newcomers, since a certain selection could give the impression that Harwell people were almost entirely responsible for the organisation of the voluntary groups, whereas from another selection it might appear that the scientists and their families remained disinterested in life around them and contributed nothing towards the activities of their new town. For this reason, as many societies as possible under each heading were investigated.

It should be pointed out that the same co-operation was not received from the leaders of all the societies. Some were only too eager to help, and had at their fingertips details of their membership and activities. Others, however, were more reticent, and full details were not obtained. The tables at the end of each section are therefore not always as explanatory as might be desired; but it is thought that they help to give the reader a fairly general picture of the situation in that group of societies.

Before the findings are related it should be mentioned that Abingdon folk are fairly reserved and do not take easily to changes or newcomers. When Richard Dimbleby came to Abingdon with his programme "Down Your Way" in 1950, the general opinion then expressed by old Abingdonians was that the "atomic" people were changing the town in an undesirable way, and that it had been a more peaceful place before their arrival. An individual might find it difficult to worm his way into Abingdon society, but a large group could hardly be ignored: Abingdon folk have been obliged to accept the Harwell people and are now, it is thought, quite resigned and possibly grateful for the influx.

SPORTS ORGANISATIONS

Abingdon & District Angling and Restocking Association

This Association has a membership of 750 taken from Abingdon and outlying areas. Less than 1% work at Harwell, but it is known that Harwell has its own angling association which is organised from the Establishment and is quite well supported.

Abingdon Badminton Club

Abingdon Badminton Club, which has its courts in the Old Gaol, has 50 members. Sixteen are Harwell people, two of whom sit on the committee of 7.

Abingdon Bowling Club

Abingdon Bowling Club has no representative from Harwell. As bowls is on the whole the sport of the more elderly, this is perhaps not surprising.

Abingdon Cricket Club

Abingdon Cricket Club has 135 members including playing and non-playing supporters. Of these 20 are Harwell employees all of whom play. In the last 4 years the team has been captained twice by a Harwell man; and there are 4 Harwell members serving on a committee of 12.

Abingdon Football Club

Of the 65 members of Abingdon Football Club there is one non-playing member who works at Harwell and, he being a St. John Ambulance Officer, it is supposed that he goes there in the hope of practising First Aid rather than the game.

Abingdon Hockey Club

Abingdon Hockey Club has no Harwell members.

Abingdon Lawn Tennis Club

Abingdon Lawn Tennis Club divides its members into full members, afternoon members and juniors. This summer (1959) there were 70 full members including 27 from Harwell, 7 afternoon members, one of whom was from Harwell, and 30 junior members, half of whom were the children of Harwell employees. This last was a larger proportion than in the previous year, mainly because the secretary was a Harwell wife who had persuaded many of the youngsters from the Harwell estate to join. Thus the Tennis Club totals 107 members, with 43 Harwell representatives. The proportion of Harwell people on the committee is high with 3 Harwell out of 4.

Abingdon Rowing Club

Abingdon Rowing Club was launched in June 1958, and in 1959 held its first Regatta in aid of the Mayor of Abingdon's Aid to Refugees Fund, when it raised £88 10s. 0d. Of its 33 members, 13 are from Harwell and most of these were said to be active rowing members. Three of them sit on a committee of 6.

Abingdon Rugby Union Football Club

Abingdon Rugby Union Football Club has four Harwell men out of a membership of 50, all of whom play, and also sit on the committee of 10.

Abbey Sailing Club

Abbey Sailing Club now has a full membership, there being no more room on the Club quay for any additional boats. The secretary considered that the introduction of Harwell people accounted for this. Of the boat owners 20% work at Harwell and 25% of the non-boat-owners are the wives or children of Harwell employees. In all there are about 220 members with 50 from Harwell. None of these is on the present committee of 7, although last year there were 2.

Society	Members	Harwell	%	Committee	Harwell	%
Angling	750	7	1	—	—	—
Badminton	50	16	32	7	2	28.5
Bowling	—	0	0	—	—	—
Cricket	135	20	16	12	4	33.3
Hockey	—	0	0	—	—	—
Tennis	107	43	40.2	4	3	75
Rowing	33	13	39.4	6	3	50
Rugby	50	4	8	10	4	40
Sailing	220	50	22.7	7	0	0

From the above table it appears that Harwell people have not infiltrated very much into Abingdon sporting activities except in Tennis, Rowing, Sailing and Badminton. However, there are sports clubs of all varieties on the Establishment many of whom run more than one team. Sportsmen may, therefore, prefer to give their support and loyalty to a works team rather than to one in their adopted town.

MUSICAL SOCIETIES

Abingdon and District Musical Society

The source of this society can be traced to a small Madrigal Society which existed in Abingdon before the war. During the war its activities waned, but another choral group sprang up, formed by employees of Esso House, which had been evacuated from London. In 1946 it was rumoured that Esso House would return to London, and so an Abingdon man formed the Musical Society as it is now, with both orchestral and choral sections. In 1946 there were no representatives from Harwell, in 1947 there were 1 or 2, in 1948 there were less than 10, but in 1950 we find 10 Harwell ladies and 5 Harwell men in the Choral Section and 5 Harwell men in the Orchestral Section out of a total membership of 66. Now (1959) there are 100 members, 50% of whom are Harwell people. Four Harwell members sit on the committee of 12.

Abingdon Amateur Operatic Society

This young society, which graduated from a Gilbert and Sullivan section of a musical society at A.E.R.E., was founded in January 1958. It now has 50 members, 80% of whom are Harwell people, and its committee of 5 is entirely Harwell.

Abingdon Society of Change Ringers

The group of bell ringers in Abingdon numbers 16, of whom 3 are the teenage children of Harwell workers.

Society	Members	Harwell	%	Committee	Harwell	%
Musical	100	50	50.0	12	4	33.3
Operatic	50	40	80.0	5	5	100.0
Bell Ringers	16	3	18.7	—	—	—

WOMEN'S SOCIETIES

The Business and Professional Women's Association

The Abingdon branch of this society is a daughter club of the Oxford group and was founded in May this year. Membership is open to professional and business women who have worked within the last 5 years. The Abingdon branch showed a membership of 62 after only one month, and now numbers 68. Of the group 75% must be actually employed at the present time which means that unemployed housewives can only account for 25%. In the Abingdon branch it was discovered that most of this 25% is made up of Harwell housewives who "show a great interest and offer an intelligent and thoughtful contribution to the meetings." Harwell is represented by one member on the General Committee and 5 members on sub-committees. The Society has about 36 members in all.

The Women's Institute and **The Townswomen's Guild**

When Abingdon was more rural the only women's group was the Women's Institute. Then 25 years ago, when the population became more numerous, a Townswomen's Guild was formed.

The Women's Institute now has 126 members, only 7 of whom are newcomers from Harwell.

The Townswomen's Guild has both an afternoon and an evening group. The former is the original foundation, membership numbers 100 and includes 5 Harwell wives. As most of the Harwell wives are mothers with young children, they found it difficult to spare time in the afternoons, and so in 1951 an evening group was formed at the instigation of one of them. This was at first almost exclusively Harwell but is now represented equally by townsfolk and Harwell, there being 56 of each. The committee of 14, however, is made up of 9 Harwell wives and 5 Abingdonians.

The Trefoil Guild

Finally in this group comes the Trefoil Guild, a long established Abingdon Society, membership of which is restricted to those who have been Guides. There are 40 ex-Guides in this group. Three are from Harwell who are all on the committee.

Society	Members	Harwell	%	Committee	Harwell	%
Business & Professional Women's Association	68	16	23.5	36	6	16.6
Women's Institute	126	7	5.5	—	—	—
T.W.G. (afternoon)	100	5	5.0	—	—	—
T.W.G. (evening)	112	56	50.0	14	9	64.3
Trefoil Guild	40	3	7.5	6	3	50.0

MEN'S SOCIETIES

The Round Table

The Abingdon Round Table was formed in June 1958. Its motto is "Adopt, Adapt, Improve", and its members fulfil this motto by doing good by their own efforts rather than by giving financial aid. The Tablers number 28, of whom 5 are Harwell men. The rule is that members must be under 40 years of age, and not more than two men of the same profession may belong to the same Table; but this does not restrict the membership of Harwell men since the work done at Harwell is so varied. The Harwell members are very valuable to the new Table because they usually come from other Tables and bring many new ideas and suggestions with them. One Harwell member sits on the present committee of 4.

Rotary

A Rotary Club gives financial aid to any deserving cause. The Club can have only one member from each profession. A.E.R.E. has been sub-divided into 4 sections, and Abingdon Rotary could therefore have 4 Harwell members. There is, however, only one Harwell man in its membership of 40.

Oddfellows

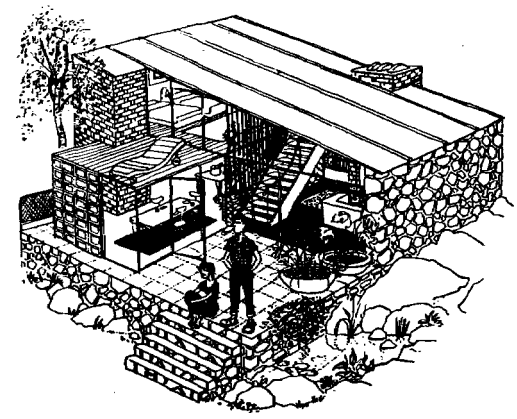
The Oddfellows is a Mutual Benefit Society that was founded towards the end of the last century. The Society donates gifts to local hospitals and provides sick benefits, death grants and widow's grants for its members. For the most part the Oddfellows is a working men's club, which perhaps accounts for there being no Harwell men among the 90 members.

Toc H

The Abingdon branch of Toc H has about 18 members, a third of whom are from Harwell. It was said that these are mainly of the younger generation, and that they have instilled life blood into the group.

Society	Members	Harwell	%	Committee	Harwell	%
Round Table	28	5	17.8	4	1	25
Rotary	40	1	2.5	—	—	—
Oddfellows	90	0	0	—	—	—
Toc H	18	6	33.3	—	—	—

In the next issue we will deal with Youth Groups, Religious Organisations, Political Groups and others, and see what conclusions can be reached from this survey. ★



THE WIDE OPEN PLAN

FEW of the many architectural innovations introduced towards the end of the last century was so long and widely welcomed as the "open plan" of which the late Sir Edwin Lutyens was, perhaps, the most distinguished exponent. Freed from the conventional lay-out imposed by the classical façade, the architect was at liberty, anyhow on an open site, to concentrate on convenience and allow the outward appearance of the house to be largely determined by the internal arrangement. He could, as it were, start on the inside and work out.

Stimulating and advantageous as was the freedom conferred by the new doctrine, when it is pushed to extremes as, in recent years particularly in Scandinavia and the U.S.A., it has been, the results tend to be immediately remarkable rather than permanently satisfying. Cantilever construction, which relieves the walls of any supporting function, the informal style of modern garden lay-out, first introduced by Miss Jekyll, and the rapid development of central-heating and air-conditioning, all combined to render possible the complete abolition of any old-fashioned distinction between indoors and out. To make the total confusion of his client doubly sure the architect did not hesitate to face the inside of his walls with roughcast and ashlar, and vigorously encouraged the cultivation of ivy, philodendra and other climbing plants upstairs, downstairs and in my lady's parlour.

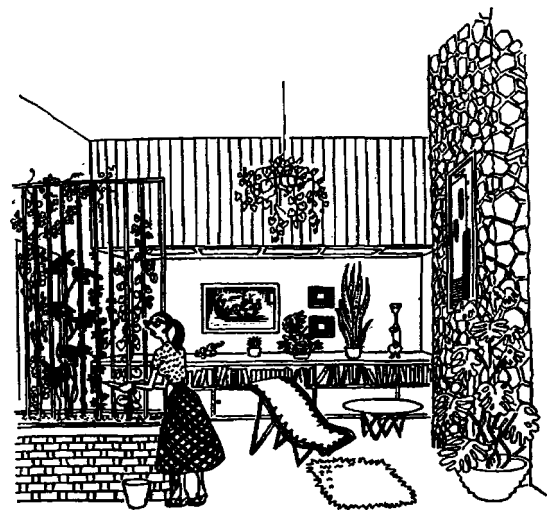
Any out-of-date concern for privacy was firmly disregarded and every householder was looked on as a potential exhibitionist ready to perform even the most intimate acts beneath the interested scrutiny of any neighbour with a good pair of fieldglasses, happy in the knowledge that at long last he was really at one with the surrounding landscape.

The compensating advantages that went with this condition of permanent exposure were held chiefly to reside in the ability always to enjoy the ever-changing pageant of nature as revealed through the acres of vita-glass which had replaced the all too solid walls that had enclosed less privileged generations. Unfortunately, of course, this remained in practice relatively unexploited owing to the necessity for drawing all the curtains in order fully to enjoy the ever-changing pageant of television.

JUNGLE-JUNGLE

"WE needs must love the simplest when we see it." This happy fallacy from the propagandists for pure-functionalism had, during the late 'thirties, derived so much comfort and justification was not, as a slogan, calculated to maintain its power in a period of enforced austerity. When individual choice was limited over a long period to the severly restricted "utility" field, the longing for frills became naturally irresistible. It was gratified in two ways.

The rigid and puritanical functionalism of the Modern Movement was modified in the immediate post-war period by a movement, called for reasons which it would be too tedious, and unprofitable, exhaustively to investigate, the "New Empiricism." In effect this meant, first an inside-out tendency whereby interior walls were treated as though they were called upon to withstand the icy buffetings of Connecticut gales; second by a desperate attempt to modify the machine-turned efficiency of the "planned" interior by the introduction of innumerable exotics from jungle and swamp. This botanical enthusiasm in due course succeeded in modifying not only the decoration but even the structure of the Modern Home. Curious wooden grilles appeared, inexplicably jutting out at right angles into the logical living-rooms of Gothenburg and New Canaan, up which ivy and philodendron were lovingly trained. The cacti of the Middle European 'thirties were now outclassed by extraordinary growths, conceived on the Amazon and nurtured in the hothouses of Copenhagen. The Paul Klee water-colours, the Henry Moore drawings the *objets trouvés* (picked up at Shanklin but reminiscent, it was hoped, of the vision of Paul Nash) were but dimly discernible through the tangled undergrowth; and faint traces of liquid manure, too generously applied, rendered tacky the pages of *Encounter.*



From "Here of All Places" which is reviewed overleaf.

HOLMES AT HARWELL

HOLMES ANSWERS THE QUESTION . . .

"Every inquiry in this cast reveals something inexplicable."
(The Bruce-Partington Plans)

"My mind rebels at stagnation. Give me problems, give me work, ..."
(The Sign of Four)

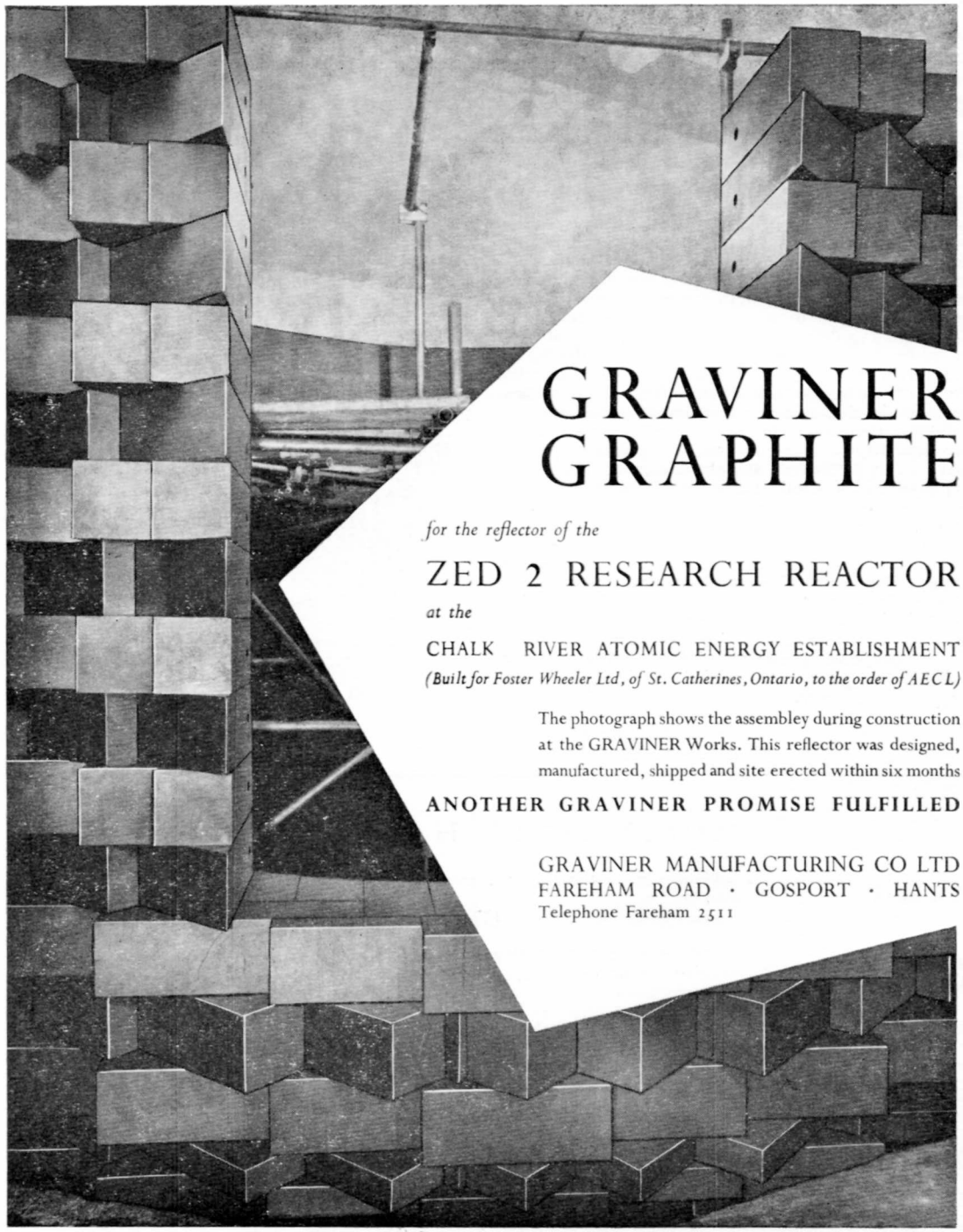
".....it is the problem itself which attracts me."
(Thor Bridge)

"The work itself, the pleasure of finding a field for my peculiar powers, is my highest reward."
(The Sign of Four)

"There is material here. There is scope."
(The Bruce-Partington Plans)

".....the quick inference, ... the triumphant vindication of bold theories—are these not the pride and the justification of our life's work?"
(The Valley of Fear)

. . . "WHY WORK AT HARWELL!"



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The photograph shows the assembley during construction at the GRAVINER Works. This reflector was designed, manufactured, shipped and site erected within six months

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. . . any good books lately?

D.A.T

"Sir John Cockcroft" by Ronald Clark
(Phoenix House 8/6)

HOW will Sir John Cockcroft be seen by the historian of the future? As one of two men, working under Lord Rutherford, who in 1932 artificially 'transmuted' the atom for the first time? As one of that group, totalling only a few score, who in the desperate days of the war out-thought and outwitted the enemy? Or as one who took part in the race for the atomic bomb and the planning and building at Chalk River of the first atomic pile outside the United States? Now that Sir John moves on to yet another career with the Mastership of the new Churchill College at Cambridge, historians may pinpoint the balanced teaching of science exemplified by one who throughout his life regarded science as but one of the things that should mould the outlook of what the Elizabethans called the "whole man." Certainly, although we would like to see Sir John remembered most as "the man who made Harwell" this must, in fact, be regarded as but a chapter in this eventful life, as neither the greatest nor the least, nor yet the last of his accomplishments.

This book in "The Living Biographies Series" helps one not only to see in perspective the life of one with whom we are pleased to have been associated but also to see more clearly the impact of this century. We are reminded that when John Douglas Cockcroft was at school the law demanding that a man with a red flag should walk in front of a motor-car had only recently been repealed; it was either by barge or by horse-drawn carts that the products of the Todmorden Mill were taken from the valley and out of the world beyond Yorkshire. The first man had flown, but for only a few minutes, and some even asserted that man would not fly for much longer. The suggestion that messages might be sent from one part of the world to another by radio-waves was not generally taken seriously, but there were already in some quarters the first stirrings of interest in what was to develop into the most exciting investigation of all—that of the nature of matter itself.

To-day, when he is known by millions for his work on nuclear physics, it seems strange to read of his being thrown during the war into the hurly-burly of devising new, sometimes hastily-rigged-up, pieces of equipment to locate planes, submarines, and eventually even shellbursts, at increasingly long ranges. The writer not only records the facts but analyses them and explains how at that time the idea of utilizing nuclear energy had little more than a distant theoretical possibility: "More immediate problems were at hand, especially in the field of radar, and they called for a man agile of hand as well as of mind: a man who could not only work out the answer to a theoretical problem in the study but who could apply it 'in the field'."

It would be wrong to suggest that Cockcroft, later as an administrator, acted merely as stage-manager to a group of prima donnas among scientists, and the book emphasizes that academically he ranked as high as any of them: "What he had in addition was that rare genius for getting results—not only from machines but from ordinary men and women and from scientists who spent much of their working lives in the mental stratosphere."

Referring to Harwell, the writer describes the work which Sir John has directed there, "holding the reins, one feels much as Rutherford did at Cambridge," but more important is assessed "the atmosphere which Cockcroft himself has encouraged, an atmosphere governed by his own personal idea of how Harwell should be run." In his assessment of his subject, the writer has been assisted by members of the Authority and other bodies, and also by the many statements of Sir John in articles and speeches: "A research establishment", he quotes, "must be considered not as so many 'bodies' who can be directed to do this and that by higher authority, but as an assembly of human beings of widely different attributes and temperament, who must be treated as human beings if the best is to be got out of them."

We would recommend this work as a Christmas present for any nephew; he will read and appreciate it, whether or not he previously had any dreams of being even an ordinary scientist: but buy the book early so that you have time to read it yourself; and do not write his name in it yet, for it is very likely you will want to keep this book for yourself!

★ ★ ★

"HERE, OF ALL PLACES"
by Osbert Lancaster. Murray 21s.

For many people the word "architecture" brings to mind only individual and important buildings: great medieval cathedrals, fortresses and country mansions. Through this book we are reminded that architecture is always with us, that much of the architectural richness of England lies in the neo-Gothic stations of country towns, the squares in her cities and the small houses of farmers and country squires that still abound throughout the countryside.

Through the numerous drawings and their astringent commentaries we are taken on an excursion from the age of the wigwam to that of the skyscraper, to see the styles and habits of the English speaking world from both the inside and the outside. Our guide is both instructive and witty, with the result that our sight-seeing, which might have been cursory, becomes prolonged with interest.

The commentaries, as the author himself admits, are "a small mass of information leavened by a large dose of personal prejudices", but we see true architecture not as an academic exercise in applied ornament, in which Egyptian sculpture and Greek decorations are revived according to fancy, but as a social art which through the ages has related itself to the life of the people it serves.

We are warned that neither architects nor their patrons can with any safety be left to their own devices. The conclusion is reached that architecture has no geographical limitations, that it flourishes, or could flourish, equally well right here. ★

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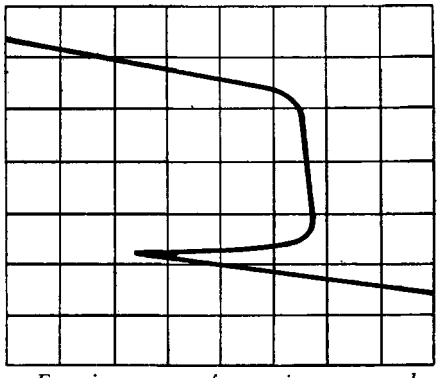

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Our Technical Rep., Ron Meller, is at Harwell every week. If you have a problem a tinkle to Head Office will bring him along to you.

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A COVER FOR 'HARLEQUIN'

LIMITATIONS of space and the possibility of boring the reader allows of only a very general idea of the processes involved in producing a cover design to be described. If this explanation of a complex series of operations appears somewhat scanty to those who already have a knowledge of the subject it is hoped that they will bear with the writer who is merely the artist and finds writing on the subject rather "out of his line", and who is fully aware that there are many at Harwell who are far more competent to do so.

Firstly the longest and most arduous part of producing a 'Harlequin' cover is thinking up an idea and deciding on the colours to use. The writer feels that such ideas should be divorced from the Establishment, for 'Harlequin' is a leisure magazine and one's leisure should not be tied too closely to one's work. This is a personal point of view and thanks are hereby extended to the editor for the complete freedom he has given the artist. Many sketches are made, most of which are put in the waste paper basket, and a final choice is made from the few remaining as printing day draws near for better or worse.

Generally the covers are required in only two colours due to financial considerations, which limitation makes life a little more difficult for the artist, as it is a constant battle to keep the design down to those two colours and at the same time make it balanced and entertaining.

Having decided these points, drawings are made in black ink, in an area very slightly larger than the cover size If we assume that the colours used are yellow and blue then one drawing is made of all the yellow parts and another of all the blue areas. If it is desired to use these colours to produce a green and so to introduce artificially a third colour, the green areas will appear on both drawings either in full- or half-tones according to the predominance of yellow or blue required.

During the drawing great care must be taken to ensure that there is perfect register, i.e. that each impression fits exactly to the other.

When three colours are used it will be seen that by employing combinations of these in full- and varying strengths of half-tones, very many other tints can be introduced. The present cover has nine colours, all produced from the three basic inks, red, yellow and dark blue on white paper, but very many more could have been introduced in varying shades of each colour.

The average cover takes ten to twenty hours of the artist's working time from the first sketch to preparing the final drawings ready for the blockmaker. Future covers will be produced by the Illustration Section Studio where full facilities and a team of artists are available which will allow of more varied ideas and techniques.

The drawings are sent to the blockmaker, who photographically transfers them to a metal plate on which the design is etched so that the black areas on the drawing are raised above the rest of the plate; this gives the printing surface. These are produced one for each drawing. The plate is then mounted on to a block of wood and this finishes the blockmaker's job. Here it should be emphasised that this is a very cursory glance at a highly skilled craft.

The printer runs the cover paper through his machines once for each colour, using the appropriate block. This is where the perfect register by both the artist and the printer are so very important, for if either is out, colours would overlap or leave gaps and spoil the whole effect.

Finally the printed covers are attached to the magazine pages, the whole thing is stapled together, the edges are trimmed (this is why the drawings are made slightly larger than the cover size) and the magazine is complete.

Presto! A new cover for your 'Harlequin'.

Reg. Heath.

LETTER TO THE EDITOR

Old School House,
Thorley,
Bishop's Stortford,
Herts.

Dear Sir,

If Harwell were assembling mouse-traps, I might have acceded to your request for adverse criticism of **Harlequin.** When, however, a fellow is getting on in years and has a family to support, he does not—repeat **not**—put out his tongue at chaps who are taking atoms to pieces. Not even when he catches them bending over a chore the editor of their house journal has thrust on them. Rather, let me warmly congratulate you, your scribes, and your picture-makers on the splendid achievement of winning second place in your class of the National House Journal Competition for 1959.

"Harwell has moved in 2,000 scientists with honours degrees . . . Many even of the senior staff are still young. As one of them put it, they are still too young to have become failures, and too young to have become pompous." The virtues and defects, indeed, the whole atmosphere of **Harlequin,** may be inferred from these facts. To be alive, to be young, and, despite minor vexations and frustrations, not to have known failure in any profound and personal sense, is heaven. Why should we grumble if, as yet, it is only a two-dimensional heaven?

As Harwell gets older, **Harlequin** will gain a third and even a fourth dimension. Its contributors will begin to look further inward and outward; to look before and after; and to see themselves as part of a world bigger than their own Berkshire island. Your artists and picture-makers are already breaking bounds, to the great benefit of Harlequin. Homolka, as funny men are apt to do, goes further and deeper than, superficially, he appears to be doing.

To a less than young outsider it is fascinating to watch, at work and at play, a younger organisation which has not yet become introspective; which is still full of hope and purpose; and which is not yet conscious of being bowed down by the weight of the world. **Harlequin** admirably reflects the sense of a unity of purpose in a diversity of projects, and the obvious pride of Harwellians in their Harwell.

No, sir. I will praise **Harlequin,** but I will not adversely criticize it. Indeed, I fear that already I have loitered so long in your neighbourhood that I am in danger of being picked up by your security men. If they do ask questions, please tell them that I have been trying to sell you an index. **Harlequin** does need one.

With every good wish—especially that of first place in the 1960 National House Journal Competition,

Yours sincerely,

GORDON TAYLOR.
Author of "Creative English"

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OPEN EVERY DAY

The Christmas Quiz

Those moulders of the Mass Mind, the newspapers, would have us believe that the Atomic Age is the end-product of this century's genius and intellect. This is not true. The real truth is that the Flower of Twentieth Century thought is—the QUIZ.

The key is devised to prevent indecorous cheating by "absent-mindedly" reading off the answer to the question: the left-hand column in bold type shows the number of the question beside the number of the corresponding answer, e.g., **1—14** indicates that question No. 1 is answered by No. 14 in the answer column.

ATOMIC ENERGY

1. The discovery of uranium fission made possible the exploitation of atomic energy. Who made the discovery, where, and in which year?
2. What is an atom?
3. What is the central core of an atom called and by what is it surrounded?
4. Who first proved that the atom could be split?
5. How would you define an atomic pile?
6. Into what, forming the core of an atomic reactor, are uranium fuel rods inserted?
7. In an atomic power station, the heat created in the pressure vessel is passed to an apparatus which uses it to turn water into steam. What is this apparatus called?
8. Where was Britain's first atomic power station built, and when did it come into operation?
9. What is the especial advantage of a fast fission breeder reactor such as that built at Dounreay in Scotland?
10. What is a cyclotron?
11. What was the original definition of the "atomic weight" of an element?
12. What is the main obstacle to the use of atomic engines in aircraft?
13. Which was the first atomic-powered submarine, and when was she launched?
14. One of the great advantages of an atomic-powered submarine is that it can remain submerged almost indefinitely. Why is this?
15. What are isotopes?
16. Isotopes have numerous practical uses in industry, medicine and scientific research. Which country is the largest exporter of isotopes?
17. Following the success of the Calder Hall power station, the U.K. Government in 1957 announced plans for building more atomic power stations. How many, and by which year?
18. Where was the world's first atomic "fast breeder" reactor built?

Key

1—14	**7—11**	**13—10**
2—4	**8—6**	**14—5**
3—12	**9—17**	**15—9**
4—18	**10—1**	**16—3**
5—2	**11—15**	**17—13**
6—16	**12—7**	**18—8**

ANSWERS TO ATOMIC ENERGY

1. A machine used for accelerating atomic particles, which are then used to investigate the properties of atomic nuclei and to produce artificial radio-active substances.
2. An apparatus by which nuclear energy is released from the central nuclei of fissile material.
3. Britain.
4. The smallest portion of an element which can exist.
5. The atomic engine needs little air and produces no exhaust fumes. (Battery-charging in orthodox submarines can only be carried out on the surface).
6. At Calder Hall, Cumberland, 1956.
7. The great weight of shielding needed to protect passengers and crew from radiation.
8. Dounreay, Caithness.
9. Varieties of atoms of the same chemical element but with different atomic weights.
10. U.S.S. Nautilus. 1954.
11. The heat exchanger.
12. The nucleus; a cloud of electrons.
13. A total of 19 atomic power stations by 1965.
14. O. Hahn and F. Strassman. Germany, 1939.
15. The number of times one atom of the element is heavier than one atom of hydrogen.
16. The moderator, e.g. graphite.
17. It "breeds" more fissile material than it consumes.
18. Lord Rutherford.

●

UNCLASSIFIED

1. What is the origin of the expression *common or garden*
2. Why are the embalmed bodies of Egyptians called *mummies?*
3. Who was General Timoshanko?
4. In 1780 a Scot managed to get 1,500 feet under the sea. True or False?
5. A member of the Abingdon Operatic Society is said to be able to shatter a wine glass at 10 feet whilst singing top C. How?
6. What is the origin of the place-name *Marylebone?*

Key

1—3	**3—6**	**5—2**
2—1	**4—5**	**6—4**

ANSWERS TO UNCLASSIFIED

1. Due to intermarriage of Egyptian royalty, a boy could marry his sister's aunt and become his own uncle: they were thus called to be on the safe side.
2. Elastic and lead shot.
3. Introduced by Charles I who used to meet Nell Gwyn either on Clapham Common or in her garden.
4. A corruption of Mary the Bone, a famous side-show thin woman of the Restoration Period.
5. True. He persuaded 750 people to go wading at Largs.
6. Timothy O'Shea from Ireland who founded the firm of Tim O'Shea in Moscow.

"HARLEQUIN'S" 1959 TWENTY GUINEA CONTEST

This was based on the three issues of 1959 and readers are invited to register their votes for the best of the eligible entries:

I For the best informative article (not especially commissioned): "New World"; "Voyage of the Bronze wing"; "The Impact of Harwell Staff".

II For the best humorous article: 3 entries from Homolka; 1 entry each from Phoenix and Eboni.

III For the best art work: all art work published was this year ineligible, as either previously exhibited or expressly commissioned. The guineas allocated for this section have been awarded to artists P. Mulford and R. Heath for special work commissioned.

IV For the best photographs (not commissioned or previously exhibited): entries from A. R. Kenyon, H. E. Crooks, H. A. Ballinger, E. Lyall and G. T. Sneddon—plus photographs in the Marine-line supplement.

V For the most original idea: the name of any 1959 contributor above, or of 'Harlequin's' humorous artist will be eligible: R. Heath, R. S. Sharpe, K. W. Viney, Mrs. S. J. Phillips, P. Harrop, ROT and J. D. H. Huges.

The recording of these 4 votes is a condition of every entry for competitors and contributors. *Research is to see what everybody else has seen, and think what nobody has thought.*

Contributions of all kinds are welcomed for 'Harlequin' and should be sent to the address below. Readers contemplating lengthy articles on subjects such as *travel* are advised to contact the Editor in the first instance.

For 1960 the TWENTY GUINEAS will be re-allocated:

I	For the best informative article (not specially commissioned) ...	Five Guineas
II	For the best humorous article	ditto
III	For the most original idea	ditto
IV	For the design of a Harwell Christmas card*	ditto

*In this case the entries of artists and photographers will be judged by a special committee.

Plan your design now while the Christmas spirit remains and note the special closing date for this section: *March 31st.*

Monday, Jan. 25th

This is the *closing date* for Round One contributions for sections I, II and III.

The address is "Harlequin", c/o Post Room, for *internal* mail; Harlequin, A.E.R.E. Harwell, Didcot, Berks. for *external* mail.

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