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Vol. XXIII, No. 1 (60)

SPRING HARLEQUIN 1968



Leisure Magazine of the United Kingdom Atomic Energy Research Group

A NEW BEGINNING

Twenty years ago the first issue of *Harlequin* was published with an Introduction written by John Cockcroft. In those days it was not possible to foresee that a muddy Berkshire aerodrome would be transformed into a world famous research laboratory, but looking back we sometimes make the mistake of thinking this success was inevitable. In truth this was not so. The past successes came from creative imagination, hard and devoted work and, above all, from a quickly established tradition of scientific and engineering excellence. It is thus with a great sense of humility that I take on the task of leading Harwell from Dr. Bob Spence — a man to whom we all owe a great debt for the contribution that he has made to Harwell from the earliest days. Our best wishes go with him to his new appointment in Canterbury.

It is exciting for me, and I am sure for all of us, to know that Harwell is on the brink of a new beginning. The qualities that gave us success in the past are also those that will give us success in the new fields of the future, and my principal task is perhaps to ensure that scientific and engineering excellence continue to be a living influence in all our work. Already we have shown that we can turn our skills and our experimental resources to develop new technologies — such as desalination, graphite fibre technology, ceramics technology — while at the same time continuing to support the reactor development programme and continuing basic scientific research not just as a foundation for future technology but also as a primary source of the high scientific standards we set for ourselves. I believe our success so far is remarkable and British industry is already responding to our initiatives with enthusiastic interest. I see, then, a future of change and challenge, of excitement and opportunity for all of us — truly a new beginning — and I am sure that we shall succeed.

In his first contribution John Cockcroft welcomed *Harlequin* as a magazine which could record, in some permanent form, the development of Harwell. I echo his good wishes and take this opportunity to thank all those who give their time to make *Harlequin* the popular magazine it is today.

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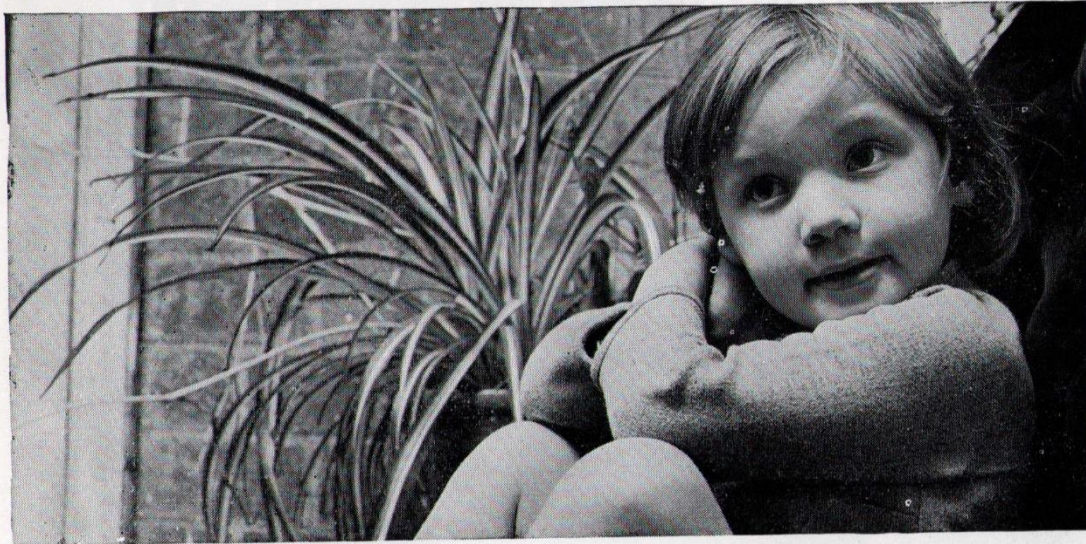
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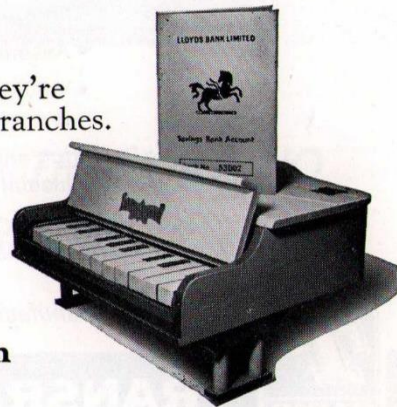


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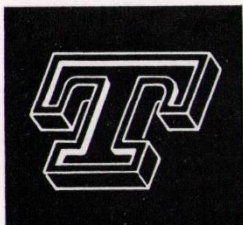
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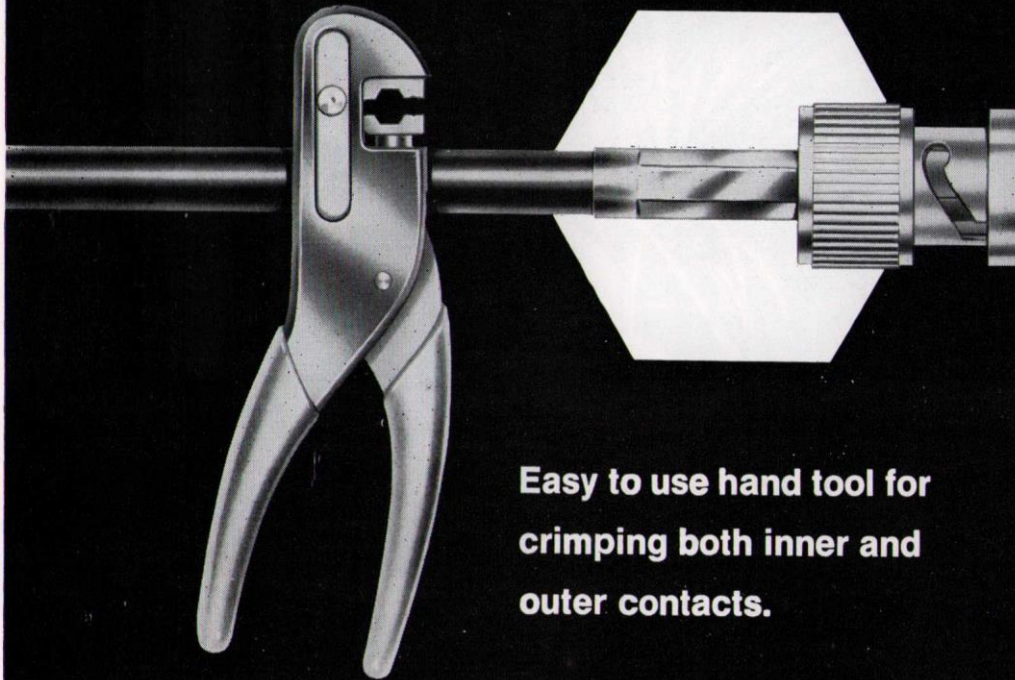
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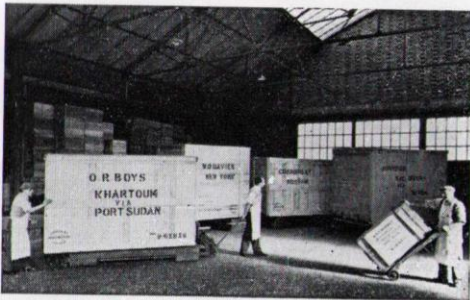


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SPRING 1968

Vol. XXIII, No. 1 (60)

*in this
issue*

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EDITORIAL

The wind was like a highwayman
Who cried "Stand and deliver!"
Then robbed the trees
With cruel ease
And left them all to shiver.

Away he sped on his swift horse,
No Tyburn fate feared he,
In boisterous health
He flashed the wealth
He filched with devilish glee.

But now in Spring he comes again,
A mild repentant thief,
And kisses blows
As by he goes
And gives back every leaf.

"The Highwayman", Herbert Bluen.

Some buy a boat, others trade in their family saloon for an open sports. Some people fuss because the house looks suddenly dingy, others because their bulbs are behind those next door. For all of us spring is a season of change when a whim can grow into an urge that cannot be denied, when winter thoughts are warmed finally into action.

When we look back on history, or at our own lives, we see that change is always as inevitable as spring, but not always, like spring, an improvement on what has gone before.

This is true of modern machines and techniques. Looking back over the 50 years of the Royal Air Force, whose anniversary we celebrate, we see how the operation of the Service was changed. Looking forward at industry we see how computers and progress planning can change our future, but their successful application depends also in the last resort on the human factor, on their acceptance, in their being made to work by men. In the final analysis it is people who count.

We welcome spring and — to set off the more intellectual struggle — physical exertion in the open air. We turn to spring, and to the many other changes that are before us, and which make possible for all of us a New Beginning.

INTRODUCTION

In 1944, the project for an Atomic Energy Research Establishment for the United Kingdom was conceived by a group of British scientists in Washington, U.S.A. Initially, it was envisaged to be a small research centre totalling not more than six hundred employees. (1)

Today, nestled on a shelf on the North-East scarp foot of the Berkshire Downs is a large establishment employing approximately 6,000 people and supporting a further 24,000 in tertiary and service industries. (2) (Fig. 1)

The object of this paper will be to pursue two related geographical themes. The first is to consider the factors which governed the original choice of location, bearing in mind the fact that the decision was made hurriedly by a group of scientists untrained in industrial location studies, and at a time of national reconstruction, before indeed the concepts of planning nationally or regionally had been implemented. Furthermore, it is important to appreciate that such an establishment, sponsored by the Government, was not forced to consider costs to such a degree as competitive industry. Consideration will, therefore, be given to the wisdom of the location decision in the light of knowledge not apparent or available at the time.

The second and more important theme will be an assessment of the impact of the Establishment, and the community it brought with it, on the landscape and economy of the region which now lies within the sphere of influence of A.E.R.E. This impact is apparent not only because it introduced alien professional and industrial personnel who were superimposed on a rural Berkshire community, but also by injecting a considerable amount of revenue in the form of wages and salaries spent almost entirely within the locality, it stimulated development and the expansion of the urban centres.

It is considered that an investigation of this nature, which is essentially geographical in approach, is valuable not only out of academic interest, but also because it points out clearly the rejuvenating effect which such a Government project can have on a relatively non-industrialised region.

FACTORS INFLUENCING LOCATION

The location decision was the result of the inter-play between the desirable conditions designated by Sir John Cockcroft and his colleagues and the available sites which could

AERE HARWELL

For his researches **J. M. Turney** was given the help of the Establishment, but opinions expressed are his own in this geographical appraisal.

be offered by the Government at that time and which fulfilled these requirements.

It was considered necessary that the Establishment should be within reasonable proximity of London; there should be some degree of isolation; there should be easy access to a major University; and lastly the countryside should be pleasant to live in. It was thought desirable to start with a prepared site, with roads, services and some permanent buildings, and Lord Cherwell suggested that a suitable R.A.F. airfield be looked for. Most of those suggested had very temporary buildings and offered little advantage over open sites. The others on the short list, including Duxford, South Cerney, and Benson were voted to be either too inaccessible, too isolated, or lacking sufficient water, and so in the end Harwell was decided upon. (3) (Fig. 2).

Sir Ralph Glyn, Bart., then M.P. for North Berkshire, clarified the advantages which Harwell had to offer. "The site," he said, "was selected because the airfield is too close to the Downs to make it a good permanent base for Service use. On the other hand, accommodation is admirably suited to development work. It is an advantage to be near the University facilities



FIG 1

*"Foul Harwell, ugliest village of the downs,
Where labs and aluminium prefabs sprout,
And houses camouflaged in greens and browns
Their military architecture shout".*

Prof. Skinner, with apologies to Goldsmith.

of Oxford; the district is, on the whole, free from interference by other industries, and Didcot provides a first-class railway centre. In addition, there are several airfields suited for providing air communication." (4)

He did, in fact, raise two doubts: one concerned the supply of water, and the other the housing of employees; which together with the disposal of effluent have proved major obstacles to be overcome.

At this stage, it is useful to consider briefly the factors influencing industrial location, and consider them in relation to A.E.R.E.

Power supply, as with most post-war industries, has never presented much of a problem since it is obtained from the national grid, the current consumption in 1965/66 being 70,465,910 units. It is worth noting that the establishment does not manufacture electrical power.

As A.E.R.E. is a research organisation, its consumption of raw materials is lower than that of conventional industry. The principal purchases, therefore, are of buildings and plant, laboratory equipment (including electronic and electrical equipment), chemicals and conventional services, the supply of which is widely distributed throughout the United Kingdom.

However, a considerable amount of water is required for domestic and cooling purposes; some is taken from a bore hole in the chalk, and some from the mains of the Thames Valley Water Board. By far the greatest proportion, however, is abstracted from the River Thames, and pumped from Sutton Courtenay, six miles from the establishment, via two eighteen inch diameter pipe lines. The consumption totals 400 million gallons per year, and 800,000 gallons is pumped up per day, half of which is returned without decontamination treatment. (5).

A research establishment does not have a conventional "market". In a sense, the other research and power stations of the U.K.A.E.A. form a "market" for scientific knowledge and atomic materials. These are also made freely available to British industry except where commercial secrets are involved, which are patented and exploited on a commercial basis. Furthermore, Whitehall forms a "market" for the results of Harwell's work.

An isolated site was a necessity. Although concern about the environmental control of radioactivity was a worry (based firmly on the U.S. experience of environmental troubles) which played an important part in determining

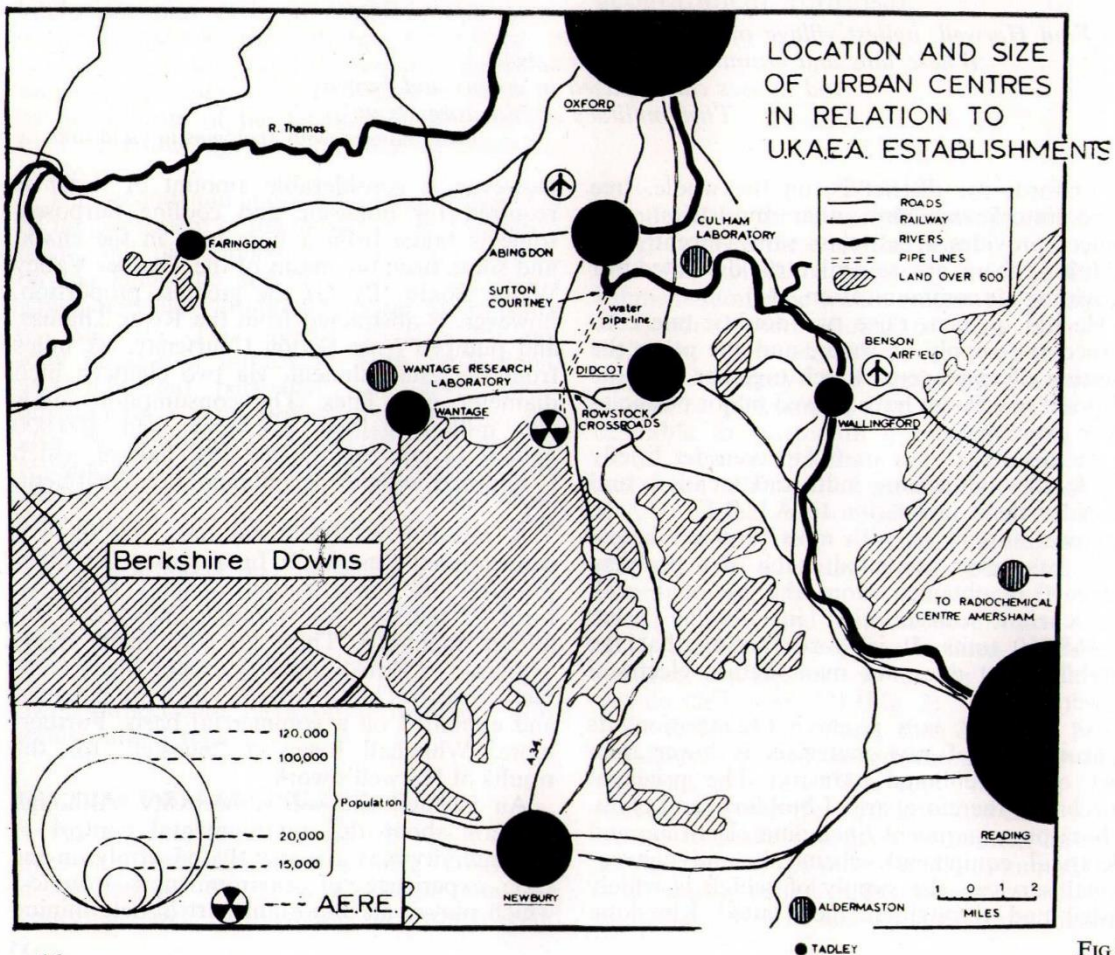
the desirability of an isolated site, it was not the major one. The chief cause for concern was the degree of risk involved in operating factors—such as radioactive laboratories using large quantities of radioactivity when the risk of accident could not be assessed, let alone excluded. Only in recent years, and in the light of operational experience, have these risks become calculable on the criteria used in this country today for the siting of nuclear power stations. A.E.R.E. could not readily be sited in an area of higher population density.

Isolation is, however, an adverse factor in terms of costs when labour supply and transport are taken into consideration. Whilst it is true to say that any isolated site would face these problems, there was, in addition, an absence of a pool of skilled labour, particularly in the industrial sector, for at least twenty miles from the proposed site. Scientists would necessarily have had to be recruited from all over the United Kingdom, and local people, particu-

larly those made redundant by the closing of military depots, were easily recruited for manual and unskilled work. It is likely that the provision of houses by the Authority, at a time of acute national housing shortage, served to attract industrial workers from distant parts to the Authority.

Associated with labour supply problems were transport difficulties. Whilst all firms supplying the Establishment use their own or public transport, the scattered working population has necessitated the provision of a transport fleet by A.E.R.E. to overcome these difficulties. (Fig. 3).

With regard to effluent disposal it is difficult to think of another area where this would be more difficult. (6). Large quantities of potentially dangerous solids and liquids cannot be disposed of indiscriminately, and the only possible outlet is the River Thames—the main source of water supply to the London conurbation. The proposed siting of A.E.R.E. caused



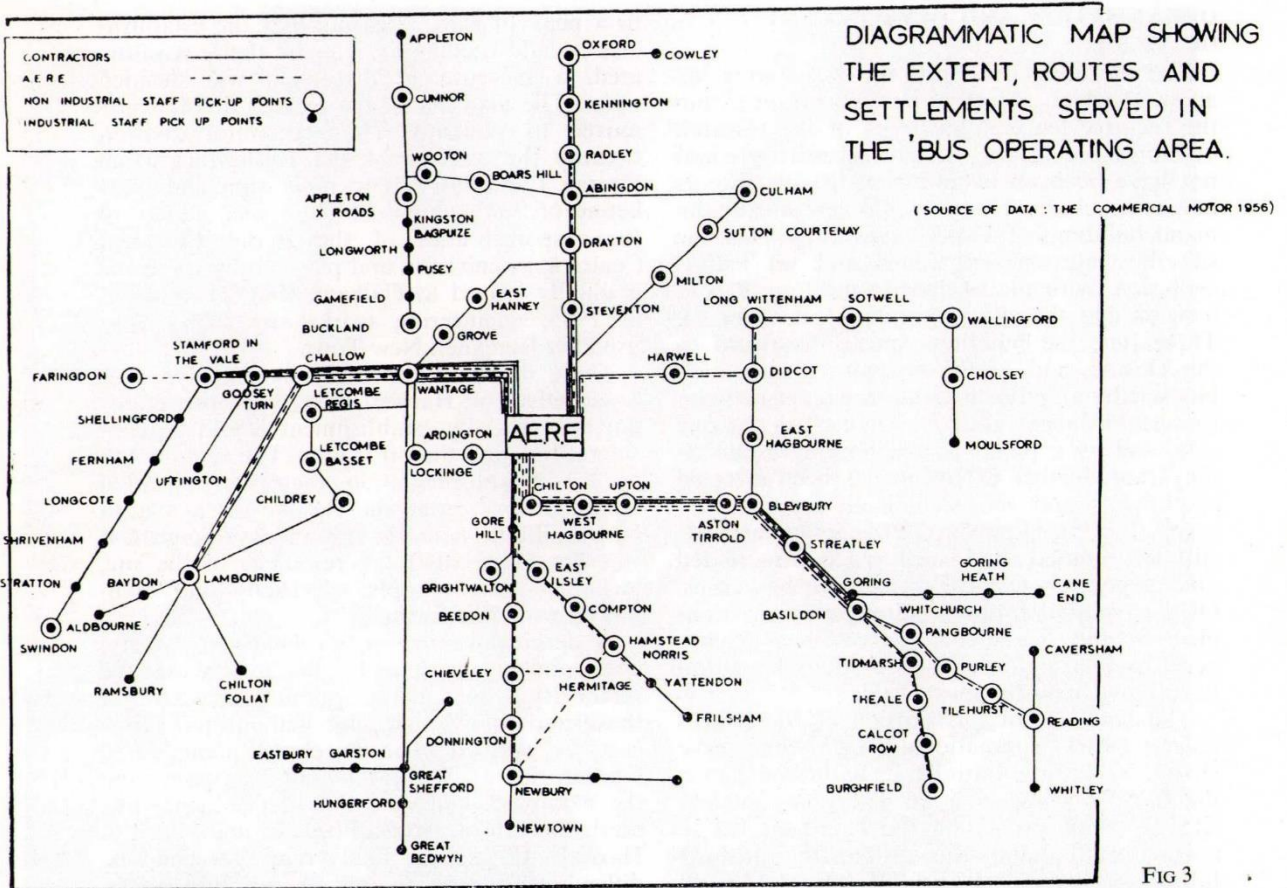


FIG 3

considerable concern among the official bodies responsible for the purity of London's water. Their argument that A.E.R.E. could be moved, but that it would be somewhat difficult to move London, was perfectly valid. The problem has been overcome at high cost by an elaborate effluent disposal unit. Low-level liquid radioactive effluent is, after treatment reducing it to a safety margin, discharged into the Thames. Approximately 1.2 million gallons per day enters the Thames at Sutton Courtenay, and 0.45 million gallon via Ginge Brook at Sutton Courtenay (5). Material that cannot be disposed of in this way is stored in delay tanks until its radioactivity has decayed, or is dumped in approved areas of the Atlantic deeps. The latter waste is sealed in concrete-lined steel drums, and then transported to Gosport. (7).

In view of the advent of the Government's desire to redress the regional economic imbalance in the United Kingdom, the location of Harwell in the 'South East' does seem, in retrospect, to be undesirable. In fact, 119 out of 158

research establishments are located in the "South". Yet the location of skilled research workers is one of the key factors in stimulating economic growth. (8).

In the light of this it is doubtful, were the locating decision to be made today, whether Harwell would have been chosen. The pre-occupation with proximity to London and "a major University" appears a little unnecessary when consideration is given to the improvement in communications since the war.

None the less, its location does have many advantages. Location within the industrialised belt of the United Kingdom from London to Liverpool is an asset, since the variety of equipment needed is more easily available, and also because Harwell forms a geographical centre for the other nuclear projects around the country. Further, as far as site is concerned, the R.A.F. station idea was sensible since it utilised a redundant resource, saved valuable time and reduced overall costs. Finally, rural Berkshire was in some need of rejuvenation.

ORGANISATION AND DEVELOPMENT OF A.E.R.E.

The site taken over from the R.A.F. was 762 acres, of which 174 acres were sealed off within the security fence: there more of the research buildings are located. There necessarily could not have been an overall plan for the site, as new research discoveries would periodically demand buildings of a specialised kind. Thus the site illustrates an unplanned and yet logical evolution, with the nucleus in the four R.A.F. hangars and the administrative block. (Fig. 4). Thereafter, the buildings spread westward to the Downs, and as the northern portion was blocked by an effluent treatment plant between the establishment and the Thames on the one side, and by a prefabricated housing estate on the other, further extension has been directed southwards and encroaching on the old runways. (Fig. 5). However, 120 acres of land are still left unused, and such spaces are rented out temporarily to local farmers for hay crops. Of the remainder, one hundred acres are occupied by the Rutherford Laboratory, seventy acres by housing, four acres by the school, and twenty-five acres for sports fields.

The land use of this portion of the Downs reflects clearly international events which have shaped its destiny. Initially, its flatness attracted the R.A.F. to use it as an emergency landing site. In 1935, events on the continent led to rearmament, and in this process the site was taken over as a permanent R.A.F. station. In 1945 government attention was focussed on this new potential source of power, and thus a British research establishment was created; and, as has been shown, events led to its establishment on this site.

The Suez Crisis of 1956 was the next international event which focussed attention on atomic energy as a source of power capable, if necessary, of replacing oil, the supplies of which were threatened, and as a result the establishment grew rapidly in size. (9). In 1947, the total staff was 1,900 and by 1959 it had grown

to a peak of 6,582. Fearing that the establishment would become too big and the area saturated, a measure of dispersion was decided upon. The majority of the reactor division was moved to Winfrith. The accelerator division became the nucleus of the Rutherford High Energy Laboratory. The processing and marketing of radioactive isotopes was added to the responsibilities of the Radio Chemical Centre at Amersham, and plasma-physics teams gradually moved to Culham. (Fig. 2). Further, in 1955, engineering workshops were established in Bracknell New Town.

These decisions obviously have had a profound effect on Harwell since, were this policy not adopted, the establishment would be considerably larger than it is now. The vast growth of the establishment in the 1950's created administrative problems. Despite the availability of suitable land for further development, it was considered that the resources of the site, including water supply, electricity and manpower, would be strained.

A decentralisation policy tends to increase costs, and it is perhaps for this reason that the Authority is once again beginning to centralize those activities which can, without too much cost, be rescued. The Bracknell plant, small laboratories at Woolwich and Chatham, and the Contracts and Accounts departments formerly at Oxford, have all been brought back to Harwell. It was not likely that the economic difficulties of the nation in the mid-1960's, together with finds of North Sea gas, would lead to a run down of the Authority. Facilities at Harwell were extended to include research into the desalination of sea water and on February 6th, 1967, the Minister of Technology approved the formation of a Non-Destructive Testing Centre and a Ceramics Research Centre at Harwell.

It seems likely, therefore, that Harwell will grow in size: centralisation will encourage growth, and one may also expect the normal growth as new investigations take place.

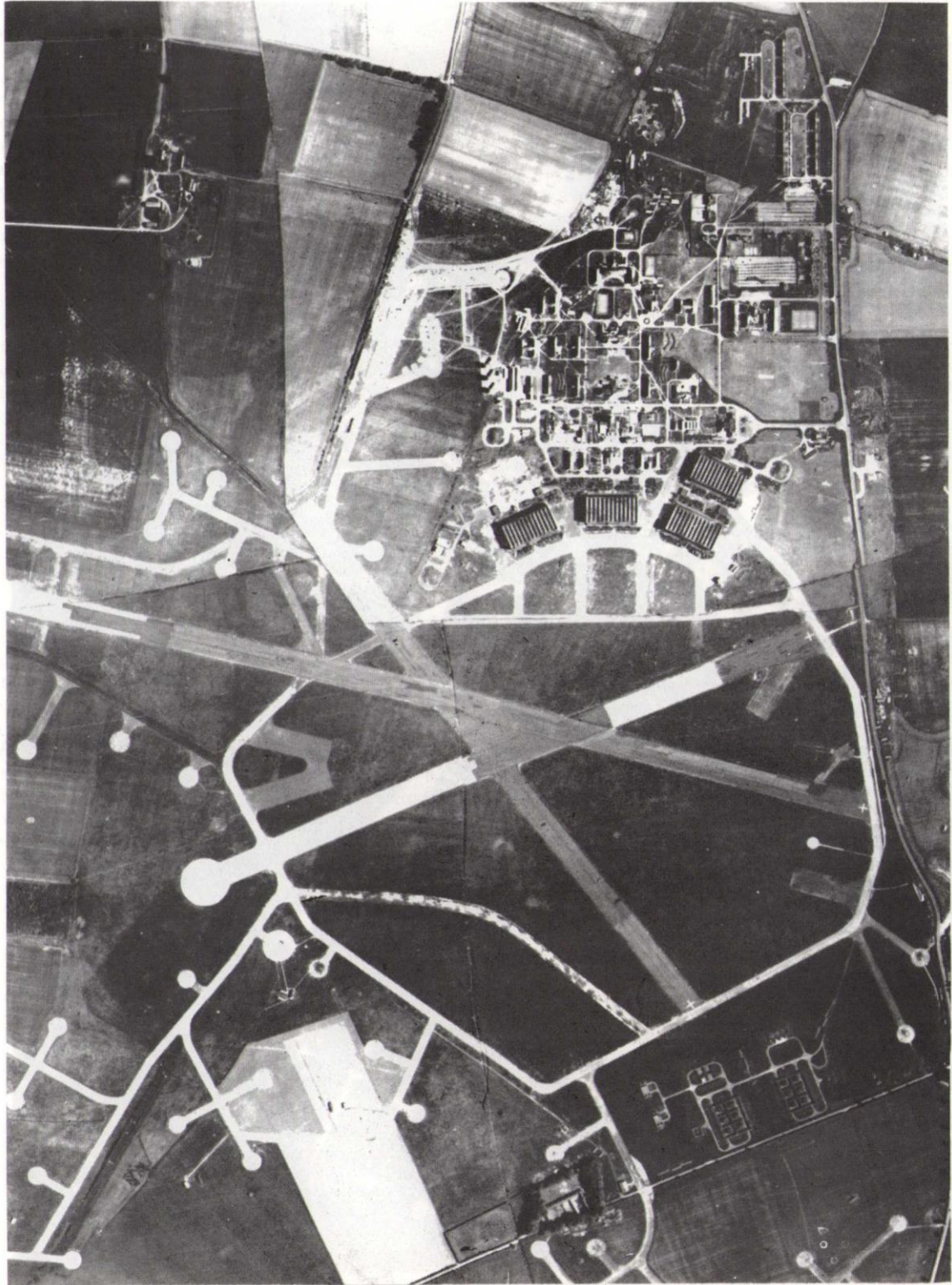
To be continued.

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A.E.R.E. Site 1962. Fig. 5



A.E.R.E Site 1946. Fig. 6

ALBEMARLES AT HARWELL

K. H. B. Frere, Gen. Sec.

JUNE 1944



Imperial War Museum

At the beginning of the Second World War R.A.F. Harwell was a bomber station, and traces of "105(B) Squadron" can still be seen painted on the side of Hangar 9. In 1942 the value of resistance movements in Occupied Europe became clearer, and the Air Ministry was persuaded to divert more men and aircraft from Bomber Command. An independent Group (38 Group) was formed to supply resistance groups and SAS parties in enemy-held territory and to drop military parachutists or tow gliders into set-piece battles. R.A.F. Harwell was one of several airfields in this area to house 38 Group squadrons.

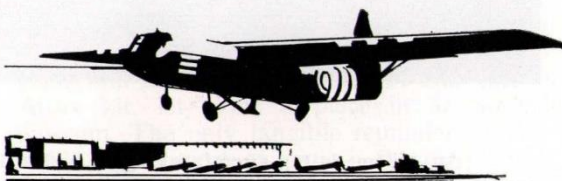
Three of us joined the Group's Operational

Retrieval Unit at Thrupton, near Andover, in January 1944. The Unit was flying Whitleys, Britain's most advanced twin-engined bomber—in 1936! Parachutists like Alf Lunney will remember the hazards of "jumping through the hole" in a Whitley, and anyone who saw a Whitley heave itself lethargically off the ground will be as amused as we were to find that 38 Group was notionally part of Fighter Command. However, the Whitley could land and take off with a remarkably small run, and we spent quite a bit of time towing Hadrian and Horsa gliders out of cow pastures on Salisbury Plain.



Above: The Albemarle R.A.F. Glider Tug — a twin-engined monoplane of composite wood and metal construction.

Left: The south entrance of Hangar 9.



ALL CHANGE TO ALBEMARLES

In March the Unit moved to Hampstead Norris, a wartime satellite to R.A.F. Harwell. The slope of the ground and the surrounding trees made landing there rather like sliding a spoon into a pudding basin, but once again the Whitley made up for many a "pilot error". It was an unlovely aeroplane, but it had character, and we were sorry to see it replaced by the Albemarle, Armstrong Whitworth's answer to the Stuka. Ours all had Russian red stars on the fuselages—they'd been sent back to the U.K. by the Russians in spite of their great shortage of aircraft!

The tricycle undercarriage was useful for glider-towing, as the casting action of the nose wheel offset the torque from the Bristol engines. For a short take-off the technique was to taxi up the runway to take up the slack on the tow-ropes, brake, open up to maximum power, whip off the brakes and, as soon as the combination was rolling, put the throttles through the gate. If the glider pilot was slow pulling his Horsa off he might find himself climbing away in the low-tow position, a novelty not in the book.

Another feature of the Albemarle was its dive flaps the size of barn doors. The "Stuka approach" involved throttling right back at about 800 feet just short of the runway, pushing down full flap—all 80° of it—and descending apparently vertically to about 200 feet. Then a gentle round-out, reduce flap, and stall the aircraft onto the end of the runway like a Tiger Moth. Good flying practice, plenty of safety margin and a terrifying experience for any stranger up in the all-perspex bomb-aimer's nose compartment.

The third novelty about the Albemarle was the inability of "George", the automatic pilot, to fly it. For some reason, that none of us in fog-bound arguments in the crew-room could discover, the Albemarle was not inherently stable and had to be "flown" all the time. If the pilot pulled back momentarily on the stick to correct a dropped nose, the aircraft went on climbing. If he then pushed the stick forward, she dived. If he picked up the starboard wing the port wing dropped. All four petrol tanks were interconnected and one theory was that as the centre of gravity changed the petrol moved from tank to tank to magnify the effect. "George" was not willing to work as hard as a human pilot, so he went on strike. This made some of our regular runs, like the daily newspaper delivery by parachute-bomb to the Channel Islands, a rather tedious beat down the Channel and back.

HARWELL, JUNE 1944

Hampstead Norris was a typical wartime aerodrome, all Nissen huts and concrete wash-rooms. Harwell, a 1936 pattern permanent base, represented civilisation, and everyone seized the chance to stay the night in the Mess—now Ridgeway House. The tempo of the war was increasing by 1944, and in June we were cut off from the outside world to keep the Normandy invasion secret. On the evening of 5th June the invasion began. First of all neat formations of Flying Fortresses went over high, leaving hundreds of parallel vapour trails. Then a disjointed cloud of Bomber Command aircraft came over, lower down, like bats unaccustomed to the light, literally making the



Imperial War Museum

An Albemarle tug aircraft taking off with a Horsa glider, which becomes airborne before the towing aircraft.



A photograph by the writer of some of the men behind the machines, in an "off-duty" moment.

June evening darker. No one seeing that concentration of aircraft, all full of high explosive, could have doubted the ultimate outcome of the war, if not of the invasion. Then, during the night, the tug and glider formations headed out from Harwell and the other aerodromes in the plain towards a dawn drop near Caen.

ARNHEM "MARKET"

Soon after that two of us joined 296 Squadron at Brize Norton, and Harwell became a rival station. Between set-piece battles our operations were single-aircraft sorties, and, except as aircraft in another circuit away to the south-east, we saw little of the Harwell squadrons. Then in September, 1944, all four squadrons moved up temporarily to Manston, where the long wide emergency landing runway stretched out over the Kent countryside. We took our Horsas with us, because this was the prelude to Operation "Market".

Air superiority meant that the long glider train could fly in daylight, and made much easier the task of arranging for hundreds of aircraft to arrive at different speeds over the same Dropping and Landing Zones within seconds of one another. The operational flight plan showed three parallel lines aimed at Arnhem, Nijmegen and Eindhoven. At the English coast these lines split back into two, then four, then eight, and so on. After carefully timed take-offs early on September 18th, 1944, first pairs of aircraft, then flights, then squadrons, then groups formed up in the air along these tracks.

We had moved to Manston because Holland was out of range of Harwell and Brize Norton, and because our gliders were to go down at Arnhem, at the end of the line. As we crossed the Dutch coast, fussed over by Spitfires and Typhoons, the Harwell Albemarle and the rest of the glider train stretched back behind us

all the way to the English coast while the Dakotas full of parachutists came up from behind and underneath us to be first on the Dropping Zones. Then over the Landing Zones an inadequate "good luck" to the glider pilot before he cast off, on half a mile to avoid releasing the tow rope over our troops, then full throttle and a climbing turn to join the seeming chaos of aircraft weaving back to base. The unexpected Panzer regiment was already in evidence and, in the few days to follow, its gunners had training manual targets as the Albemarles and Dakotas came over the Dropping Zones at 500 feet with flaps down to drop supplies.

Although Arnhem was a set-back, the battle-front had rolled over the countries whose resistance movements had waited on moonlit nights for supplies. New aircraft were coming forward too, so it was not long before 38 Group moved on to Essex and the squadrons converted to Halifaxes and Stirlings. The receptions switched to Norway; Harwell and Brize Norton were far behind.

38 GROUP REBORN

Now the wheel has turned almost full circle; 38 Group has been re-created in recent years with Headquarters at Odiham (Hampshire) and with some of its Andovers and Caribous at R.A.F. Abingdon. The parachute is still a very effective way to put a small number of men (or a single man) down on a precise spot, and small scale fast-moving actions will depend heavily on the close support the new 38 Group is designed to give. But glider towing is out for good, and the Albemarle does not even rate an Airfix kit, let alone a place in an aircraft museum. The only tangible reminder of Harwell's most important sortie is the plaque near the end of the runway from which those Albemarles and Horsas took off in June 1944.

"So you think you should go to Heaven?" said St. Peter.

"Yes," I said.

"Why?" asked St. Peter.

I had my answer ready. "My whole life has been unselfishly devoted to planning for other people's happiness." Then I caught a look on St. Peter's face, so I added, "You have to take things as a whole, of course—look at them broadly."

"I look at the details, too," said St. Peter.

"Naturally you do, but what I mean is—it's one's aim in life that counts," I persisted.

"I agree with you," said St. Peter and paused expectantly.

"Well, I explained my aim just now," I said.

"Do you want me to enlarge on it?"

"I think you said it was planning," said St. Peter. Another pause.

"Well, isn't planning a good thing?" I asked, feeling a trifle nettled, and a bit at sea too. "Why, planning is the very basis of civilisation. It's the only way to make the most of limited resources."

"I see you have ideas about how the world should be run," said St. Peter. "Perhaps you would like to tell me how you would go about it."

That of course brought me on to familiar ground, and I launched into an account of project analysis, cost-benefit studies, critical path programming, and so on. I got quite enthusiastic as I went on—after all, it must all have been new to St. Peter, and he was a good listener. "You seem to enjoy your work," he remarked.

"I suppose I do," I said. "But it can also be pretty frustrating at times. People react in funny ways. They don't always make the most of the benefits and opportunities you put in their way."

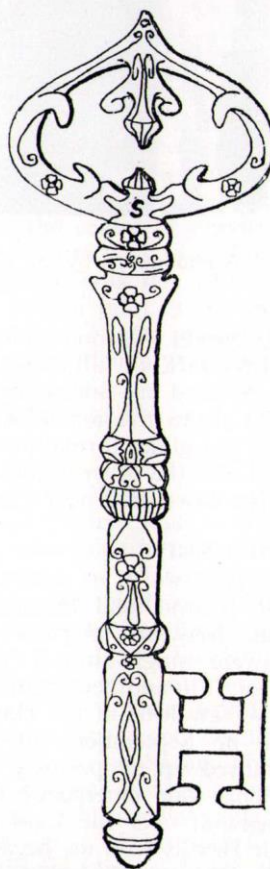
"You mean, you wish you could have a world where there are no strikes, no wars, no divorce, no drugs—not even human cussedness."

"Oh, I know it's all a pipe-dream. But it is disappointing when you go to a lot of trouble, and then some perfectly stupid thing ruins all your plans."

"But I thought you said your concern was other people's happiness. Now you say it's your plans."

I began to feel impatient. If St. Peter hadn't held an all-important key in his hand, I should have broken off the conversation then and there. As it was I couldn't help sounding rather heated when I said, "The one leads to the other. The one is *necessary* for the other."

ATTEMPTED



ENTRY

H. A. C. McKay

Chem. Div.

"Of course it is," said St. Peter. Another of those tantalising pauses. You never knew where you were with the fellow. Then he went on, "But is it the one, or is it the other, that matters to you?"

There was an emphasis I didn't entirely like on the word "you". I felt it was time to bring things to a head: "If I assure you that both matter to me, are you prepared to unlock the gates for me?"

"I am always prepared to unlock the gates for anyone who asks. But are you sure these are the gates you want to go through?"

There were no other gates in sight, so I said, "I suppose so."

Watching me, St. Peter put the key in the lock, turned it, and slowly opened up. I couldn't see very clearly at first, and then I made out a room very like my office. I thought I was the victim of a poor sort of practical joke.

"But this is neither heaven nor hell," I said indignantly.

"It will be what you make it," said St. Peter.

"But I expected an immediate decision," I complained.

"You should be grateful not to have one," said St. Peter. "I am giving you another opportunity. Listen. There are three things you planners must learn. First, that plans are for people."

"But that is what I have been saying all along."

St. Peter only smiled. "The second thing is that plans depend on people."

That seemed to me a mere platitude, and I said as much. "But are there ever enough honest and unselfish people to operate all your plans?" asked St. Peter. "And if not, what do you do about it?"

"I have quite enough to do without thinking of that!" I protested.

"You might have less to do if you *did* think of it," replied St. Peter, and went on, "The third thing is that *your* plans must be rooted in God's plan."

Just what a man of St. Peter's profession would say! But I thought it more polite, and prudent, merely to remark, "I don't quite understand."

"You don't understand at all," retorted St. Peter, "but you will find out if you follow my first two precepts. You have a choice. One road leads to more and more compulsion, more and more force, until you have dictatorship. That is the road you have trodden so far. The other leads to increasing freedom and happiness for all mankind."

He made a gesture inviting me to come through the gates. I walked through them, into

the office.

My secretary came in and put the mail in the in-tray: "There's a memo on top from the Estate Manager," she said.

I picked it up. Somebody had built a wall without planning permission across what should be an open space. What action should be taken?

Blast the man! He must be made to pull it down.

Then I caught sight of something in my secretary's hand. A large and rather odd key.

"I found this on your desk," she said. "One of your visitors must have left it." A very odd key, and strangely familiar. In fact, exactly like the one St. Peter had used. But what had happened to the gates he had opened for me? Where was he? Had I been dreaming?

I had a curious sense that my dream — if that's what it was — was somehow relevant to the Estate Manager's memo. But blast St. Peter — one must have *some* means of enforcing the law! As the thought went through my mind, I could see the saint in my mind's eye, smiling at me.

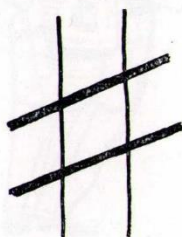
"I happen to know the man who built that wall," said my secretary. "He's a retired bricklayer, and he doesn't know much about rules and regulations. He didn't build it for himself, but for the other people in the street."

"May I have that key," I said. I took it and fingered it curiously, meditatively. It was imagination, I suppose, but some power seemed to come from the key: "This could unlock a whole new way of doing things in this office," I said.

My secretary looked slightly taken aback.

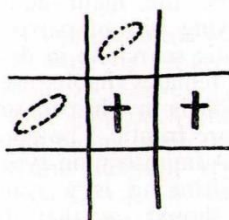
"I'll tell you just what I mean sometime. There's a story behind it," I explained. "But meanwhile I'm going to make a start by seeing what we can work out for your bricklayer friend. Get the Estate Manager on the line, will you please."

NOUGHTS & CROSSES



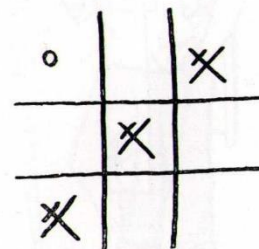
J. B. Sykes
Sci. Admin.

BETWEEN TWO MUSICIANS



A. R. Paddon
Chem. Eng.

... TWO SAINTS



... WILSON AND DE GAULLE

By the way in which he dresses the inmate of the Establishment can be put into one of six main

Having pinned your type down by his dress the next thing is to verify your analysis by observing his habits or activity. Enquiry is not to be recommended. Asking questions inside the Establishment can be a hazardous business, especially to the uninitiated. Conversation with type (1) will only get you involved in pipes and gauges and foot pounds per square ton. Type (2) will speak for hours on anhydrous water or the isolation of double bonds. Type (3) will hand you over to the police. Type (4) will ask you to repeat your questions in triplicate. Type (5) will ignore you completely while Type (6) will sell you a second-hand car or a ticket for a dance. So we suggest you silently observe.

In this respect Engineers can be ruled out immediately. True, they all have little offices, but these are seldom, if ever, used. Most of their time is spent rushing around all the other little offices or attending meetings in Birmingham, Glasgow or Newcastle. Extreme activity is therefore the characteristic habit of this type, which makes identification a simple matter as quick movement is rather unusual in the establishment.

The habits of the Chemist are unmistakable, but unless a large part of your childhood was spent playing around the gas works or in sewers, it is inadvisable to approach closely. From a safe distance he can be seen pouring stuff into things, turning taps and shaking tubes. Periodically he is obliterated in a cloud of gas from which he emerges, half dead but happy. Chemists are, necessarily, lonely people,



Type (4) are gregarious in their habits. There is about them a certain air of furtiveness and they tend to collect in groups of three or more. From a distance, their conversation—usually in subdued voices—would appear to concern isomeric transitions or top secret classifications, but, on closer approach, words like “compost heap” or “runner beans” can be distinctly heard. Indoors, the main activity is pencil chewing, carrying bits of paper from desk to desk and frantic searching in drawers or filing cabinets. The females’ habits are similar, only the conversation is in whispers and the searching is even more frantic. The popular idea that the Office or Administration types spend much time in tea drinking is a complete fallacy. Actually, we should say that the reaction to



BRIEF GUIDE TO Part II HARWELL TYPES

by HOLMOLKA

and a few kind words—even from a distance—are often appreciated.

Physicists spend most of their time thinking. The characteristic movement is a limited one. It consists essentially in stretching over and turning some knob or other. They then sit back, very tired, and write it all up in their notebooks. On a fine day they have been known to get up from their notes and perform an operation known as “looking for leaks”. As this resembles an activity carried out by certain groups of type (6) it is scarcely characteristic. Agitated immobility is probably the best criterion here.



: (1) Engineers, (2) Chemists, (3) Physicists, (4) Administration, (5) Very Rare and (6) Others

the various tea breaks is probably the characteristic feature of this type. The stoical indifference to the arrival of the beverage is a complete repudiation of public opinion. It is sipped hurriedly with an air of resentment against the interference with work which it entails. This aura of unpleasant duty regarding tea drinking is undoubtedly the thing to look for in type (4).

Living as they do in a world apart, the appearance and habits of the Very Rare Type are somewhat ethereal. The general impression is that they are not quite with us. Their actions may be a bit unpredictable, but—and this must be stressed—they are completely harmless. Perhaps the best test for type (5) reaction is to tread on the toes of the particular chap. This merely brings out expressions like “Pi-mesons” or “Differential coefficient”.

Most other types would punch your nose. Contrary to popular belief, Very Rare types have excellent memories but they remember the right things about the wrong people and vice-versa. It is quite possible that one of them will approach you with money, thinking he owes it to you. If so—take it without demur. Refusal might be detrimental to his self esteem.

The habits and activities of type (6) might well be a study in themselves. For simplicity we shall divide them into three subdivisions, (a) the “Pseudo-types” whose activities are best understood with the help of Freud or Jung, (b) the “Normal types” whose activities are rather obvious and uninteresting as they are working

most of the time, and (c) the “Pseudo-normals”. Subdivisions (a) and (b) will be considered in a later issue and we shall finish with a brief word on the “Pseudo-normal” group.

The characteristic habits of this group may be listed as follows :

Arriving for work. This is always a spectacular business. It entails much noise, bonhomie, buying of newspapers, telephoning, etc. and lasts until about the first tea break.

Tea-taking. An elaborate ritual this, requiring a knowledge of politics, sport, local history and human nature. This should be compared with the austerity of type (4) tea taking. It can be observed at least twice a day.

Car-tinkering. This usually starts with one man—the owner of the car—but in a short time there is invariably a fair cross-section of all the other types clustered around the car. Incidentally, this affords an excellent opportunity for identifying all the various types *en masse*.

Departure from work. Starting about afternoon tea time this activity is similar to Arriving for Work only in the reverse order and considerably faster.

It is hoped that this preamble will give some idea about what must be looked for in the initial identification of Harwell types. In the next issue we shall approach the subject in greater detail, embracing such topics as the eating habits of the different types, how to detect an unmarried Divisional Administration Officer, and what Typists talk about, etc.



Harlequin was asked to find out for a local newspaper information about a supposed coaching accident at Rowstock Corner which is reputed to be re-enacted on "dark and stormy nights by spectral horses and a phantom coach." An appeal was made in *A.E.R.E. News* and C. R. Thomson of Chemistry Division wrote:-

"You may be interested to know that the coach survives to this day and, with its spectral horses replaced with an engine, is still in frequent use on the A.E.R.E. Coach Service run to and from the site by Simmonds Coaches of Chill Willie." (For legal reasons the *A.E.R.E. News* editor replaced the names quoted, and spectral horses could not drag them from him!).

Harlequin, however, found an A.E.R.E. policeman who has lived in the area all his life and who spoke of two ghostly figures whom he saw on the old road and who "disappeared when they came near." Several other North Berks ghosts emerged during our enquiries, but no phantom coach — until Mrs. M. Janes of Steventon wrote:-

"I was given these verses a long time ago and kept them for sentimental reasons. Unfortunately, I have lost the first 8 verses and should be grateful to have them should you trace them."

The verses enclosed rang a bell, not in a phantom coach but in the *Harlequin* files where, sure enough, were published the complete 13 verses, 14 years ago.

Wrote a local historian later in *The North Berks News*:

"I have no doubt the scientists at Harwell are daily making discoveries that will change our lives. Meanwhile a couple of them have turned their skill and brains to finding a splendid local story that was almost forgotten."

The *Oxford Mail* also reprinted the verses, describing them as "the latest discovery of the Atomic Energy Research Establishment at Harwell. Here they are:-

THE TALE OF THE ROWSTOCK CHAISE

Most famous of all Berkshire tales
Surviving from bygone days,
Told far and wide on the bleak downside
Is the Tale of the Phantom Chaise.

This story has been handed down
Since the reign of good Queen Anne;
Those were the days when the posting chaise,
And the four-horse Mail Coach ran.

The Gloster, carrying London mails,
And drawn by a team of bays,
From the White Horse Vale to Notting Vale
Outpaced e'en the swiftest Chaise.

T'was winter and the year, we're told,
Was seventeen hundred and nine;
Through a howling gale of rain and hail
The Gloster was keeping time.

Wantage—Reading, the midnight stage,
With quarter the journey done,
Raced with a will down Rowstock Hill
As the Harwell clocks struck one.

That self same night a youthful pair,
Eloping from Newbury town,
With a team of greys and light post chaise,
Were tearing across the down.

The lover—a cornet of Marlborough's Horse—
Feared pursuit in the dawn,
And though the road was bad and the pace was
mad,
He shouted the postboys on.

The crash—it came at Rowstock Cross,
One dashing North, one East,
'Twas hard to tell in that writhing hell,
Which was man and which was beast.

The broadside of the Gloster mail
Had splintered the chaise apart;
Its steel-shod pole took a dreadful toll—
It pierced the maiden's heart.

Still she lay in her lover's arms,
And never a word he said;
He was lifted clear of crumpled gear,
And they found he, too, was dead. ▶

Two hundred winters have come and gone
Since that night of tragic scene,
But ever the tale of the Gloster mail
Bridges the years between.

Stand—if you dare—in Rowstock copse,
A certain night of the year;
At one in the morn you may hear a horn,
And a strange light will appear.

Then—it may be your beating heart,
Or was that a muffled cry?
As without a sound o'er the frosty ground,
A phantom chaise glides by.



AND THE CHASE FOR A ROWSTOCK TALE

Was there ever such a happening at Rowstock? Or has a legend emerged from a poet's imagination?

In publishing some new verses of atomic age folk lore, we wonder whether in years to come we will receive a letter such as this:-

To: "Harlequin"
c/o Home for Distressed Editors.

From: "Harwell City Gazette"
Features Dept.

Dear Sir,

I understand you were editor of the A.E.R.E. leisure magazine when Harwell was just another village at the foot of the Downs?

We are sorry to worry you in your retirement, but the verses which describe this legend are incomplete, and we wonder if you can help with our enquiries into a Harwell scientist, a Dr. Tam, who in the vicinity of Old Rowstock, is said to have fallen under the influence of . . .

A modern "Tam"

Of Psychic things always a scorner
Tam stopped his car at Rowstock Corner;
This night, it was All Hallowes e'en,
When spirits, ghosts, and de'ls are seen.
Sounds of a party he could hear,
Laughter and song, happy and clear.
The Auld Spot was a bonny sight
Bright, like a beacon in the night.
Tam's spirits, braced by rum and pep,
Urged him forward wi' boldened step
To a gap, and thro' it did he spy
A weirdsome crowd in fullest cry.

Wild was their dance, their music wilder,
 Whirling, jigging, reeling and leaping,
 But, ever anon they'd stop to bow
 To one whose seat was above the crowd.
 His smile was broad, his eye was clear,
 But horns did sprout behind each ear!
 Good God! this crowd, each mother's son
 Witches and warlocks everyone!
 Our hero, tho', he knew his part;
 Burns' poem, each word learned off by heart.
 And so ('twas really a lark)
 Tam shouted: "Weel done, Cutty Sark!"

A sudden cold fear chilled his heart,
 Each side of him, dressed for their part
 A warlock and a witch did stand
 Smiling, but gripping one each hand.
 They led him, pushed him, forced him through
 The midst of that damned hullabaloo,
 Up to the De'il himself, then bent
 (His spirit from rum and pep now spent)
 Down on his knees 'fore Nick he fell,
 That awful dread Black Prince of Hell.



"What shall we do with this bold fellow?"
 "Sacrifice", those ghouls did bellow.
 "On this, our own All Hallowes e'en,
 Cut him, splice him, from throat to spleen."
 Poor Tam, spreadeagled, staked, and bound,
 Watched Auld Nick stalk him round and round,
 His hand held high with gleaming knife
 Sharpened and honed for sacrifice.
 Poised for slitting Tam gut to chest,
 Nick murmured, "Any last request?"
 Tam's mind was blank, what could he say?
 His tongue benumbed, his voice away
 When, in a flash, the answer came,
 Divine inspiration? What's in a name?
 Mouth opened, farmyard sound came through,
 A mighty "Cock-a-Doodle-doo!"

That feathered cry, herald of dawn,
 The witches' warning to begone,
 Worked like a charm on that weird crowd;
 All just vanished! The silence was loud!
 Tam was free, all alone, back in his car,
 A voice it seemed to come from afar,
 "What's this, Sir? Cock-a-Doodle-doo!
 It's the breathalyser test for you."

**AERE RECREATIONAL ASSOCIATION
AFFILIATED CLUBS AND SOCIETIES**

ARCHERY CLUB

First formed in 1959, each year the club has grown and membership in 1967 was 20 seniors and 10 juniors, making it the second largest Archery Club in Berkshire, and it is one of the very few clubs that boast Outdoor, Indoor and Field Shoot facilities.

The club's times of shooting are Wednesday and Friday evenings, 4.30 onwards, and all day Sundays during outdoor season (March until end of October) on Centre Sports Field. During winter months it shares the Pistol Club range, Friday evenings 4.30 onwards, Sundays 2.30 onwards.

The Club also organises three major Open Tournaments each year, the first the Spring Field Shoot in March, the next "The Diana Shoot" Open in July —this is a target tournament whose centrepiece is the magnificent Team Trophy, a German Silver statue of 'Diana' the Goddess of Hunting, standing 27ins. high. This was presented to the club by the Recreational Association.

The third shoot is the Autumn Field Shoot, held in November. The field shoots are held in Measehill Plantation and on the mound behind R.R.D. Site. The last Autumn Field Shoot had every target full, with a record number of Archers participating.

The club can boast some very good shots. The first Master Bowman was Mrs. C. G. Dawson of Contracts who shot many years for county. The present Master Bowman and County shot is Mrs. Margaret Taylor of H.P. & M. Division who is also Club Secretary. In June she will shoot at the International Trials at Southport.

Beginners' night is Friday, and three instruction evenings are given free after which the beginner then joins the Club if he still wishes to do so. Subscriptions at the moment are £1 a year, entrance fee 10/- (these are expected to go up this year). The Club has equipment for beginners to receive instruction by qualified instructors.

BADMINTON CLUB

About 30 members meet at 7.30 p.m. in the Games Room of the Social Club on Mondays and Thursdays. Usually not more than about 12 people attend on any one evening and waiting time is not usually excessive.

Friendly matches are played against local clubs. This season all the matches have been men's doubles as the attendance of ladies has been rather poor. Facilities too are poor, since the hall is too narrow and too low, but there is an excellent club spirit.

Subscriptions are 10s. per season, and the season extends from September to May.

Secretary : L. Wilkinson, Ext. 3179.

EVENING LEAGUE CRICKET

Evening League Cricket was started in 1947 by Surg-Commander Webb and a few cricket enthusiasts on site. It rapidly developed into an inter-divisional contest which now involves 16 teams in two leagues of 8, each team playing 4 matches of 18 overs-a-side. The prize to the individual league champions is for League 1, holding of the Vice-Presidents Cup for 1 year; for League 2, holding of the Goodway Cup for 1 year. Present holders are: Vice-Presidents Cup, Research Reactors Division; Goodway Cup, Medical Research Council.

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Membership of the Group varies between 40 and 50, with an annual turnover of 25% created by members dropping out when their project is completed. Ex-members remain on the books as consultants.

Some six meetings a year are arranged on site during lunch time or in the evening, according to whether it is a short film or a talk with discussion afterwards.

A sub-committee is looking into the possibility of a syndicate for buying large plots of land for subdividing and resale to individual members, obviating the middleman.

Various building industry books are circulated each week, and a small library of useful text books is available on application to the librarian.

A flourishing trading scheme was set up just over a year ago for the benefit of members.

Secretary: G. A. Serrels, Ext. 5066.

FOOTBALL CLUB

The Football Club Membership usually lies between 40 and 50 playing members. The Club plays in the Hellenic League and enters various County Cup Competitions each playing season.

Although the aim is to provide good representative football team for A.E.R.E., social life is given due prominence, ensuring that wives and girl friends can also take an interest in club activities.

Secretary: Mr. D. Young, Ext. 3269.

RUGBY UNION FOOTBALL CLUB

The club was formed in 1947 and played its first fixture on 27th September, 1947 against a now defunct club, Oxford Exiles Extra 'A'. The present

playing strength of the club is approximately 75, from which three teams are fielded every week. Fixtures are in the main against clubs in the immediate area, but there are a few games as far apart as Gloucester and Southampton.

One of the highlights of a full season is an Annual Cup Match against A.W.R.E. Aldermaston. One notable achievement of the present season is that one of the club's players, Ray Coulthard, played every game for Berkshire throughout the season.

On the social side, the club is well-known for its very successful "Pop" Dances run monthly in the Social Club.

Secretary: Mr. D. A. J. Endacott, Ext. 4520/4036.

ROMAN CATHOLIC SOCIETY

Aims of the Society: To extend or make more available the opportunities for Roman Catholics at A.E.R.E. to carry out their spiritual duties, and to arrange for celebration of Holy Mass at A.E.R.E. Harwell when desired.

Membership: Approximately 160.

Secretary: Mr. P. F. Grimes, Ext. 5179.

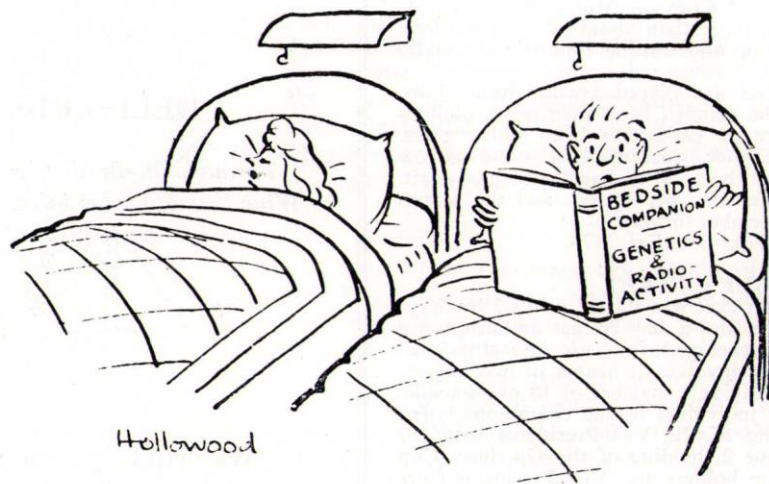
SQUASH RACKETS CLUB

The Squash Club was founded by a small group of enthusiasts in 1948. Since that time the club has progressed steadily and today has a playing membership of over 250.

The standard of play is extremely high, the club being the present holders of the Berkshire Club Championship, with no fewer than one international and nine county players on its strength. The club usually undertakes two tours a year, at the beginning and end of the season, and its fixture list embraces some of the leading clubs in the country.

Secretary: Mr. M. J. Christer, Ext. 4830.

More Harwell leisure activities will be featured in the next issue.



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HARWELL BALLOON PROJECT

This is not, as you may think, an example of Harwell diversification, although the Authority may be envious of its success. It is, in fact, the hobby of a group of people, largely Harwell mathematicians, aimed at re-enacting the history of aeronautics.

First came kites, but owing to their high degree of instability near the ground in all experimental models, they were thought to be unsuitable for man-carrying purposes.

Tower-jumping as a means of flight was rejected, too, as impractical in view of the low success rate of the past.

The next seriously considered form of flight was ballooning. Because of its pleasing simplicity and economy, hot-air ballooning was chosen in preference to hydrogen ballooning and, of course, hydrogen balloons came later in history anyway. The initial experiments were with paper balloons and methylated spirit engines. The major difficulty was to prevent the balloon from catching fire on landing, but this was achieved. Paper was replaced by polythene which melts only at the hot spots and does not burn.

The recent epidemic of foot-and-mouth disease has restricted the activities of the project to flights on very calm days, when the balloon covers very little ground.

In the early days there were instability problems. At the peak of one flight the balloon tipped upside down, and dropped from 400 feet onto the designer's head. The picture shows him taking evasive action, to avoid being enveloped in polythene. This problem was over-



As the flame rises, the balloon envelope fills and the team gets ready to release it. The balloon falls from 400ft. and R. O. Pullen, one of the designers takes evasive action.





A mighty grin of triumph from Alistaire Nicholson after the balloon had carried its first pay-load — a kettle.

come in true British fashion by adding a payload in the form of a tin kettle. Descents were then more controlled.

Flights on more windy days are only undertaken when the party includes a cross-country runner. The balloon has been known to fly several miles into country inaccessible by car. Other fit and able bodies are required to climb the rugby posts when launching the balloon.

This is to hold the apex of the polythene, enabling it to be filled with hot air.

At present, a one-third size prototype of a 50,000 cubic foot man-carrier is on the drawing boards. This is propane-fuelled and radio-controlled. It should enable the group to remove all bugs from the design for a man-carrier, at least in theory. A pilot will soon be required: ring Ext. 2368.



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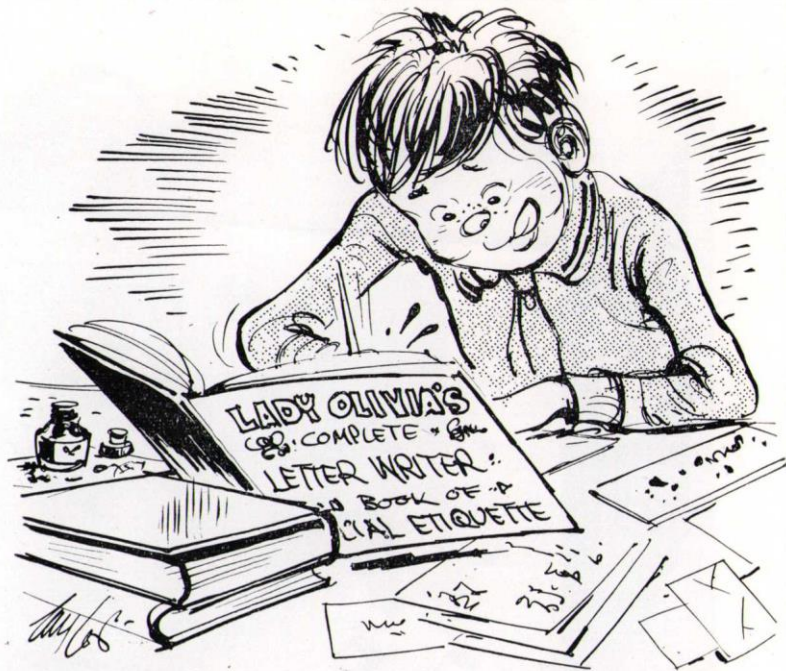
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THESE CHANGING TIMES

— MAESTRO

To read, as that fellow should have said the other day, maketh the full man.

When considering my favourite books, the one that stands out most vividly in my mind was one of the first books I ever acquired. I was no more than seven or eight at the time. It was a slim volume, entitled, as I remember correctly, "Lady Olivia's Complete Letter-Writer and Book on Social Etiquette". It cost me one shilling. And I can say truthfully that I have never since spent a shilling so profitably.

It completely changed my whole life. Until then, for those seven or eight years of my life, I had been very much the rough diamond. I had, in fact, run the entire gamut of juvenile delinquency, from the minor social crime of wiping my nose on my sleeve-cuffs to the more reprehensible one of spending my Sunday school penny on riotous livings and rattling the collection-box as it passed me.

But from the moment that book came into my possession I became a new boy. An amazing new world of high society opened for me. I sought and gained a reputation for delicate upbringing that I have never since lost. I became, in fact, a gentleman.

Under the aristocratic patronage of Lady Olivia, politeness became second nature to me. "Excuse me" and "please" and "thank you" came to my lips with what must have been nauseating regularity. I grew dizzy bobbing up and down on tramcars and buses giving my seat to others. I was forever opening and shutting doors. I hazarded life and limbs dashing across busy streets just to touch my cap to old ladies.

With Lady Olivia as my guide and mentor my social manners improved in other directions too.

I no longer tucked my table napkin under my chin but neatly in the top of my trousers. No more I blew upon hot tea after I had poured it into the saucer in a restaurant — I fanned it delicately with a menu. The extremely genteel manner in which I tip my soup-plate nowadays and scoop the last of it out in one graceful continuous motion I owe to this dear lady; while the silence of my soup-sipping at annual dinners at Harwell is still remarked upon as positively uncanny.

Lady Olivia taught me a lot of other useful things too. She put me right on engagement

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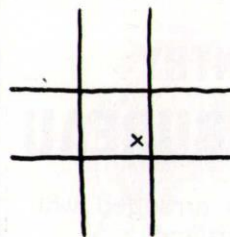
ADDRESS

parties, weddings and the correctly solemn demeanour at state funerals — all knowledge of inestimable value to an ignorant little eight-years-old. While even today I remember where to place at dinner parties a duke, an archbishop and the second son of a bachelor knight.

If I had had the good fortune to bump into a duchess she would have found me the polished little gentleman to my well-manicured finger-tips. Moreover, I knew how to decline an invitation to a royal garden party without distressing the royal feelings. I could order a butt of Amontillado sherry from Spain with knowledge and aplomb. I could have courted a princess by letter with a tenderness and delicacy of expression that she must have found irresistible.

What distress these changing times must have brought to the dear lady I can only guess. Indeed, I fear she must long ago have worried herself to death over the correct social precedence of trade union leaders and chairmen of nationalised industries. And many a sad aristocratic tear must trickle down her delicate cheeks as she gazes down upon an anarchistic social world of hippies and beatniks and other long-haired layabouts.

Yes, indeed, times have changed.

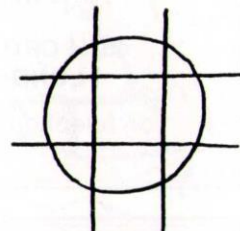


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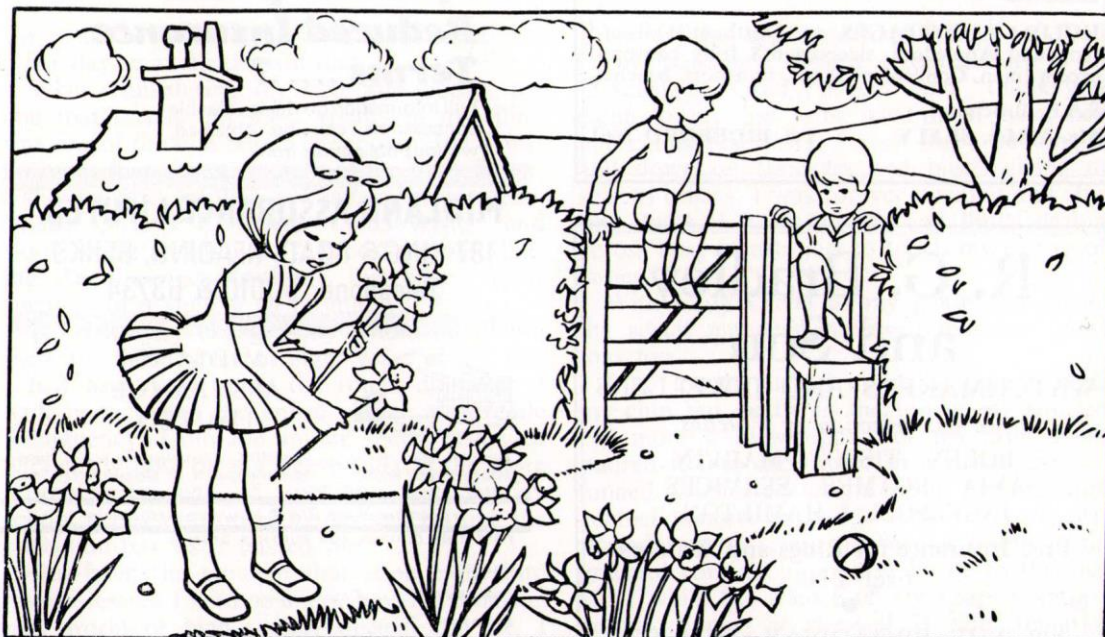


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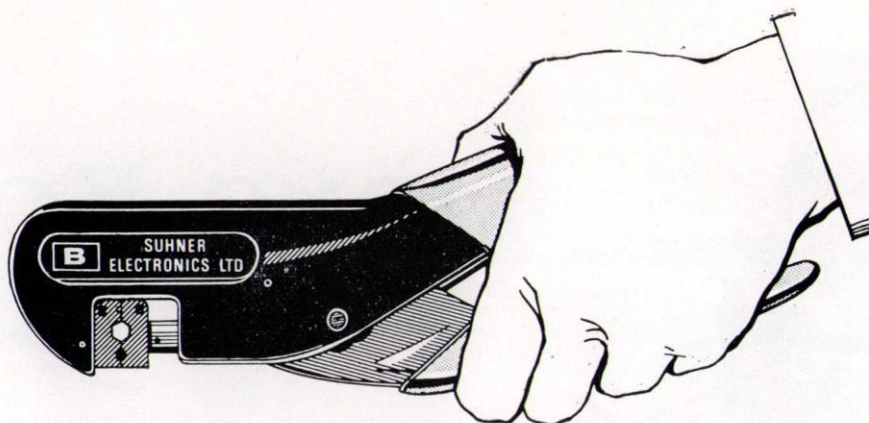
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HONG KONG

PEARL OF THE ORIENT?

by Michael Hegarty

I was delighted to be offered the chance to spend a few years on secondment with the Hong Kong Government. The opportunity had a great appeal to me as it represented something of an adventure and enabled me to extend my natural interest in people and their problems.

Flying over Vietnam on the last stage of my 18 hour journey, I wondered how this small island, situated some 7,000 miles from U.K., would compare to the peaceful countryside of Dorset and Berkshire where I had lived for the past few years. When I alighted at the very modern airport of Kai Tak, I was immediately struck by the absolute contrast. I found myself in the midst of the industrial complex of Kowloon, which also contained many hundreds of large, old and often decaying buildings used mainly to house the families of the poorer Chinese population. Washing on bamboo poles appeared from almost every window, spanning the road beneath like motionless flags against the background of a humid sky. On my journey to the hotel I passed through large areas of squalor where the children sat cross-legged on the kerbside in their cheap cotton pyjama-like suits, eating from dirty rice bowls, quite oblivious to their surroundings of gross poverty.

To say that this first impression of Hong Kong was one of disillusionment is probably something of an exaggeration, but after listening to the enthusiastic views of many friends who had previously visited the colony I couldn't help wondering whether they had perhaps been referring to some other place!

The writer came to Harwell in 1946 as one of the first members of the staff of the Procurement Section, a forerunner of the present Contracts Branch. Later he became the Staff Side Secretary of the U.K.A.E.A. Whitley Council for five years. He was also Organising Secretary of the U.K.A.E.A. Benevolent Fund for its first three years. Later he was based at Winfrith and Risley before returning to Harwell in 1963 where he remained until joining the Department of Economic Affairs in London, July, 1966.

* * * *

I am pleased to say, however, that this first impression was in complete contrast to the beauty and colourful elegance that I later found in Hong Kong. Whereas there are large parts of the colony which house the poor unfortunate peasants who in earlier years were forced to escape from the ravages of the civil wars of China—and the Chinese population now totals well over 3 million—there is the other side of Hong Kong with its wonderful bays and beaches. There are also the open spaces of the New Territories, so called because they form part of the Chinese mainland and are leased from China until 1997, which represent the farming areas. It is here that one can see the careful tending of the crops and the tilling of the fields with the still primitive forms of farm implements in the shape of hand-made ploughshares drawn by water buffalo and oxen.

I do not feel this is the occasion to provide information on the economics or statistics of the Colony, I leave this to the many guide-



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West Point is one of the oldest parts of the Colony and is also one of the most crowded. The present roads curve along foot paths etched out when the Colony was founded. The Tenements are rented as cubicle space with 300 people in a single small three or four story building plus another fifty (plus chickens and ducks, etc.), living in huts on the roof as roof-top squatters.

books freely available to anyone who may be interested. However, my own impression is one of complete fascination now that my initial misconception has given way to a wider experience. In some ways I think the colony represents the mingling of the old with the new in a manner which defies explanation. I look around and see the old and beautiful buildings of architectural elegance such as the pagodas, the temples and the ancient Chinese houses, majestic yet unobtrusive, merging harmoniously with the modern skyscraper-like buildings often of ugly proportions but a necessary monument to the present age. Even the abject poverty seems to complement the obvious affluence that the economy of a free port has created (and Hong Kong shops are famous for being able to supply almost anything at prices so low that it's a veritable tourists' paradise). It is interesting too to see the difference in the style of clothing, with the beautiful Chinese women in their tight-fitting dresses of silk and brocade, high necked and elegant, walking side by side with the European and the American, who whilst looking smart seem a little out of place in this rather humid and temperate climate. The contrasts are both real and remarkable and provide the key to Hong Kong's fascination. It is like nowhere else in the world, and its magnet-like qualities represent a sheer delight to all who are fortunate enough to become part of the Hong Kong scene.

Since my arrival there has been no end to the interest I have found both in the people and in their culture. In a community where there is still no political suffrage, and where education is not compulsory and still far from uni-

versal, it is necessary to try to assist in advancing the standards and helping to overcome hardships. Thus there are a great many voluntary agencies collecting and dispensing vast sums of money which are never adequate for charitable works. Many individuals give up much of their free time to assist these causes. Shortly after my arrival I became involved in the work of one of the four Round Tables in the Colony providing a complete new village on one of the offshore islands forming part of the colony's Administration. From the start I was completely captivated by the Chinese children whose limited English vocabulary is "Hello" and "Thank you". Their smiles and their energy are both so infectious that it's difficult for even the hardest cynic not to melt with warmth for them. And there are so many small orphans in need of care and attention that there is much work to be done in all ways. The Government, too, are helping considerably by exerting as much pressure as is possible to resettle the many hundreds of thousands who still find themselves living in old wooden (and even paper) buildings not fit for cattle by modern European standards; and others living in derelict rat-infested boats by the waterside.

One cannot fail to be fascinated by the culture. It is predominantly Chinese, and I was very moved a few weeks ago when I visited a Buddha Temple at which a service was in progress. About ten priests were making thanksgiving offerings of cakes and sweets amid the incessant chanting of prayers to the accompaniment of a rather primitive band with tin whistles, small drums and tambourines. It was very inspiring in a weird and incredible sense.

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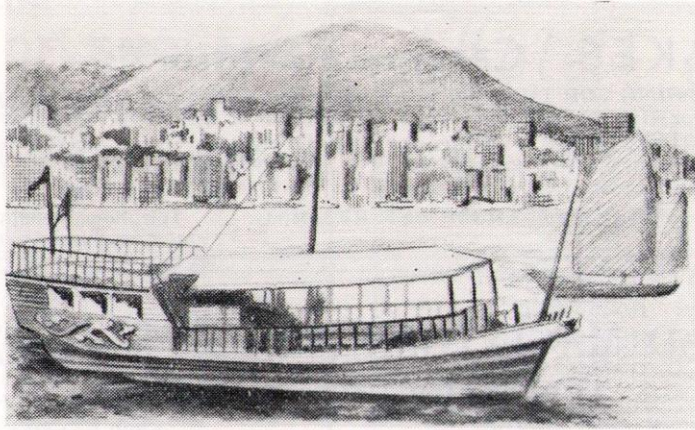
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Chinese junk boat against a back-cloth of the new Hong Kong — illustrations by G. E. Johnson, *Eng. Services*.

Tradition too is difficult to appreciate, being something completely alien to those of us educated in this modern world of technology. For instance, I was invited to attend a Chinese wedding a short while ago where the bride was dressed in bright red (red is regarded by the Chinese as their lucky colour) and her gown was studded overall with bright sequins in the form of a gay dragon. The wedding ceremony was quite simple and did not rely on any legal form, as is necessary in the Western world, but merely on the signatures of the guests on a large red cloth at the entrance to the wedding feast, always a grand affair with about 15 courses and, in my case, it continued for nearly six hours! One thing I found rather strange was that during the ceremony most of the Chinese guests appeared quite disinterested in the wedding and occupied the time by playing Mah Jong which is a form of dominoes but played with a great deal of noise and clatter.

I could go on filling pages with my impressions of the vegetation and the plant life; and describing the natural harbour which is in itself a great fascination with its myriads of small Chinese craft, the sampans and the junks; and the colourful fisherfolk who tend their personal sea craft and whose "import licences" are pieces of rope with which, like fishing lines, they collect their goods from the cargo boats dotted around the harbour. There are the restaurants of every nationality providing food at all times of the day and night at prices which would astonish the European. Of course there is the sheer delight of the Chinese meals which for absolute enjoyment

have no counterpart in the Chinese restaurants of London and Oxford. And the magic of the night life with the shops open and always willing to do business, even for the smallest item, until close on midnight.

It is inevitable that this article cannot do justice to the many sides of life in the colony and must necessarily present a very broad description of my initial reactions and views. There are so many facets that must be completely ignored in the process that it cannot claim to be a well-balanced picture of Hong Kong. Regardless of its age-old tradition and culture, changes are occurring here and the progress of the modern world is eroding the old methods. For instance the modern electronic camera is essential to keep pace with the colourful nature of the surroundings, modern transport plays an important part in the communications of the colony; and the modern aids to industry and Government help to foster the economy.

This is, I think, as it should be, but through it all comes the basic Chinese dislike for major upheaval and change, and they still firmly believe that an article made by hand is vastly superior to its machine-made counterpart; and, of course, they are right provided it is possible for the genuine article to be produced at a competitive price which is still surprisingly true of Hong Kong. I find myself admiring this Chinese quality of clinging to the best of the past and, as I ponder on the shop assistant who still counts on the ancient abacus, I marvel at this ability to combine the old world of Confucius with the ultra modern jet age for which Hong Kong is just preparing.

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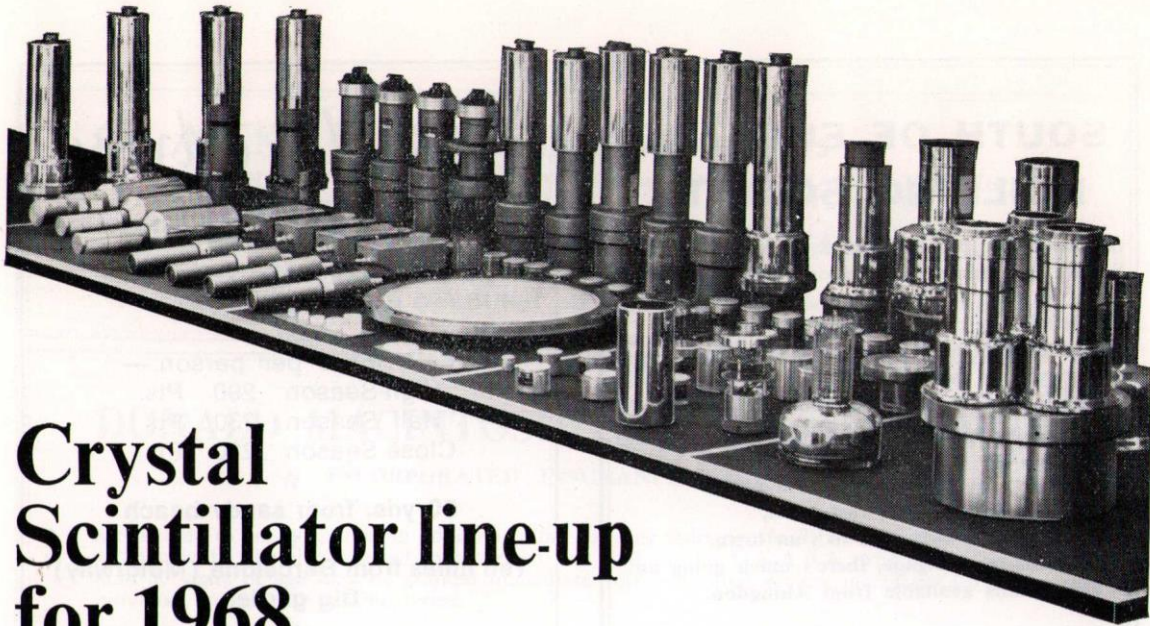
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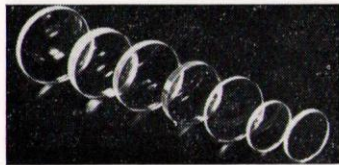
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Crystal Scintillator line-up for 1968

1 16-inch Diameter NaI(Tl) Spectrometer Crystals
Now available, providing improved anti-coincidence annuli, and "live" shielding against external radiation.

2 Improved Energy Resolution
Crystal - photomultiplier assemblies now incorporate a new range of high quantum efficiency EMI photomultiplier tubes, giving significantly improved energy resolution.



3 "Log-type" Crystals
For 1 metre arc whole body monitoring, using "inert" light pipes of pure NaI to shield against activity in the photomultipliers.

4 Anti-coincidence Shields
Large NaI(Tl) anti-coincidence shields can be supplied for scintillator and semi-conductor detectors. For some of the types available see the following references:

"Scintillation Spectrometer with Anticoincidence Annulus of NaI(Tl)", C. C. Trail and S. Raboy (ANL), Rev. Sci. Instr. 30, (6), 425-9, June 1959;
"An Anti-coincidence Shielded-Multidimensional Gamma Ray Spectrometer", R. W. Perkins (Hanford), Nucl. Instr. Meth. 33, (1), 71-6, March 1965.
"A Semiconductor Anti-coincidence Detector System", D. M. Holm and W. M. Sanders (LASL), Radiochemical Methods of Analysis, 2, 81-9 (IAEA 1965).
"Coincidence-Anticoincidence Gamma Ray Spectroscopy with a NaI(Tl) Split Annulus and Ge(Li) Detector", R. L. Auble et al (Mich. U.), Nucl. Instr. Meth. 57, (1), 61-71, May II, 1967.
"Response Function of a Ge(Li) - NaI(Tl) Detector System", B. J. Allen et al (AAEC Sydney), Nucl. Instr. Meth. 53, (1), 61-70, July I, 1967.

5 New Low Background Glass Scintillators
These have background alpha activities of less than 20 d.p.m. per 100g of glass compared with 100 to 200 d.p.m. per 100g of the standard glass scintillators. They are ideal for neutron spectrometry, time-of-flight work and other applications requiring very low backgrounds. NE 912 contains 8% lithium enriched to 95% in Li⁶, and NE 913 contains 8.5% lithium depleted to 99.99% in Li⁷.

6 CsI(Na) Scintillation Crystals
Available for the first time commercially, this new highly efficient and stable scintillator offers many advantages over CsI(Tl). Diameters up to 10 inches.

| PROPERTIES OF CsI (Na) | |
|---|-------------------------|
| LIGHT OUTPUT RELATIVE TO CsI (Tl) | 2.0 * |
| DECAY CONSTANT, Microseconds | 0.85 * |
| DENSITY g/cm ³ at 25 °C | 4.5 |
| MOLECULAR WEIGHT | 259.81 |
| VAPOUR PRESSURE: Millimeters Hg at 738 °C | 1 |
| SOLUBILITY, Grams per 100 Grams H ₂ O | 160.0 |
| THERMAL EXPANSION, per °C | 47.0 x 10 ⁻⁶ |
| THERMAL CONDUCTIVITY Cal/Sec. cm ² °C at 0°C | 500 x 10 ⁻⁴ |
| INDEX OF REFRACTION SODIUM D LINE (589.3 mμ) | 1.787 |
| EMISSION MAXIMUM 420 mμ | 1.838 |
| MELTING POINT °C | 621 |

* P. Brinckmann, Physics Letters, Vol. 15, No. 4, 305, April, 1965

7 CaF₂(Eu) Crystals
For efficient X-ray or beta particle detection featuring large light output, low beta particle backscatter, low gamma-ray sensitivity, and low refractive index. They can be placed in direct contact with solvents and are stable in high vacuum systems.

| PROPERTIES OF CaF ₂ (Eu) | |
|--|---|
| LIGHT OUTPUT RELATIVE TO NaI (Tl) | 30-50% |
| DECAY CONSTANT Microseconds | 1.0 |
| DENSITY g/cm ³ at 25 °C | 3.165 |
| SOLUBILITY | Essentially insoluble in most aqueous solutions, and other liquids. |
| INDEX OF REFRACTION AT EMISSION MAXIMUM (435 mμ) | 1.470 |

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got any
NEW
ideas?

*Send them to The Secretary,
Suggestions scheme, Bldg. 329*



The illustration is enclosed in a decorative border of repeating leaf-like patterns. The central text 'got any NEW ideas?' is written in a mix of bold, blocky and cursive fonts. The man's face is drawn with expressive, sketchy lines, and the hand holding the banknote is also sketched. The sheep and dog are simple line drawings.

CONTRIBUTORS TO THIS ISSUE

DR. H. A. C. McKAY: "Attempted Entry". First worked in nuclear science in Copenhagen in 1935. Joined A.E.R.E. from the R.N.V.R. in 1947. Spent 1959-61 in Tehran as Director of the CENTO Institute of Nuclear Science. Now in Chemistry Division with very diverse diversification interests. Concerned about the ideas behind the people behind the news.

K. H. B. FRERE: "Albemarles at Harwell". Came to Harwell from the Central Electricity Authority as Group Recruitment and Training Officer in 1957. Had joined the R.A.F. in 1942 learned to fly in Oklahoma, and served in 38 Group throughout the war. Distinctly remembers ploughing up a field of King Edwards near Wantage with an Albemarle in 1944. Perhaps this explains why his concerns now include grounds, catering and safety.

SUSAN SHEPHERD: the illustrations for page 24. Aged 16, she is the daughter of one of "Harlequin's" regular contributors. We welcome this more active role by our younger readers in what we are pleased to have them regard as their magazine also.

20 YEARS' SERVICE: M. Smith of Contracts and W. F. Wood of Research Reactors were left out of last year's group photographs. Further photographs will be announced in "A.E.R.E. News".

CONTRIBUTIONS WELCOME.



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