



HARLEQUIN

Summer/Autumn 1970
One shilling and threepence

HIGH STREET
ABINGDON
E. BEESLEY
H.

**R. G. Bradley
and Son**
WATCHMAKERS AND JEWELLERS
See our selection of Watches
ROLEX - TISSOT - MARVIN
AVIA - ROAMER - SERVICES
INGERSOLL & HAMILTON
Free Insurance for Rings and Watches
over £10.
●
208 THE BROADWAY, DIDCOT
Telephone 3113

Open 9 a.m. — 5 p.m. (Thurs. 9—1) Tel. 33

*YOUR STORE
FOR
LEISURE
CLOTHES*

*MENSWEAR
FABRICS
FOOTWEAR
LADIES WEAR
LINENS
SCHOOL WEAR*

Reynolds & Johnstone Ltd.

17, ST. MARY STREET
WALLINGFORD

Wine and Spirit Merchants

Telephone Wallingford 2035

WE OFFER A
WIDE SELECTION OF WINES
SPIRITS Etc.

Case lots available at trade prices

WEDDINGS & PARTIES

*Goods on sale or return
Glasses on Loan free of charge*

DELIVERIES

*Throughout the district weekly
Wine lists & Order forms available
on request*

We shall be pleased to see
Personal Shoppers

SUMMER/AUTUMN HARLEQUIN 1970

Leisure Magazine of the United Kingdom Atomic Energy Research Group
and Associated Organisations

Vol. XXV No. 2 (69)

Editor

D. A. TYLER

Sales Manager

J. DALEY

Treasurer

R. WAKEFIELD

DR. R. JACOBI

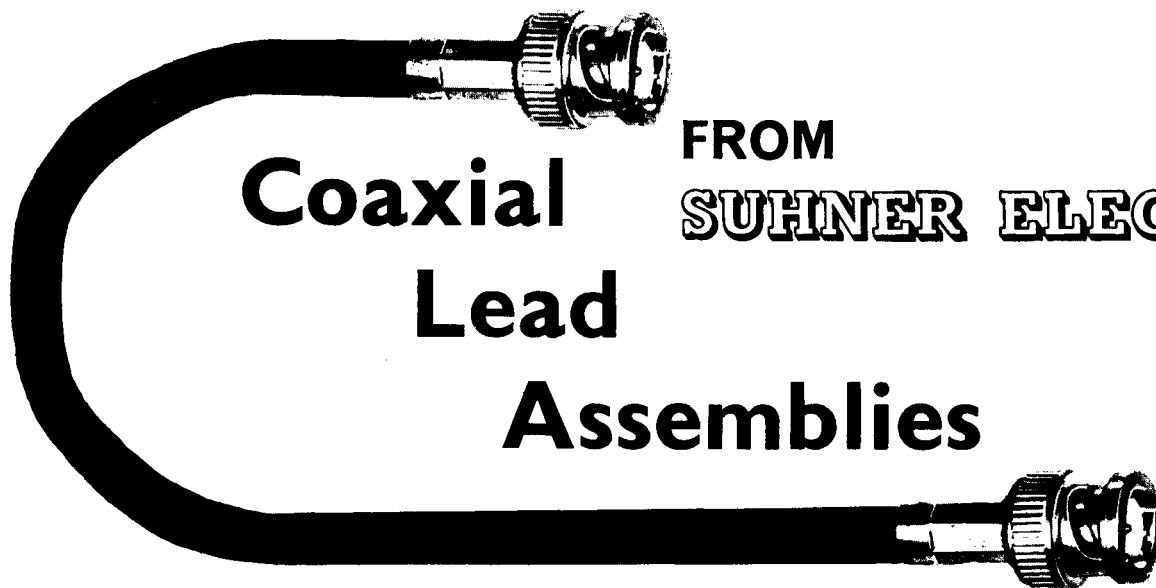
R. WILKINSON

in this issue

Even Atom Splitters need Craftsmen - - - - -	8
Assignment in Ghana - - - - -	13
That's the Rub - - - - -	18
The Rumage Sale - - - - -	24
Harwell Computer Services - - - - -	26
Reporting on Reports - - - - -	33
This is a Printing House - - - - -	40

The search for a photograph for the Contents Page of this between-seasons issue was ended when there arrived this photograph from a Public Relations firm. A fashion fabric made by a chemical company, it is a "ski and après ski design for 1971". It could be guaranteed to attract the attention of the Harwell bus when waiting on the colder morning!





Coaxial Lead Assemblies

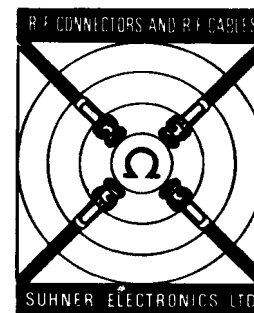
FROM
SUHNER ELECTRONICS

*Our production programme now enables us to offer
a fast, efficient lead service, with the
following advantages to you:—*

NO WASTAGE OF CABLE OR SCRAP CONNECTORS

ASSEMBLY BY EXPERIENCED STAFF
WHO ARE SPECIALLY TRAINED FOR
THIS WORK.

**QUANTITIES OF MANY TYPES OF
CABLE AND CONNECTORS STOCKED**



H.M. Government Contractors

NO MINIMUM QUANTITY REQUIRED.

SUHNER ELECTRONICS LTD

172/176 King's Cross Road, London, W.C.1.

**NO TOOL COST INVOLVED – CRIMPED
OR SOLDERED CONNECTIONS
AS REQUIRED.**

DELIVERIES CAN BE SCHEDULED
WEEKLY OR MONTHLY TO SUIT YOUR
REQUIREMENTS.

**EVERY LEAD IS GIVEN A VISUAL
INSPECTION – PLUS CONTINUITY
AND VOLTAGE PROOF TESTS.**

For Further Details telephone or write to—

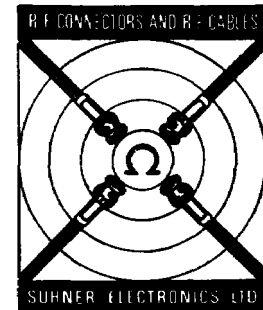
SUHNER ELECTRONICS LIMITED

172/176 King's Cross Road, London, W.C.1.

Tel.: 01-278 2941/6

Precision R. F. Connectors and Cables

OUR TELEX NUMBER IS
267217



H.M. Government Contractors

Griffiths Hackney Cabinet Company Limited

54 GREAT EASTERN STREET LONDON EC2

Telephone 01-739 4431/2/3

DISCOUNTS PLUS:—

Good Branded Furniture Stocks. Expert Complete House Furnishing.
Special Reproduction Regency Range. Curtains, Carpets, Carpet Fitting and ALL
ancillary services. Long Established and Member-recommended.

Open Sats: 12.45; Thurs. to 7.30. Other weekdays to 5.30.

Free Car Parking to Customers

SPECIAL NOTICE

We now have an

ANTIQUES CORNER

Browsers welcome any time

MOTORISTS

RING ABINGDON 1860

FOR IMMEDIATE FREE FITTING

25% Discount

ON NEW AND REMOULD TYRES

AND BATTERIES

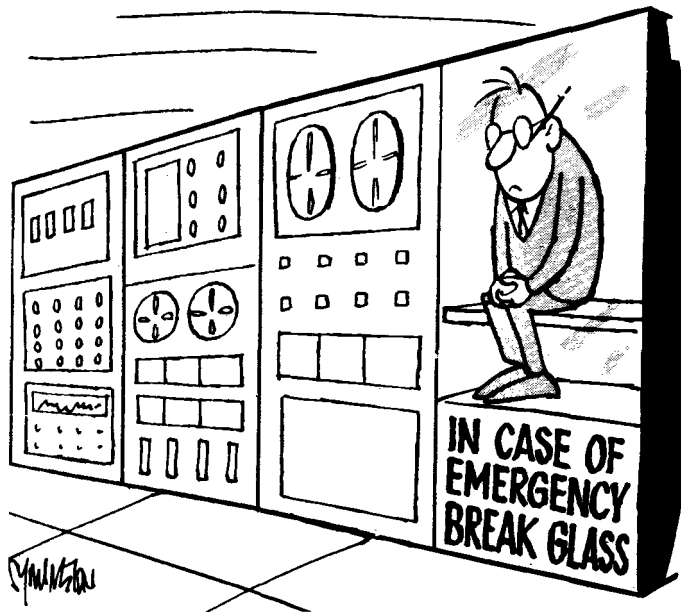
AT

ABINGDON TYRES Co. Ltd.

39a OCK STREET

ABINGDON

DRIVE THROUGH THE ARCH OPPOSITE MORLANDS BREWERY



**Richard Nevill & Co.
Insurance Brokers.
3c, Newbury Street
Wantage, Berks.**

LIFE & ENDOWMENT ASSURANCES. (UNIT OR EQUITY LINKED)

ANNUITY & GROWTH BONDS

MORTGAGE PROTECTION/MAXIMUM LIFE COVER POLICIES

SICKNESS & ACCIDENT INSURANCE

ANNUITIES – PENSIONS – UNIT TRUSTS

MORTGAGES & BUILDING SOCIETY INVESTMENTS

CAR – HOUSE & CONTENTS

LUNCHEON & EVENING APPOINTMENTS
PLEASE RING WANTAGE 4366
TO ARRANGE AN APPOINTMENT



The Symbol of your Friendly Trustee Savings Bank

For further information of the many services of your Local Trustee Savings Bank, simply contact the Branch Manager at one of the undermentioned Branches.

7 MARKET STREET, OXFORD ★ 1 STERT STREET, ABINGDON
BROADWAY CORNER, DIDCOT

A Representative of the Bank attends at A.E.R.E. (Bld. 303, by Main Gate) each Friday between 12.30 and 2.30 p.m. when Savings Bank facilities are provided.



COXETERS
LTD.

Complete House Furnishers

Furniture Removed and Warehoused
China, Glass, etc.

Curtains Loose Covers & Carpets
Cabinet Repairs Upholsterers
Funeral Directors

Abingdon 4747

*We are pleased to arrange
Hire Purchase facilities*

TRY ABINGDON FIRST

Established 1836

OCK STREET, ABINGDON



HARTWELLS
of ABINGDON Ltd.
THE VINEYARD
ABINGDON

Tel. 1831 2/3

- ★ Better Used Cars
- ★ Forecourt Services
- ★ Austin Spares
- ★ Autoshop
- ★ Tyre Dept.
- ★ Insurance
- ★ Self Drive Hire
- ★ Credit Facilities
- ★ Comprehensive Workshop

ABINGDON'S LEADING DEALERS

— AND NOW!

UNIPART FOR MOST MAKES
SELF SERVICE PETROL (24 HOURS)



EDITORIAL

Of the problems facing us in this century, which will future historians see as the most pressing? Many come to mind, but the answer can be summed up in the two words *Global Development*: the orderly development of mankind itself is an era of revolutionary technological change.

We hope, therefore, that no apology will be needed for opening this issue with matters which may, at first, seem far removed from Harwell.

The second article complements the first: the developing nations are seen as people like ourselves, facing the same conflict between the old and the new, between the young and the old, with the same problem of democracy at work.

Nevertheless, it is true that we cannot ignore statistics. The poorer two-thirds of the world's population will not be reduced in numbers, but before long will be increased to three quarters by a rate of population growth which overwhelms all other progress.

Today there is disillusion not only in the larger donor countries but among the smaller recipient countries, about the effectiveness of the aid effort. In short: why international aid at all?

The matter deserves the widest possible forum, and discussion must be carried on elsewhere.

Valuable as is the written word, it must be supplemented by other media, preferably by the cut-and-thrust of argument. Recently in *Harlequin* an article on Teilhard de Chardin was used to stimulate interest in a talk and discussion that followed organised shortly afterwards in the Social Club. A feature on wild-life conservation was followed at Harwell, Culham and SRC by the showing of a colour film. Similarly, a short lunch-time debate would cover the above arguments more effectively.

Should countries by comparison affluent, but with their own economic and social problems, concern themselves with the difficulties of the emergent countries?

EVEN ATOM SPLITTERS NEED CRAFTSMEN

It might be thought in these days of automatic machines and large scale production that the craftsman is dead. The thatcher is seldom seen at work in our country lanes, but although rural crafts are dying the craftsman is found today within industry wherever one-off or unit production is required. He is found as the instrument maker and as the maker of the tools and dies which must be furnished before the mass assembly work can go forward. He is found wherever man cannot produce without hands or create without brains. In centres of research he may have more modern names such as experimental officer and development engineer, but a craftsman he remains, and new science and technology are dependent upon him.

The craftsman is to be identified by his skill, and also by his sense of values. He can practise his skill in full and, in preference to better working conditions and rewards, he values the interest and satisfaction of the work itself. It is not his lot to be lost as a cog in some vast industrial machine. He plays a vital part in work that gives its own satisfaction. Industrial society may become increasingly large in its working groups and increasingly impersonal but, if we have any faith in human nature, we can feel optimistic that there will always be men to accept the challenge of craftsmanship.

Yet this paper is not concerned only with industrialised society but with the *world* of the atomic age. Having extolled craftsmanship wherever it may be found, we must look at its position in the world—not forgetting that its non-industrial part represents two-thirds of the world's people. But we must first look at this in general terms if we are to see our subject in perspective. Considering India as an example, in 1965 its population was 450 million. By 1970 it will probably be 525 million and by 1980 630 million.

With other developing countries expanding on a similar scale, it will be seen that by the end of this century the non-industrial countries will represent four-fifths of the world's population. Today the emerging countries are trying to bridge the gap of centuries within two or three decades. Many have an annual income per head of only 100 dollars. This compares with the 800 dollars per head earned in Western Europe and the 2,000 per head which is the earning capacity in the United States.

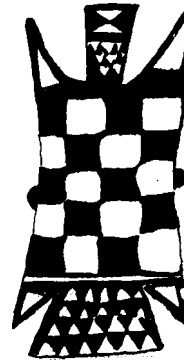
How to bring about the very considerable rise in productivity that is necessary for the standard of living of the developing countries to approach that of the developed nations? While their governments ponder over the problem, the higher consumption standards of the industrial society are being communicated to the people who become no longer satisfied to remain without them. They, too, want good food, good housing, good health and good education for their children, most of which can only be provided by

D. A. Tyler, Gen. Sec.

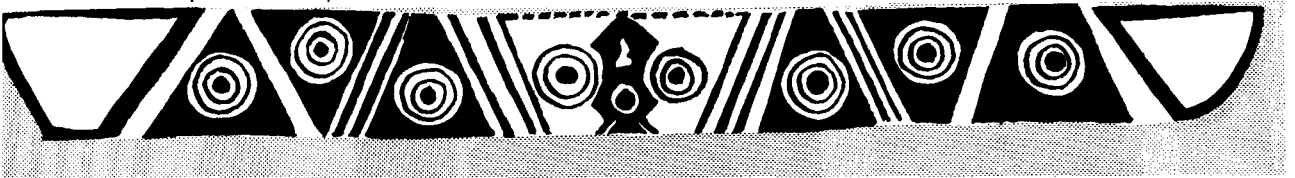
Reproduced from: **AFRICA: MAKE THEM CRAFTSMEN**

2nd edition, 1 vol., paperback and linen-bound, 200 pages, 60 b/w photos, 2 art drawings, 25.4 x 20.3 cm.

A searching look at one of the urgent problems facing the emancipated Africas in tomorrow's world. This book takes the pulse of the crafts scene in Africa and recommends treatment to reverse its slow decline.



Paperback 28/-Linen bound 42/-



imported goods. How to provide the foreign exchange? Too often modern science appears to be regarded as a magic wand that only has to be waved over a backward country to bring it forward. New developments such as nuclear power and desalination are fine, but once again require the foreign exchange of which these countries are short.

It is in facing the economic reality of walking before one can run that progress will come. As well as looking to new technology and science for salvation, ought they not to be looking also to the craftsmanship on which these were originally built? The developing countries have themselves a heritage which waits only to be fully utilised. The African leather craftsman, for instance, needs to soften the skins he uses and still employs the age-old method of stringing up the undressed hides to a tree, attaching a heavy weight to them and then twisting and turning them until soft enough to work with. Pottery is but one of the ancient, individual crafts, capable of mechanisation under skilled personnel.

The leaders of the developing countries are too often pre-occupied with the vast amounts of expanding technology which cannot be bought without foreign exchange. The stagnant technology of their own countries which requires simple mechanisation escapes attention. In building a new future the emerging nations must not forget their ancient past with its culture, crafts and traditional values, and conditions for industrialisation must be created. Decision making will fall on the government, which has the financial resources available to carry them out. It can seek trade agreements with the developed countries and it can offer financial and other assistance. Craft centres can be made available on a rental basis and public corporations formed with authority to develop industry. Tax concessions can be provided for investors, while foreign capital can tide over the period of interest before local capital flows in.

But the young nations have many political, economic and social problems to face; some cannot even collect their taxes. Priority must be given to the schools and technical institutes from which the indigenous-trained technicians of tomorrow can emerge. They must be available to run the new technology which the country can afford to buy and, particularly, to organise the old, under-developed craftsmanship already there.

With rapidly rising populations, however, the problem becomes not one of improving present standards, but one of maintaining them. In Europe and North America there is one doctor for every thousand people. In Africa, excluding South Africa and Egypt, he must serve twenty thousand. One-third of Britain's financial aid to the emerging countries represents investment by British companies in developing commerce and industry. The remaining millions are as gifts, loans and technical assistance. At the same time emerging countries must be helped to help themselves. Each year about fifty thousand places in British universities, training colleges and industrial courses are taken up by students who return home to take a lead in development. To bridge the gap in skilled manpower, volunteers have been encouraged to go out from this country. Among them are engineers and technicians, giving help where it is most needed. Some are ex-apprentices selected from British industry and in many cases sponsored by the companies which trained them.

A fine example of calabash decoration, with the texture pattern in parts reminiscent of basketwork. Probably from the Nuba tribe in Northern Nigeria. British Museum.



With this help from within and temporary help from outside, will the emerging countries now be able to develop their technical resources? Can we expect the craftsmen to be prepared to pass on their skills to a rising generation? Will schemes for craft apprentices emerge such as are organised today in the industrial world? Assuming that all this can be done, there is no doubt that the more economical batch production—and later mass production—will take the place of some of the present craftsmanship. At a more economic price the goods would also find a market and the means of bringing in foreign exchange. Craftsmanship, however, would be at the crossroads.

In some ways craftsmanship could be improved at the craft centres, where a new generation of craftsmen could be brought forward and where better designs could be introduced, craft standards raised, and output increased. It would essentially be a question of balance: of building the future of the country, but not of jettisoning the future of craftsmanship for a short-term advantage. Assuming that the finished product was not to suffer, and that the material lot of the craftsman was improved, are we to presume that all would be well? Or is the deeper satisfaction of craftsmanship left in the balance?

At this point the emerging countries should stop to look at the one-third of the world which has so far become industrialised. They may well ask: "Is it worth it?" With the expanding development of machinery we have seen the limiting of the individual sphere of action; with each development comes less pride of achievement and more sense of frustration. This was summed up by Professor R. H. Tawney, as long as fifty years ago: "The burden of our civilisation is not merely, as many suppose, that the product of industry is ill-distributed, or its conduct tyrannical, or its operation interrupted by bitter disagreements. It is that industry itself has come to hold a position of exclusive predominance among human interests, which no single interest, and least of all the provision of the material means of existence, is fit to occupy. Like a hypochondriac who is so absorbed in the processes of his own digestion that he goes to the grave before he has begun to live, industrialised communities neglect the very objects for which it is worthwhile to acquire riches in their feverish preoccupation with the means by which riches can be acquired."

The second phase of the industrial revolution is now upon us, forcing us to see that more important than technical and economic considerations is the forgotten human factor. Before they set out to follow us all the way, the builders of new nations should ask: "Can a rich industrial society be built only at the expense of human values?"

Britain has much to export in technology, techniques and technicians. She has much to learn about the right attitude to work itself. The growing rash

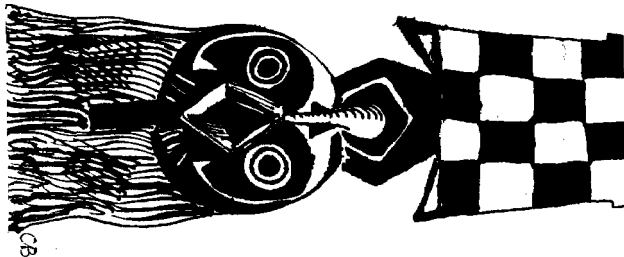
of industrial disputes is symptomatic of a social and spiritual malaise. As a liberal study, the relationship between industry and society, which become increasingly linked, requires energetic pursuit. It is the problem of our century, and can only be battered out by action and reaction. The emerging countries will experience their own problems of human relations. They can be guided by principles that we have learned, and must early adapt them for their own individual needs.

We can feel reassured that there are some who have the foresight to see this problem in perspective, and who are not overwhelmed by the conflicting needs of the emerging nations. Such a one is Dr. Charles Malik of the Lebanon, statesman of a country new to industrialism: "We do not see our fellow men enough. We do not know them. We do not recognise their souls. We do not meet them as person to person. As a result, we know them only as moving animals producing and wanting economic goods.

"A society that thus reduces men to the level of the 'economic animal', and does not show sufficient active concern for his soul, can never know peace. For peace is to be in the truth, and the truth is that man exists primarily by his reason and conscience, so that if these are neglected, there is no end to the social havoc that his distorted being will produce."

Let the new nations regard craftsmanship not as obsolete but as something vital, both as an end product and as the means by which it is achieved. We referred at the beginning to craftsmanship as a one-off production. We may think it is not for many of us to carve, weave or perform any skilled operation. The importance and the universality of craftsmanship, however, is brought home by these words of Bruce Gould in **American Story**: "Every man should be able to do something all by himself—something that gives him a sense of mastery: fly, sing, write, bake a good loaf of bread, tapdance, find a new star, carve in ivory. Man needs to solo."

We are all called to be craftsmen.



ASSIGNMENT IN GHANA

HILDA McKAY

When Dr. H.A.C. McKay of Applied Chemistry Division was sent this year to Ghana, under the auspices of the International Atomic Energy Agency (a United Nations organisation), to advise the Ghana Atomic Energy Commission, his wife recorded these impressions of their three-month stay.

The first things to strike the newcomer to Ghana are the sounds and the colour: the sounds of the cicadas and birds by day, and of crickets, nightjars, raucous frogs and musical toads by night; and the brilliant colours of trees and shrubs, birds and butterflies, rivalled only by the clothes people wear, whether national costumes or gay shirts or dresses. But soon these things are overlaid by the people themselves, their kindness, their graciousness and their merry humour. Ghana has a tradition of hospitality typified by the man, a complete stranger in a small town we were visiting, who came up to me to say "Welcome, lady, welcome".

A few days after we arrived we were provided with a pleasant second-floor flat with lots of fresh air and a glimpse of the hills. Everything possible was done to make our stay happy and comfortable. A small stock of basic groceries and four crates of soft drinks were awaiting us, and we were even provided with a radio. We lived out at the site of the National Centre for Radioisotope Applications, and found it very reminiscent of our early days on the site at Harwell, with housing and one small shop grouped round the labs. Like so many "atomics" it is dumped down in the middle of nowhere—in this case the Accra plain with "bush" stretching in all directions. To us it was much pleasanter than living in town. But there were plenty of differences from England. For instance, bread and various fruits came daily to the flats on the heads of women and girls—bananas at ½d to 1d each, avocado pears at around 2d each. We bought innumerable large, juicy pineapples for around two shillings each.

From our flat we could see the concrete shells of the reactor building and the radiochemistry laboratory. Under Nkrumah, the Russians were building a reactor centre, but when Nkrumah was overthrown by the Coup of 1966, they were turned out at twenty-four hours notice, leaving behind the half-finished buildings and a quantity

of packing cases, some of them huge, containing bits and pieces of all kinds. When things settled down again, Ghana called in Sir John Cockcroft who advised abandoning the reactor, which would absorb a great deal of money and too much of their scientific manpower, in favour of something smaller and more realistic, the National Centre for Radioisotope Applications, which is just now getting going. This has as its aim to foster radioisotope work in agriculture, forestry, medicine, hydrology and other fields, and to provide centralised services for other establishments using radioisotopes. It has at present a complement of nine scientific officers, besides administrators, technicians and so forth. Many of them, including the Officer-in-Charge, Dr. Benjamin Garbrah, became good friends of ours.

Our biggest expedition during our stay was a week's trip north. We flew first to Kumasi, the Garden City, well named for its many green spaces, including the very attractive campus of the University of Science and Technology. The centre of the city is an enormous covered market extending over several acres. Like all the markets, and there is one in every town and village, it is very busy, very crowded and very colourful, always with the greatest good humour.

Kumasi is the capital of the Ashanti region and so is the seat of the Asantehene, chief of all the Ashantis and one of Ghana's greatest chiefs. There is a small museum with relics of earlier chiefs, some of them of solid gold, for Ashanti is where the gold is mined. The goldsmiths, who can be seen at work, make beautiful things, including delicate filigree jewellery. On important occasions, such as durbars, the Ashanti treasure is paraded ahead of the Asantehene, to remind him first that he is only one of a long line, in case he should become self-important, and, second, that it is his duty to add to the treasure in his turn.

Kumasi lies in the heart of the rain-forest. This is created by the hills, the beginnings of which we

could see from our windows, and which both bring down the rain and afford splendid views. The forest itself is magnificent with giant timber trees, mahogany and others, 100-150 ft. tall, great creepers, dense undergrowth and a wild-life all its own, heard but seldom seen. Cocoa, which accounts for some 60% of Ghana's foreign exchange, is one of the natural underlayers of the forest. It was a favourite outing of ours to drive through the forest. But, especially on a winding road where we were surrounded on all sides by forest, we could imagine something of what it was like to hack a way through on foot, with snakes and malaria only two of the problems.

From Kumasi we flew north again to Tamale. This was like going to another country. We were back in the plains again, but it is very different from the Accra plain. Both are grass country, but the Northern Region is far more wooded. It is also the area where most of the yams are grown, the starchy roots that, with plantains and cassavas, take the place of potatoes. They had just been planted ready for the rains, and acre after acre was covered with the characteristic mound that houses each yam, each one topped with a little tuft of grass or leaves as protection from the weather.

Tamale is very much hotter than Accra. On our return we found Accra pleasantly cool by contrast. Tamale was also at that time much drier. There is a long dry season from November to March, but this year the rains were late and when we were there the water was turned off daily from about 8 a.m. to 8 p.m. In the villages people may walk 7-8 miles and carry their water back on their heads, so even our meagre supply was luxury by comparison. We made one 184-mile round trip along a dirt road and returned, covered from head to foot with bright red dust, to half a bath of water, run off in the morning, between us. But it was worth it, for we had been to the Mole Game Reserve and, although we were there in the middle of the day when many of the animals lie up, we were fortunate enough to see a great number of animals of seven different sorts, mainly various deer and antelope, but also baboons and wart hogs.

While we were in Tamale, we went to Tolon to visit Alhaji Yakub Tolon Na, the local chief, to whom we had an introduction through MRA. He was seated on an important-looking chair under a thatched shelter, available to any of his people who wished to speak to him. He welcomed us most warmly, and we spent an hour with him while he asked for news of MRA and of all his old friends. He showed us round his palace—a great honour. It is very like his people's houses, a series

of swish (mud) rooms, with pointed thatched roofs, built round a central courtyard with an entrance hall, the size of which depends on the eminence of the householder. The main difference is that the Tolon Na also has a large hall for ceremonial purposes, complete with dais and talking drums, which one passes through before reaching the private hall. These houses are quite different from those in other parts of the country, which are square swish buildings with corrugated iron roofs which sooner or later send streaks of rust down the walls. These northern houses are certainly much more picturesque. The Tolon Na has now gone to Yugoslavia as Ghana's ambassador. Yet he seems quite at home leading the simple life and caring for his people.

One visit which we would dearly like to bear fruit was to Keta, which lies on a very narrow strip of land, sometimes little wider than the road, between the Keta lagoon and the sea near the mouth of the Volta. The sea is steadily eroding the land away and Keta is a dying town. Houses are being washed away and the road we were on disappears into the sand to emerge some yards further on. If the sands can be "labelled" with radioactivity and their movements watched, we hope it may lead to a way to stop the erosion. In spite of their great difficulties the people are industrious farmers and fishermen. On a strip of cultivable land only 200 ft. wide between the lagoon and the sea they grow almost all Ghana's onions in neat, well-cultivated fields. And there are thousands of coconut palms for making copra.

We made the trip to Keta by road and ferry. The first part of the trip from Ada was down typical river scenery, banks lined with coconut palms, many of which had been washed into the water by erosion. Further on these gave way to mangrove swamps, thick with the strange shrubs with their long aerial roots dipping down into the water. From time to time we nosed into the sands at villages for passengers to hop on or off.

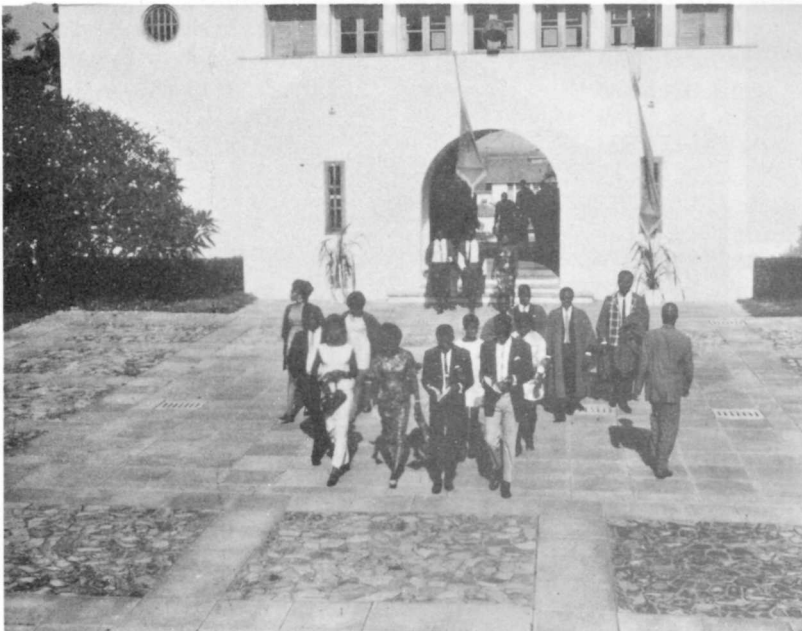
Perhaps the highlight of all our time in Ghana was the visit we paid to Nana Frempong Manso III, Omanhene of Kotoku. The Omanhene is the paramount chief of a whole traditional area or Oman, and has many secondary chiefs, in this case seventy-nine, under him. Some twenty years ago Nana Frempong came to England and my father-in-law coached him for matric. During that time he lived with the family, and when Father had a very bad dose of 'flu the Nana came and stayed a few weeks in our home. So naturally we asked if we might call on him, and a date was arranged. We arrived in Oda, where he lives, at



Unfinished buildings at the former reactor site, for which new uses are to be found.

The author examining a termitary (white ant nest).

Students and guests arriving for a degree-giving ceremony at the University of Ghana.





Easter Monday on Winneba beach.

Nana Frempong Manso III and his wife.

Inside the Tolon Na's palace.



about 10.30 a.m., expecting to stay an hour or so, and found ourselves prevailed upon to stay the night. We were indeed given a royal reception. The Nana himself welcomed us with great warmth and then introduced us to all his family from the eldest to the youngest, who was most intrigued by it all and toddled in and out some twenty times to shake hands solemnly. Then we were presented to some of the elders.

After that Nana Frempong took us to see the sights around the town. Oda is in the forest region, and we began with one of the two sawmills which are the town's only manufacturing industry. Here the timber starts as huge tree-trunks and ends as beautiful hand-made furniture. Then we were taken to see the canoe-ferry across the Birim river in which diamonds are found. Seeing the dug-out canoes and forest-lined banks one would not guess at the hidden wealth! With justifiable pride Nana Frempong then took us to the secondary school which he initiated soon after his return from England. And finally we saw the Big Tree, said to be the biggest tree in West Africa—truly a giant, 217 ft. high and with a trunk over 28 ft. in girth.

After an excellent Ghanaian lunch we were taken into the hall where many of the secondary chiefs were assembled. One of them made a formal speech on behalf of the Omanhene, who never makes a speech himself, and we were presented with a great pile of gifts, many with symbolic meanings—fruits, eggs, carvings, baskets, cocoa-pods; a gold necklace for me and a gold tie-pin for my husband, each with the Oman's emblem of a leopard, a stool and a ceremonial sword. We were overwhelmed, to say the least.

Then the "Queen Mother", dressed in her ceremonial robe, took us on a tour. She is a very attractive young lady of twenty-two, recently married. With the Kotoku the succession goes from the maternal uncle, and the Queen Mother may be the chief's mother, sister or niece according to circumstances. Nana Frempong's sister having died, her daughter is now Queen Mother. She is the first lady of the Oman, and it is she who chooses the next Omanhene, who must be a male descendant of the Omanhene's sister.

The Queen Mother took us first to the market, where we met one of the two original market-women who started it in 1937, and we saw some of the traditional occupations and sipped palm-wine. Then we visited the district officers. There are two systems of government in Ghana—the national government, under which come the district administration, the police and so on, and also the traditional system of area chiefs. Etiquette

demanding meeting both.

It was so easy to fall in love with Ghana and her people. Both have so much charm. Yet both have their problems. There is a conflict between the old and the new. Many of the men in responsible positions grew up in the villages. Many of those who have been educated do not want to go back to the simple life and often primitive conditions of the villages, although their education would enable them to give valuable services as doctors, teachers, farmers, administrators and so on. And many of the older people do not understand at all the new attitudes of their educated sons and daughters. One educated man described himself to us as "at war with his family" because he had decided to limit his family to five, that being the number he feels he can afford to educate properly. But to his parents' generation size of family is of paramount importance.

Ghana is struggling with the legacy of disaster left by the Nkrumah regime—a national debt of £400 million and a number of ill-conceived projects of which the nuclear reactor is but one. But perhaps the biggest disaster of all is the way corruption expanded under the regime till it riddles the country from bottom to top. The Government is tackling this problem with some imagination. Posters have appeared in official offices:—

"The Officials Here Are Paid. They Are Your Servants—Do Not Bribe Them".

"Do Not Give Gifts, They Are Bribes".

"Do Not Accept Gifts, They Corrupt".

An official statement appeared in the Press outlining the Government's measures and saying that in the end it is the responsibility of the individual, and that that is democracy at work.

The Press has also taken up the battle. They are quick to air any problems and any needs, of which there are plenty. But they are constructive, too. An excellent article appeared recently in The Ghanaian Times headed "Wanted—Public Morality". It said "There has been a tendency to apportion blames of the past to political systems ... but there was the inescapable fact that the root cause was the human beings themselves". And it went on to show what ordinary people can do if they decide to be honest and unselfish.

This is Ghana's greatest hope. If the people will take on the battle for the nation's character, Ghana will have an answer not only for herself but for all Africa and beyond.



THAT'S THE RUB

GEORGE GALLAGHER-DAGGITT,
RUTHERFORD LABORATORY

Leisure pastimes come in various sizes, and if stamp collecting is among the more compact then surely the collecting of brass rubbings must surely be the most expansive. For example, the brass shown here depicting Sir John de Creke and his lady is five feet long, and that of Sir Ralph de Varney and his wife would occupy from floor to ceiling of a modern house. However, this should not deter the would-be collector, for there are no less than 4000 figure brasses in England alone, and many of these are of more manageable size. The author prefers to reproduce them to a smaller scale on textile material or paper so that they can be used as wall decoration.

Brasses are a type of memorial dating from the early 13th century. They take the form of a brass plate upon which is engraved the figure of the person whom they commemorate. Nowhere else are the costume and armour of medieval times better displayed. Examples exist representing priests, bishops, scholars, knights, merchants, soldiers, and civilians. The feet of knights stand on proud lions symbolic of their prowess in battle, or upon hunting hounds symbolic of their prowess in the field, while at the feet of their ladies sit playful puppies symbolising the gentleness and domesticity of the medieval home. Large families were not unusual and are often depicted; no less than 25 children in one case. The merchants of Cirencester, Northleach and Chipping Camden who made their fortunes in the prosperous wool trade are depicted with feet astride either sheep or packs of wool, symbolic of the source of their wealth, while a tailor is shown with a pair of scissors at his feet.

Through brasses it is possible to study the development of armour from the chain mail to plate. Early armour was exclusively chain mail, and was gradually replaced by plate first in the most vulnerable parts which did not stand up to the strain of battle. Finally, by the 17th century, the armour was almost exclusively plate and was so elaborate that it was seldom worn except for ceremonial purposes. ►



Thomas Garrard and his wife Anne Tuff
Lambourn, Berkshire



John Feld Jr.
Standon, Herts.



John London
New College
Oxford c.1508



John Scolfyld and Jane Court
Brightwell, Berkshire c.1507



John Churchmond
Little Wittenham
Berks. c.1433



Sir Hugh Hastings
Elsing, Norfolk c.1347



Anthony Ffetyplace Esq.
Swinbrook, Oxon. c.1310



Sir John de Cobham
Cobham, Kent c.1365



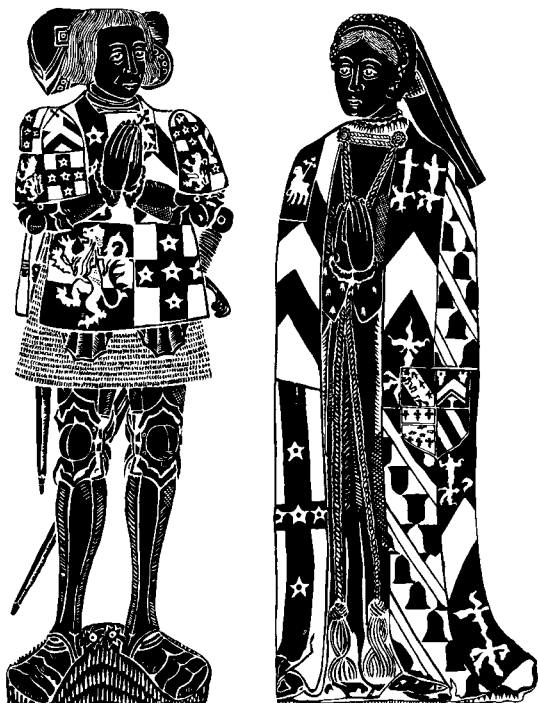
Magarete Francis and Magarete Bernard
Isleham, Cambs. c.1250



John Croston and one of his two wives
Swinbrook, Oxon. c.1430



Thomas Chaucer and his wife Matilda
Ewelme, Oxon.



Sir Ralph Varney and his wife
Aldbury, Herts. c.1547



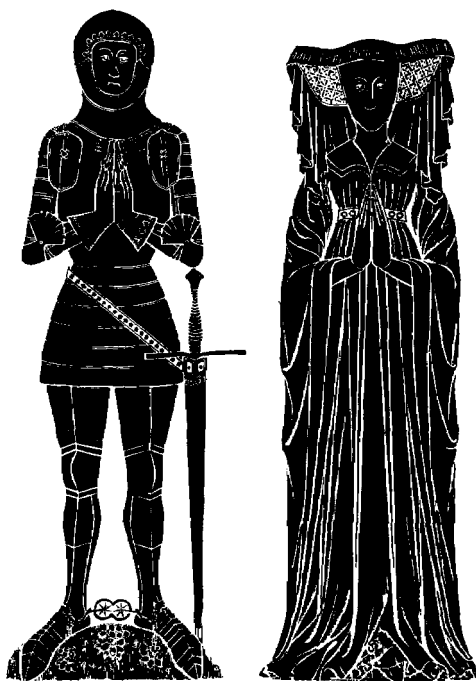
Sir Robert de Bures
Acton, Suffolk c.1302



Sir Miles de Stapleton and his wife Joan
A brass once at Ingham, Norfolk c.1364



Sir John de Creke and his wife
Westley Waterless, Cambridgeshire c.1365



Thomas Quartermaine and his wife Catherine
Thame, Oxon. c.1340



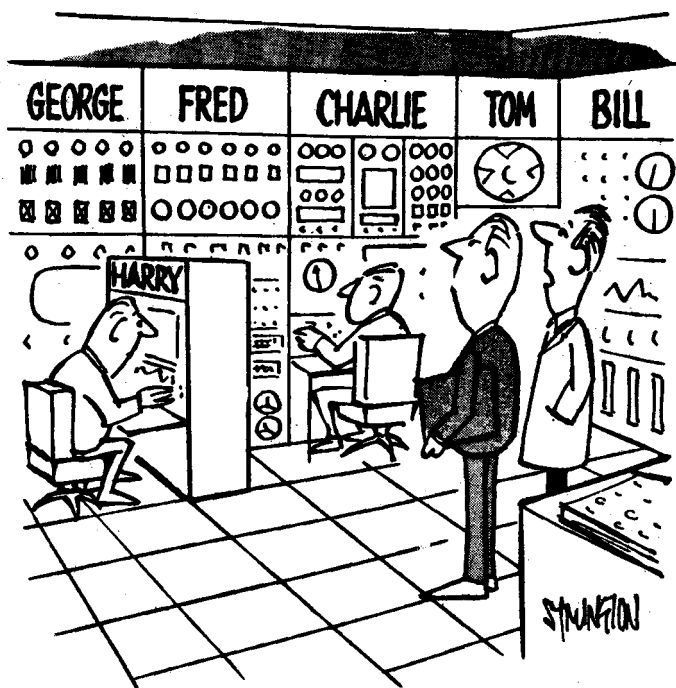
Sir Robert de Setvans
Chartham, Kent c.1306

Richard Fowler
Thame, Oxon. c.1478

The craft of brass incision was of Flemish origin, and the earliest examples to be found in Britain were imported. Regional centres with their own distinctive styles were soon established in London, York and Coventry and the craft flourished as nowhere else in Europe. In contrast with Europe, the brasses in Britain were commissioned by citizens of modest means, a fact which probably accounts for their abundance.

The collector of brass rubbings, like his stamp-collecting counterpart, locates his quarry through the medium of a catalogue; but here is where the similarity ends, for his search leads not to auction rooms but to a peaceful parish church where, concealed by a protective floor-covering, his quarry lies. He must however restrain his enthusiasm until he has sought leave of the vicar and paid the modest fee which is usually required. Then armed with a sheet of ceiling lining paper, some adhesive tape, cobblers heelball and a brush to sweep clean the surface of the brass, he can set forth to make a rubbing.

The paper is placed over the brass, the adhesive tape is used to prevent it from moving while rubbing is being made, and the heelball is rubbed gently over the surface of the paper until a uniform image is obtained of an exquisite piece of medieval craftsmanship which, the collector begins to feel, is part of his great heritage. ★



**'WE'RE DOING OUR UTMOST TO HUMANISE
OUR OPERATIONS'**

THE JUMBLE SALE

MRS V. M. KIRK

How many people, since they came to work at A.E.R.E., have been initiated into the mystery, delight and hard work of these village institutions.

No doubt a great many will have given a slight shudder and felt it was "not quite nice" ... almost as undignified to get mixed up in one as to visit a pawnbroker or secondhand clothing store!

Well, at least that was at the start of our life in a village. Come on, be honest, it wasn't really so bad when, prevailed on by our offspring to assist in Scout or Guide fund-raising, we reluctantly sorted out a few White Elephants. It was an easy way to get rid of that old easy chair, which was "really too good to burn", and it was for a Good Cause. So along we went, one Saturday morning, with our trophy tied securely to the roof-rack of the family car. Funny thing! When we got there we encountered a number of our colleagues on a similar mission. The pile mounted in the hall: innumerable items of clothing and the inevitable outdated and outgrown shoes. These gave off a slightly musty smell from long storage, but we ignored this in the general bustle and talk which went on. By this time the heady wine of pre-Jumble Sale was working. Yes, we admitted we could spare a couple of hours to man the plant stall. After all, weren't Mr. X and his wife doing their bit, and he a senior officer, his wife on the Parish Council? So, we were hooked: at 1.30 sharp we arrived and struggled through the chattering crowd that was already assembled and waiting for the door to open at 2 o'clock.

The urn was boosted so that the innumerable cups of tea, a must at any Jumble Sale, would be ready on time.

Then came hurried discussions on the pricing of difficult items. Nobody quite knew what the yellow knitted object was, but it had been made by the old lady who lived at the vicarage. It must not be too cheap, or she'd be hurt at the small

value put on her hours of labour; on the other hand, priced too highly it would not sell, in which case she would be equally hurt. Well, let's compromise, a fairly high price on the ticket, with a discreet reduction when somebody showed interest.

Now a lady had arrived with the iced cake, Guess The Weight at 3d. per ticket, followed closely by a lady with a dressed doll for guessing her name. Secretly you think it must be impossible to guess, with the number of names to choose from; but its donor has an envelope which will be opened at the end of the sale: she explains that if the name is not correctly guessed a dutch auction will be held to dispose of the doll. An admirable way to get money twice, and it is all for a Good Cause. By now a couple have settled at a table by the door with several tin lids of small change. Almost 2 o'clock. Are you ready? Today there is no official opening with guest visitor, so it will be a wild charge with no holds barred. The doors open and the room fills rapidly. The experienced "jumlbers" are already systematically rooting through the piled tables, collecting arms full of "bargains". There are others who make straight for the preserves and home-made cakes; these always sell very well. Come on, wake up! There are hands collecting your plants in all directions; coins are thrust at you, 6d., 1/-, coppers by the handful. You almost lose track of what there is to charge for in the stampede. Well, no matter, the money is pouring in, and almost all jumlbers are good-natured and honest. Unfortunately, there are the odd ones who go to pilfer, and at such cheap prices you wonder why. You only hope their gains are doing them or somebody some good. Never have two hours gone so quickly. The tea drinkers are satisfied, the raffles drawn and prizes awarded. Gradually the hall empties and things quieten down. The helpers tot up their



takings while having a cup of tea. The grand total is £24.13.9d., a most satisfactory figure. Allow £3 for hire of hall, and pay for the tea and milk. Still a nice, clear £20, and in the bargain a good time has been had by all. True, the helpers are all pretty tired, and the remains must still be sorted. The best will go to the next jumble sale in the village. Rags will fetch a few more shillings, as will magazines. So off with a will to sort, bundle and box amidst friendly chatter. Stack the trestles,

sweep up, and home we go. Next sale no doubt a lot of the things will be back again. That's the way it goes, but who cares—it's a sociable way to make funds. For those of you who are not already dedicated to this weekend village sport, I say, give it a try—you don't know what you're missing. Who knows, like me, you may even enjoy it!

A range of new services for industry is now available from Harwell based on expertise, developed for the atomic energy programme,

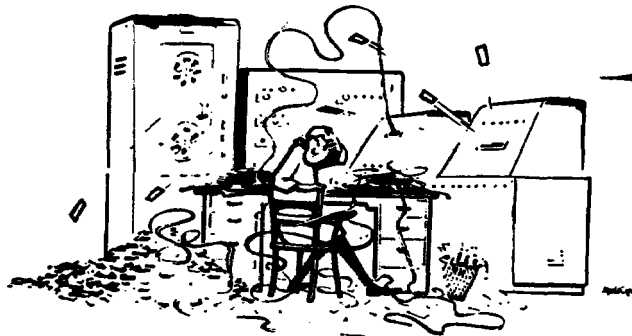
Harwell computer services

1956



100 Channel
Analyser

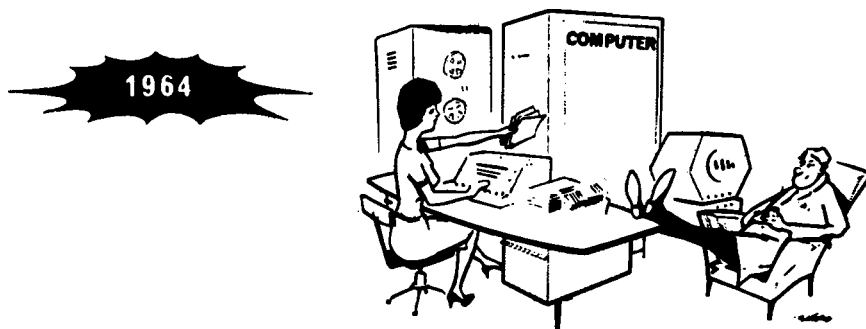
1960



Multi-thousand Channel
Magnetic Tape Analyser

Harwell is one of the leading scientific users of both large and small computers. The main computer complex alone consists of a large IBM 360 Model 75 multiplexed to over 200 typewriter terminals via satellite computers and multiplexers.

The experience of designing, operating and improving the system as a whole and of applying sophisticated computer methods to solving scientific and technological problems effectively and cheaply provides the expertise on which the services are based.



Service work for industry in any or all of these fields is done on a strictly confidential basis through direct contacts, development agreements, or consultancy arrangements which are adapted flexibly to meet the needs of the customer.

In a typical case an initial enquiry — by telephone or letter — might be followed by an initial discussion, arranged free of charge, to discuss the problem and to identify possible ways in which Harwell could help. This might be followed by a brief preliminary investigation by agreement on the basis of which proposals for a complete study might be made. Charges are made at standard commercial rates and systems analysis work is normally done on a consultancy basis.



DO YOU OWN YOUR HOME ?

**Allow us to show you
the way to easier
home ownership
instead of paying rent**

We can also as INCORPORATED LIFE ASSURANCE BROKERS advise you on the selection of your MORTGAGE, LIFE ASSURANCE, UNIT TRUST or BUILDING SOCIETY SAVINGS.

MOTOR INSURANCE On the first Monday of each month Mr. W. D. Reid, Manager of the C.S.M.A. Motor Dept., will be with Mr. Berry at **A.E.R.E., Harwell**, Appointments should be made through Ext. 3224

MAXIMUM LOANS AVAILABLE

Mr. J. W. BERRY, the Reading Branch Manager, visits the site most Mondays and appointments for discussion of your Mortgage, Savings or Life Assurance problem, may be made through your General Admin., Extension 3224 or by telephoning **Reading 53459**.

U.K.A.E.A. Establishments should contact our Branches as follows:

ALDERMASTON, AMERSHAM, CULHAM,
HARWELL, RUTHERFORD, WANTAGE, ETC.:

CAPENHURST:

LONDON OFFICE:

RISLEY, SPRINGFIELDS, WINDSCALE:

WINFRITH:

35 Station Road, Reading, Berks.

Phone: Reading (0734) 53459.

19/19a Oriol Chambers, Water Street,
Liverpool, 2. Phone: 051 227 3601

3 New London Street, E.C.3.
Phone: 01-709 0555

Croxley House, 14, Lloyd Street,
Manchester, 2.
Phone: 061-228-1901.

Kingsland House, Hinton Road,
Bournemouth, Hants. Phone: 0202 20428/9.

OTHER BRANCH OFFICES AT:

Bath, Glasgow, and Leeds

NF NORMAN FRIZZELL
(LIFE AND PENSIONS) LTD. 3 NEW LONDON STREET, E.C.3. 01-709 0555



The central computer installation at Harwell, which serves over 800 users and has over 200 typewriter terminals distributed round the site.

The optimisation of factory scheduling to achieve desired throughputs to a strict delivery timetable at minimum cost is one example of a range of industrial problems that can be solved by mathematical methods.

A technique to solve these and allied problems has been developed at Harwell and used to solve a number of industrial scheduling and optimisation problems for particular firms. For example, the production schedules of a Wiggins Teape Ltd. paper mill were examined and the allocation of products to machines and the determination of the working sequence were optimised. This minimised the total costs including set-up costs, stock-holding costs, and penalties due to late deliveries and gave a saving well in excess of the computing costs involved. In the service, Harwell develops the technique to be used to solve the problem faced by a firm, in a form which can be run on the Harwell computing system. This can, if necessary, be converted for running on other computers.



58, Cornmarket Street, Oxford.
16, Bartholomew Street, Newbury.

Tel: 40801
Tel: 761

5, St. Martins Street, Wallingford.
3, Market Place, Banbury.

Tel: 2651
Tel: 3161

A NEW DEVELOPMENT

Within 6 miles of Harwell

GROVELANDS PARK ESTATE, GROVE, WANTAGE

New detached 3 and 4 bedroomed houses

Detached 3 bedroomed bungalows all with full heating and garage.

N.H.B.R.C. Guarantee.

Prices from £5,150

95% Mortgages available

For further details of this development and other properties in North Berkshire & Oxfordshire

2 MARKET PLACE, WANTAGE

Telephone: 3611/2

BB

BUCKELL & BALLARD

Auctioneers

Estate Agents

Surveyors and Valuers

Chandler's

of

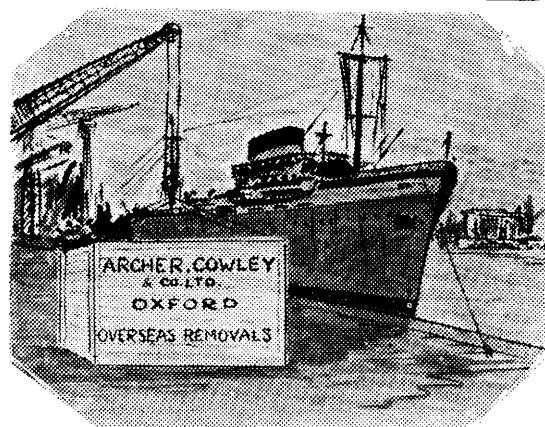
WANTAGE

TRANSPORT SERVICES

- Luxury Coaches for all occasions
- Hire Car Service

Grove Street Garage, Wantage

Phone 3123



Established 1857

OVERSEAS REMOVALS

LOCAL AND LONG DISTANCE REMOVALS

EXTENSIVE, SPECIALLY BUILT
WAREHOUSES for the
STORAGE of FURNITURE

ESTIMATES FREE

Archer, Cowley & Co. Ltd.

36—39 PARK END STREET, OXFORD

Telephone: Oxford 41061/2

Telegrams: "Removers, Oxford"



Members of Harwell's Computer Operations Group. Top l. to r. Mrs. C. Jenkins, J. Gregory, Mrs. D. BurrIDGE; bottom l. to r. A. Jenkins, D. Thomas, L. Pitt.

The facilities offered form part of the wide range of services, research and development available to industry from Harwell in fields as diverse as materials science and technology, applied physics and chemistry, chemical engineering and quality control. Frequently, agreements with clients in these other fields provide also for the development of computer systems and software and all clients are able to make use of the Harwell computer complex — using card or DATEL link input — on standard commercial terms.

Harwell takes special care of data and programmes which belong to clients and a high level of protection is provided for data and other information stored on-line in its computers. Information belonging to clients is protected by proven commercial security safeguards and disclosure to third parties is not permitted without prior written approval.

As a member of the United Kingdom Atomic Energy Authority you are entitled to special reduced terms on all classes of insurance. Are you receiving a high no claims bonus on your motor insurance? **Plus** a discount from normal premium rates and worthwhile discounts for your life assurance requirements and householders' fire policies?

are you taking advantage

of these Special Reduced Insurance Terms?

Full information on these valuable concessions can be obtained, without obligation from

MIDLAND ASSURANCE LIMITED

187 KING'S ROAD, READING, BERKS

Telephone: 50010 & 53734

Assets exceed £47,000,000

Established 1898



MIDLAND ASSURANCE LIMITED

HEAD OFFICE: Midland Assurance Building, Hagley
Road, Birmingham 16. Tel. Edgbaston 4811 (17 lines)

Member of the British Insurance Association.

POST THIS COUPON FOR FURTHER DETAILS

Name

Department/Branch

Address

..... TC 62

Children's Wear

Wool

Haberdashery

•

•

ICKNIELD WAY P.O.

SHOPPING PARADE

AERE HARWELL

•

ROWSTOCK 259

Robin — Hayfield — Ladybird

Kiddicraft.

HOBBS & CHAMBERS F.R.I.C.S.

Chartered Surveyors, Auctioneers & Valuers,
House, Land and Estate Agents

House Agents

for the sale of Town and Country Houses and
Cottages in Berks/Oxon/Wilts and Glos.

Valuers

of Houses and Furniture on sale, purchase and
probate, Compulsory Purchase, Rating and
Capital Gains.

Surveyors

Of Residential Property, Land and Estates on
sale and Purchase

Insurance Agents

for leading Companies on all classes of
Residential, Furniture and Motor Business

Auctioneers

for the sale of Houses, Cottages, Furniture
Farms and Farmstock

Land Agents

for Farm Improvement Schemes,
Farm Accounts,

Stock Taking, Timber and Management

Market Place, Faringdon, Berkshire
(Tel: 2356, 2357 and 3261)

and at Cirencester, Glos., Swindon, Wilts.,
and Carterton, Oxon.

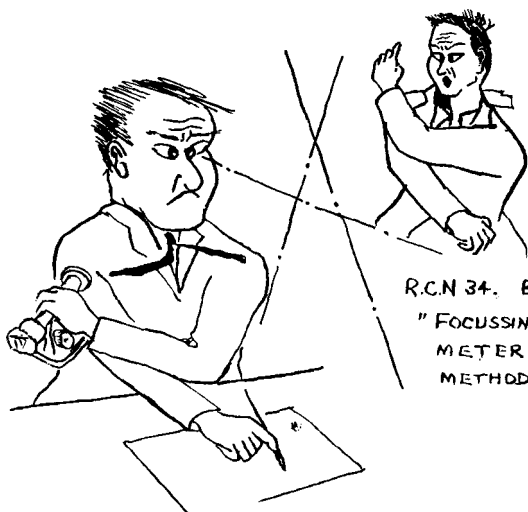
(24 hour telephone answering service on
Cirencester 2562/3)

REPORTING ON REPORTS

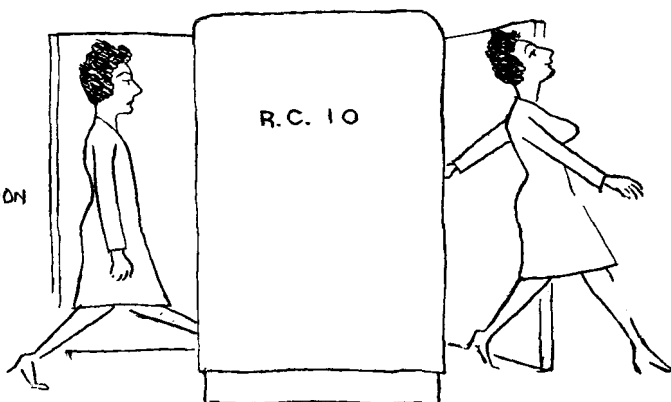
EUR 2113F. by P. SWEEDON & A. FERNANDEZ
"STUDY OF PSYCHOLOGICAL ATTITUDES OF
NUCLEAR WORKERS TOWARDS RADIOACTIVITY
RISK".



R.C.N 34. By J. BERGSINA & C. VAN DIJK.
"FOCUSING OF A TRIPLE AXIS NEUTRON SPECTRO-
METER WITH THE AID OF A GRAPHICAL
METHOD".



AEEW N150B by A. GOODINGS
"RESULTS OF THE R.C. 10 IONISATION
CHAMBER DEVELOPMENT".



EUR 2286F. by J.L. COLLIN & A. HUBAUX.
"DETERMINATION OF Al, Al₂O₃, Fe, Si, Zn, C, in SAP
POWDERS COMPARISON BETWEEN LABORATORIES".



OUR VITAL STATISTICS

Into the 70's

Ten years ago this Society was only 72nd in size. Despite tremendous growth within the whole movement the Society is now 22nd largest, some measure of our exceptional growth rate. In the early 1970's it is confidently expected our assets will exceed 70 million.

If you wish to benefit from a better than average investment or would like further information please write, telephone or call.

SOUTH OF ENGLAND BUILDING SOCIETY

**1a High Street, Abingdon.
Telephone Abingdon 528**

Have you time -

to enjoy your garden as well as to dig, hoe, rake and sow, clip, prune, cut and spray, stake, tie in, mow and roll?

Tick the appropriate reply

1. Yes 2. No. 3. Hardly 4. I hate it.
5. Unprintable

and take the appropriate action

1. Tell us the secret. 2. Instal care-free shrubs and mow-free paving. 3. Eliminate the major chores by mechanisation and replanning your planting. 4. Move to a flat. 5. Impossible.

In any case, joy oh! joy

LANGFORDS

GARDENERS CENTRE

Stert Street, ABINGDON

can help with carefree trees, shrubs, paving, tools, fencing and all the best ideas on how to make it and take it easier in the garden:

Here's your big chance to get a loan without security now!

Here at last, is the Personal Loan Service you've been looking for. It's a service that offers you from £200 to £1,000 **without** security. And you can spread your repayments over one to four years. Below we've listed a number of valuable ways you can use your loan.

Home Improvements; Loft Conversions; Holiday; Extensions; Supply and Erection of Garages; Central Heating; Swimming Pools; Sauna Baths; Tennis Courts; External or Internal Decorations; School Fees; Fitted Wardrobes; Fitted Bathrooms; Re-wiring; Double-Glazing; Landscape Gardening. Or perhaps some other purchase or expenditure? Fill in the coupon now for your free brochure.

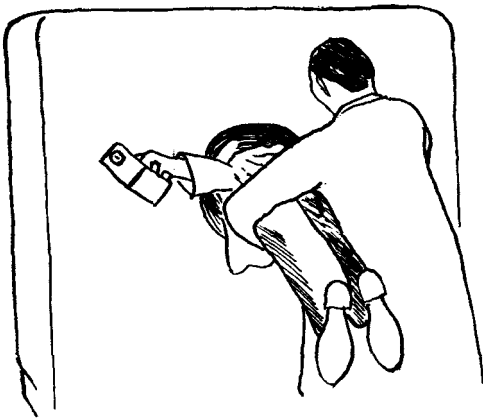
**To: Financings Limited,
200 Kings Road,
Reading, Berkshire,**

Reading 52471

Please send me a copy of your free Personal Loan Brochure.

Name

Address



AEEC 2245. by A.R. JONES

"PUSH - THROUGH CONTAMINATED
CLOTHING MONITOR".

CETR 2 (SUPPL.) U.S.A.E.C.

"SUPPLEMENT TO FINAL HAZARDS SUMMARY
REPORT FOR CONSOLIDATED EDISON INDIAN
POINT REACTOR".

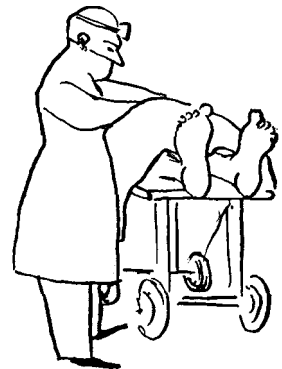


S.C. RR 65 137 SANDIA CORP.

"PROCEDURE FOR THE ANALYSIS OF SEMICONDUCTOR
FAILURES".

DPR 2A COMMONWEALTH EDISON CO.

"AMENDMENT OF APPENDIX A DPR 2 TO PERMIT
OPERATION WITH TYPE III-F FUEL".



H.S.



"THE KNOWL"
ABINGDON, BERKS.

The
headquarters of the old-established
INSURANCE BROKING FIRM of
POPE & CO: (Insurance) Ltd.—
a business set in the very heart of
England, with its finger on the
pulse of the London insurance
market.

The avoidance of accidents and of the anxiety which they bring is a Combined Operation in which you and we both have a part to play — you, by driving carefully and avoiding unnecessary risks: we, by the skilful arrangement of your insurances and the exercise of painstaking care should claims arise.

We have specialised in Motor Insurance since the pioneer days and the benefit of our experience in this field is freely at the disposal of our client.

"Across The Channel & Beyond"

LUXURY COACH TOURS OF EUROPE

*Starting Didcot, Abingdon, Oxford, Wallingford
you travel all the way in the same luxury coach*

NO OVERNIGHT COACH TRAVEL

HAPPY WANDERER EUROPEAN TOURS

LOWER BROADWAY, DIDCOT, BERKS.

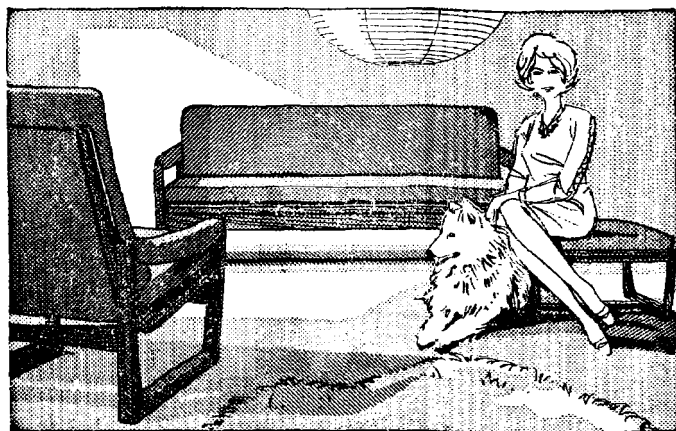
Telephone 2357 and 4657

(Brochures on Request)



'HERE, WE WORK AS A TEAM'

For Good Modern Furniture



☆
A.E.R.E. Employees
Please enquire for
Special Discount Terms
☆

We have lots to offer

VINEYS of ABINGDON LTD

15 OCK STREET Tel. 1068

NAMES TO NOTE— THEY SUPPLY A.E.R.E.

WALL CAVITY INSULATION

Your Heating Bill reduced considerably by OUR FOAM. Installed in one day from outside—NO MESS—NO FUSS. Low cost—High fuel savings—Quotations Free. Quality and Service Guaranteed.

'U' value of external walls without Insulation = 0.30.

'U' value of external walls after Insulation = 0.07.

**Special Reductions to
A.E.R.E. Personnel.**

**23A, Kiln Road, Shaw Newbury.
Tel. Newbury 4714**

ARE YOU
BUILDING
EXTENDING
DECORATING
OR MODERNISING
YOUR HOME?

THEN CONTACT US

**THOS. H. FIDLER & CO. LTD.
18, HAMBRIDGE RD.
NEWBURY. TEL. 4898.**

**WE CAN SUPPLY
& ERECT**

**JOINERY MANUFACTURERS
MERCHANTS**

PROTOTYPE MACHINING CAPACITY

FOR FULL INFORMATION
RING BRACKNELL 24343. OR WRITE TO
P. A. YOUELL, SALES DIRECTOR

**BRACKNELL ENGINEERING CO., LTD.
Market St., Bracknell, Berks., RG.12.4EZ.**

"The technical skill and experience we have at our disposal is of the highest standard and no item will prove too difficult if within our machining capacity"

READ & PARTNERS LTD.

**ELECTRICAL ENGINEERS
and
CONTRACTORS**

*At A.E.R.E., Harwell
continuously since 1946*

**READELEC HOUSE,
59 BERMONDSEY STREET,
LONDON S.E. 1.**

Telephone 01 407 5332

Site Office
A.E.R.E., HARWELL, BERKS
Telephone: Rowstock 357

Sadla-VacHIGH VACUUM
EQUIPMENT**"QUIK-VAC" Coupling System**

VACUUM TIGHT

better than 10^{-5} litre Torr/sec.

PRESSURE TIGHT

better than 100 lbs. sq. in.

NO

BRAZING

NO
SOLDERINGNO
SWAGINGNO
WELDING*A completely rigid mechanical joint . . .
accomplished in seconds . . . WITHOUT TOOLS**Write now for
our Catalogue***SADLA-VAC****MERCURY WORKS, 27 WINDSOR BRIDGE,****SALFORD 5, LANCs.**

Telephone 061-736 3820

**H. G. MILLETT
& CO. LTD.**ELECTRICAL
MECHANICAL
AND
ELECTRONIC ENGINEERS18, MANNINGS HEATH ROAD,
POOLE, DORSET.**W.D.M. LIMITED BRISTOL
HIGH VACUUM MODULAR PUMPS**

Before buying your next Rotary Vacuum Pump CONSIDER THE ADVANTAGES OF THE NEW W.D.M. MODULAR VACUUM PUMP. A standard Module covers the pumps 12M 3/Hr to 144M 3/Hr range. Each Module is simply adapted to convert, externally, for single or double stage pumping. The pumping module is so versatile that forty five different useful pumping variations could be made from a range of five pumps. Add to these features the additional advantages of: —

ANTI SUCK BACK DEVICE

GAS BALLAST ON ALL PUMPS

FAST PUMPING SPEEDS

DIRECT DRIVE THROUGH A STANDARD GEARED UNIT

NO SHAFT SEALS TO VACUUM

SILENT

Contact: —

W.D.M. Limited.

Technical Sales Dept., Vacuum Equipment Division,

Western Works,

Staple Hill,

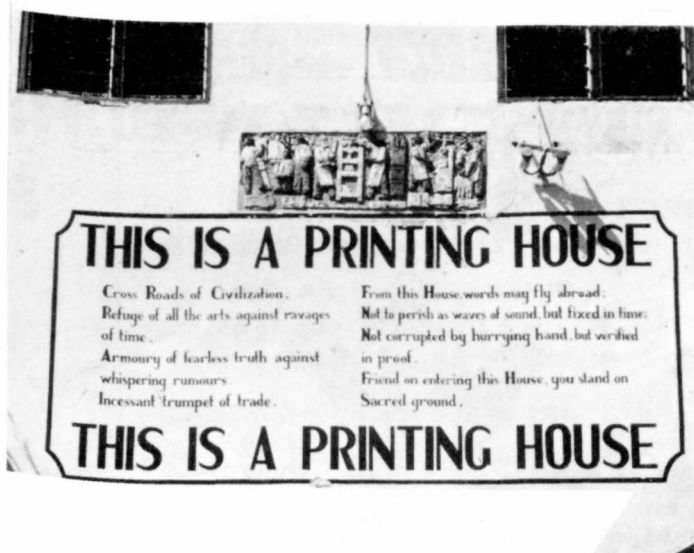
Bristol. BS 16 4NX

Tel: 656141

Telex: 44708

Inscription over the entrance to the offices of the Kumasi daily paper, "The Pioneer".

"HARLEQUIN", 1,05B, Bld. 77,
A.E.R.E., HARWELL, BERKS.



THIS IS A PRINTING HOUSE

Cross Roads of Civilization.
Refuge of all the arts against ravages
of time.
Armoury of fearless truth against
whispering rumours.
Incessant trumpet of trade.

From this House words may fly abroad:
Not to perish as waves of sound, but fixed in time;
Not corrupted by hurrying hand, but verified
in proof.
Friend on entering this House, you stand on
Sacred ground.

THIS IS A PRINTING HOUSE

You are warmly invited to a special first exhibition of **THE NEW M.L. CHILLER**

at The Bloomsbury Centre London W.C.2.
November 26th and 27th

Buffet refreshments

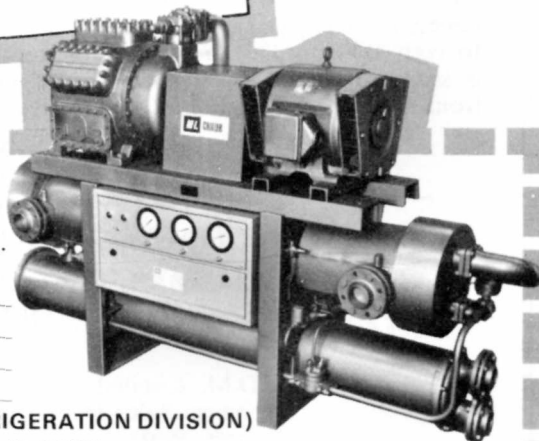
- Hot gas injection as a standard extra; for capacity control down to 10% or as an additional protection against freezing up.
- Economical operation, easy maintenance.
- Open drive compressor with British motor.
- No burn outs, or contamination of the System.
- First class after sales service.
- BRITISH BUILT

Send this off for tickets

Please send.....ticket(s) for Nov. 26, 27.
tick as required

Name _____
Company _____
Address _____

To: **M.L. INDUSTRIAL PRODUCTS LTD. (REFRIGERATION DIVISION)**
292 Leigh Road, Trading Estate, Slough, Bucks. Tel: SL 23838.



REWARD

PROFESSIONAL, UNBIASSED ADVICE, SERVICE WITH A SMILE, IN A CONGENIAL ATMOSPHERE OFFERED TO ANYONE BOOKING THEIR SUMMER OR WINTER PACKAGE HOLIDAYS — AIRLINE RESERVATIONS — CONTINENTAL CAR AND PASSENGER FERRY TICKETS — COACH TICKETS — CONTINENTAL AND LOCAL RAIL TICKETS AND RESERVATIONS — HOLIDAY INSURANCE — FOREIGN CURRENCY AND TRAVELLERS CHEQUES — CONTINENTAL AND LOCAL CAR HIRE — AND ALL YOUR TRAVEL QUERIES.

Abingdon Travel Agency Ltd.

24 STERT STREET, ABINGDON TELEPHONE ABINGDON 138 OR 4992

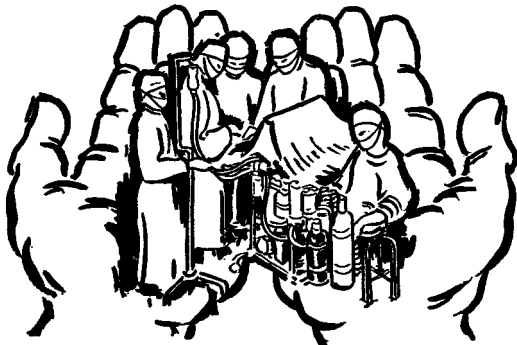


*For all your insurance needs
call in the man from the*

Prudential

THE PRUDENTIAL ASSURANCE CO LTD 142 HOLBORN BARS LONDON EC1

A LIFE IN YOUR HANDS



**ARE YOU FIT AND
BETWEEN 18-65?
WHY NOT SHARE
YOUR GOOD
FORTUNE WITH
SOMEONE ELSE**

PLEASE BE A BLOOD DONOR

Anyone, at any time, as a result of accident or illness, may be in need of a blood transfusion.

If someone in your house suddenly needed blood you would not hesitate to give some of yours—BUT IT MIGHT BE TOO LATE. There would be a delay while your blood was taken and grouped and it might not be the same group as that required, it might not be enough. Frequently three or more bottles are needed for one transfusion.

Thanks to the thousands of voluntary blood donors, there is always blood available for these emergencies; but the ways in which blood can be used to save life are increasing, so more and more donors are always needed. This year, in this region alone, we must have an additional 12,000 new donors to keep our BLOOD TRANSFUSION SERVICE operating.

**mobile collecting teams make
regular visits to —
the A.E.R.E., Harwell,
the Culham Laboratory,
the Rutherford Laboratory.**

**Please apply to your d.a.o. office for
an appointment as soon as dates are
announced in A.E.R.E. News, and
Posters.**



issued by Peter Collins, Administrator, Regional Transfusion Centre,
Churchill Hospital, Oxford, OX3 7LJ
Tel. Oxford 65711