

## Policy for Science

The three main political parties were invited to make a pre-election statement on their 'Policy for Science.' Comment was specifically requested on the Trend Report and on the policy for pure science. The three contributions took longer than anticipated to arrive, understandably in the pre-election phase, and the September ORBIT has been held back to include them. To speed the reproduction, they are presented here in the order in which they arrived on the Editor's desk.

### Labour's Plans for Science

by Richard Crossman  
(Labour spokesman on Science)

In recent years the Labour Party has put great emphasis on the need for a positive and rational Government science policy. As we see it the Government has two major responsibilities :

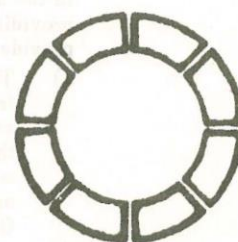
- a) It must develop and support a thriving science and technology ; without this our economy will not achieve the sustained growth which is so vital.
- b) Basic science must receive much greater support - both for its own sake and because it has such an important bearing on future technology.

If these two aims are to be fulfilled we shall need to evolve new Government machinery for science ; particularly needed is a new initiative in the organisation of civil science. Twelve months ago, of course, a Government Committee under Sir Burke Trend produced its recommendations on this very subject. Recommendations which the Government has now decided substantially to accept.

Labour is not satisfied that these proposals go far enough ; particularly on the industrial side. Instead we shall give priority to the establishment of a new fully-fledged Ministry of Technology to put more drive behind the industrial application of science. One way in which this will be done is by using research and development contracts, so long a feature of the business of obtaining military equipment, more widely in the civil field.

Journal  
of the

Rutherford  
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Laboratory



## LABOUR'S PLANS FOR SCIENCE - continued

But the next Labour Government will not just be concerned with increasing total spending in the field of science. There are imbalances which must, in the process of expansion be adjusted.

One fact widely canvassed, for instance, is that as a nation we now spend about £700 m. a year on Research and Development. This represents 2.8 per cent of the gross national product and seems, by international comparison, a respectable total. Unfortunately it masks the fact that some very important industries obtain only a minute share of the money. Iron and Steel, for example, invests less than £6 m. a year in research and the whole of the construction industry gets by with a paltry £1.2 m.

Further, it hides the lack of support for basic research. At the last count only 11 per cent of total research spending was devoted to this end, and the bulk of it came from Government funds. In fact only 3 per cent of the money spent on research in private industry went on basic research. Much of the imbalance of course is caused by the present outlay for defence research. The bulk of research and development spending today is concentrated on development - much of it, as we now know, expensive and not very successful - for the aircraft and electronics industries.

One of the main tasks of the Labour Government would be to get this balance right. In order to do so, we shall need first a fresh and objective appraisal both of the state of our research institutions and of the needs of industry. For this purpose, it will be necessary to revive that collaboration between Whitehall and the temporary civil servant which was such a successful feature of our war-time planning. For months, a group of scientists and economists friendly to the Labour Party have been working out plans for ensuring that scientific research and outside expertise are available at every level, both in our new Ministries of Technology and Economic Planning and in the older Ministries concerned.

The scientist must get used to the idea of spending two or three years of his working life on a Civil Science Board in Whitehall or on the University Grants Committee if we are to have either a balanced scientific budget or effective collaboration between civil and military research.

Our aim will be to persuade private industry that investment in basic research is vitally important. But the Government must set an example. We shall therefore support to the full, work carried out in Government research establishments and in the universities. In the latter field, research spending will be particularly important if we are, in a period of rapidly expanding student numbers, to maintain research standards.

The widely published emigration of scientists was, to us, a danger signal that things are not well. We have therefore pledged ourselves to take emergency action in this field. We shall deal immediately with the crisis in university research, by providing the necessary funds for equipment, etc. Our plans will then come into operation, as outlined in "Labour and the Scientific Revolution", throughout the whole field of industry and Government.

## **Science and Technology**

### **The Liberal View**

The Liberal Party, recognising the crucial place of science and technology in a modern industrial society, urges the Government to adopt a comprehensive policy for the greater development and application of the scientific and engineering resources of this country. It believes that within this policy, the highest priority should be given to expanding pure research in the universities, independent of detailed Government direction, as the only method of providing an adequate supply of original scientists. In particular such a policy should provide for :-

- a) The establishment of a real Ministry of Science headed by a Minister of Cabinet rank, free of other responsibilities, adequately staffed with people of scientific training and experience, and with power to co-ordinate research and development. The Minister, through an expanded and reformed Research Council, the National Research and Development Council, should control greatly increased funds for the support of research in universities, which should be given longer term security of financial support, and in Government establishments.
- b) Better control of the work of the research establishments wholly maintained or partly supported by Government funds, including the Research Associations.

## SCIENCE AND TECHNOLOGY - THE LIBERAL VIEW - continued

- c) Closer co-operation between industrial and Government research establishments and the universities.
- d) Tax incentives and other means of stimulating private industry to spend a far higher proportion of its own resources on research and development and on the training of technologists and technicians.
- e) The resolving of the difficulties facing university departments of science by an increase in the number of senior posts, greater flexibility in the creation of new posts, better financial provision for long-term research projects and a substantial increase in the number and quality of technicians.
- f) The appointment to all advisory committees of the Ministry of Science, and other ministries concerned with research and development, of scientists currently engaged in active research.

## **Policy for Science**

### **The Conservative Party**

In common with Conservative plans generally, our plans for science and technology aim to build on what has already been achieved. We believe it is a good record. In terms of expenditure Britain's total research and development outlay more than doubled between 1955 and 1961, while the share taken by defence fell markedly. For every £1 of Government support for civil science in 1951, there was about £6 last year (to a total of £172 million in all); even allowing for rising costs, this is a formidable increase, equalled in few other fields of Government activity.

In manpower terms, expansion of higher education, including the creation of the Colleges of Advanced Technology, has stepped up by about 2½ times the number of scientists and engineers qualifying annually - enabling the Scientific Manpower Committee to record last year that "the successive targets which we have proposed have been achieved well before the dates expected." Implementation of the Robbins Report will mean a further acceleration.

In terms of organisation, the Atomic Energy Authority has been set up, and the National Institute for Research in Nuclear Science established. The National Research and Development Council's scope has been widened, and the activities of the Department of Scientific and Industrial Research greatly extended. Britain has become a leading member of several important European organisations in the fields of space and nuclear science - including of course CERN. The office of Minister for Science, created in 1959, has now been absorbed in the new office of Secretary of State for Education and Science - reflecting in administration, the vital link between science and the universities of which the NIRNS is a prime example and which is particularly important in pure research generally.

Rapid expansion and the growing cost of an effective effort in many fields, with attendant demands on public money and often a need for national or international co-operation (again, your own work is a notable example) - this is the background to the Trend Report. With a few modifications, we intend to implement its recommendations for strengthening Government organisation for civil science and for improving the means of developing a coherent national scientific policy.

The Secretary of State's responsibilities will be increased. The Advisory Council for Scientific Policy will be replaced by a Council for Scientific Policy with its own staff and secretariat. DSIR will disappear, and the Medical Research Council and the Agricultural Research Council will be joined instead by an Industrial Research and Development Authority, a Natural Environment Research Council and a Science Research Council. This last, primarily concerned with supporting pure and applied research in the universities; will of course take over responsibility for the NIRNS.

We believe these new arrangements will be to the advantage both of pure and applied research generally and of industrial research and development. So far as industry is concerned, on the development and application side of its work, the IRDA will act in consultation with the NRDC - itself to have extended powers and finance, to help it in sponsoring the application of new techniques. Our Manifesto emphasises the importance we attach to the advancement of industrial technology and our view that the system of free competitive enterprise is best suited to provide the necessary flexibility and quick response to new ideas.

As Mr. Hogg said in commissioning NIMROD a few months ago, "the acquisition of knowledge for its own sake is essential to the well-being of a civilised country." Yet pure research, even more than industrial science and technology, needs conditions of freedom and flexibility in which to flourish. In seeking to promote it, we shall aim to see that those conditions continue.

# The Accelerator World

The electron linear accelerator to be used as the injector on Nina, the 4 GeV electron synchrotron at the Daresbury Nuclear Physics Laboratory, has been ordered from M.E.L. Equipment Company Ltd. of London. The injector will feed 500 mA pulses at 40 MeV to the synchrotron ring.

A contract for a linear accelerator to provide electrons or positrons with an energy of 400 MeV has been placed with Varian Associates, USA by the National Research Council, Italy. The 200 feet long accelerator will be installed in the National Frascati Laboratories, Rome.

## Daresbury Hits the Headlines

A thrust boring operation to take a sewage pipe for the Daresbury Nuclear Physics Laboratory under the Bridgewater Canal which forms one of the boundaries to the Laboratory site, came to an abrupt halt on 14 August. The bore was within a few feet of completion when water backed up the drill, flooded the excavations and undermined the canal wall, which soon gave up the struggle and collapsed. The adjacent fields were flooded, railway lines and a nearby village threatened. The main Warrington to Runcorn road was, in parts, nine inches under water. Prompt action by the construction team of the UKAEA, the contractor, canal company and civic authorities prevented serious damage to the surrounding area. Lorries brought tons of sand and soil to fill the excavation. Steel piles were driven in and hundreds of tons of cement used to seal the gap.

Until the incident, the canal bank had only been frequented by those hardy ones who believe in exercise but for a while the canal, with a section emptied to facilitate repair work, was thronged with those working and those watching. An interesting if somewhat grimy exercise was the netting of fish in the sealed off portion of the canal before emptying was completed.

Remedial work was quickly underway and soon the scars left in the process will heal and the whole incident will be relegated to the memory of those who in years to come will be the ancients of the place. Fortunately the incident was a diversion and not a disaster and has not affected any of the important construction target dates.

## NIMROD

A four week shut-down came to an end on 7 September. In Experimental Hall 1, construction of a new beam line named K1, since it will be used to produce the first beam of K mesons at the Laboratory, is well underway. The beam will be used with the 80 centimetre hydrogen bubble chamber on loan from the Saclay Laboratory, France. It is also the first beam to employ electrostatic separators.

A major inspection was carried out on the No.1 motor-alternator-flywheel set of the magnet power supply. Work on the machine itself included alterations to the target mechanisms to fit a new target arm. The linac vacuum lid on the injector was raised for attention to minor defects and the lens system in the d.c. gun was realigned.

When the machine was restarted the injector performance was considerably improved. Beams of 120 milliamp at 600 KeV were recorded at the output

of the d.c. gun and when a 68 milliamp beam was fed to the linac a 15 MeV beam of 30 milliamp was achieved. This is the highest 15 MeV beam ever achieved on the injector. The standard conditions on the injector now supply a 24 milliamp beam to the Nimrod ring compared with 16-20 milliamp before the shutdown.

## PLA

A six week shut-down on the proton linear accelerator began on 27 September. ORBIT will carry information on progress at the PLA and on the shut-down work probably in the November issue. One outstanding achievement has been the number of hours of operation for the nuclear physics experiments since mid October 1963 - well in excess of 5,000 hours.

## $10^{12}$ at CERN

On 29 July the circulating beam intensity in the 28 GeV proton synchrotron reached  $10^{12}$  protons per pulse for the first time. This intensity is a hundred times greater than the design figure.

The neutrino runs scheduled for August were cancelled by the Nuclear Physics Research Committee and it was decided not to schedule any further runs during 1964.

The CERN heavy liquid bubble chamber has been removed from operation for modifications which will more than double its size (to a new volume of 1200 litres).

## British Association Meeting

The British Association for the Advancement of Science met at Southampton at the end of August. A party of fifty people from the Meeting visited the Rutherford Laboratory on 31 August and the visit proved to be one of the most popular organised by the Association.

Professor Powell addressed the Physics Section on 1 September on 'High energy particle physics.' He raised the following points during his talk: 'The vast sums of money being spent on equipment for fundamental research into particle physics, can be justified since they are likely to be an essential element in bringing into being whole new fields of human practice of which at the moment we have no inkling. . . . Particle physics is full of life and vitality and will continue to attract a large fraction of the most gifted of the youth of the world in the economically developed countries who devote themselves to science. . . . In the past year there has been a clear indication that particle physics, in addition to its intrinsic interest, will also be of great importance to another vital branch of science-cosmology. Among some of the radio sources

recently discovered are objects, called quasi-stellars, in which the energy source is approximately equivalent to the rest mass of a million suns. Their rate of energy production is so prodigious that it cannot be due to the kind of nuclear processes which provide the energy liberation in ordinary stellar evolution. It appears that for an understanding of these objects, all the resources of general relativity and the processes encountered in particle physics at the highest energies are needed. . . . Ours is an advancing scientific century and if in the United Kingdom and in Europe we are to make an important contribution to it, we must continue to engage in the most advanced science and techniques. We must encourage the most gifted of our youth to apply themselves to the most difficult, significant and demanding of the sciences. At the present time, that must include the physics of elementary particles. In the long run it is most painful and very expensive to have only a derivative culture and not one's own with all that that implies in independence in thought, self confidence and technical mastery.'

## Letters to the Editor

Pseudonyms are accepted provided the author's name is known to the Editor

Sir,

I think your joke column lets down ORBIT badly. I remember roaring with laughter over the 'typist's error' somewhere around the fourth form at school, and the one about the pencil behind the ear was far better in its original form in an Andy Capp cartoon.

But is this feature either necessary or desirable? I don't observe anything similar in, for example, the CERN Courier, and whilst I would hate to appear stuffy, I must tell you that I for one could very well do without it.

J. HOWLETT.

Sir,

With another term about to begin at Technical College, it seems to me that the pages of ORBIT would be the ideal medium thro' which to organise a tutorial session. In fact, would it not be practical to introduce a "Questions and Answers" page with the emphasis on technical proofs at various levels, e.g. O.N.C. - H.N.C.

I realise, of course, the various "political implications" and the "treading on toes" involved in such a venture but surely if there was enough response, such a scheme would prove worthwhile.

J.G. KERR.

ORBIT tries to inform (about the Laboratory, its work and related topics outside the Laboratory) and to entertain. So far we haven't included 'education' in the sense raised in this letter. It would probably be too big, too detailed and too specialised a job to be competently undertaken by ORBIT.

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Sir,

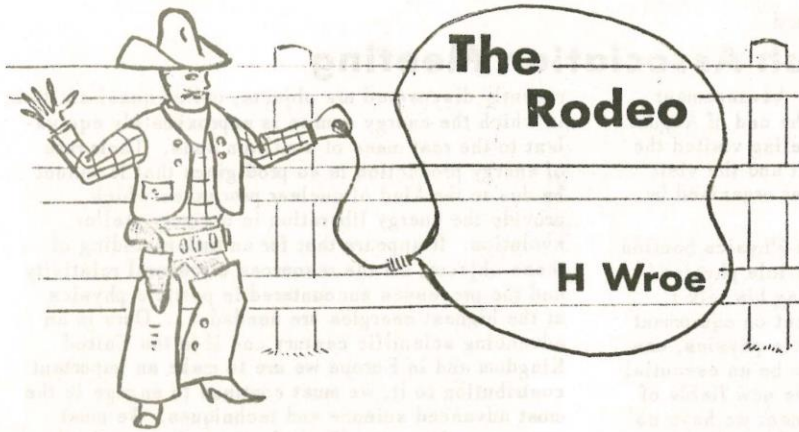
A reply came to the Laboratory from BICC in answer to a request to state a delivery date for 200 yards of 100  $\Omega$  balanced twin feeder cable. It read, "Eight weeks, subject to railway strike in Southern Rhodesia being over."

Cu LATER.

However if the need brought to light in the letter is widespread, we think it should be met within the Laboratory if at all possible. 'Education' is a word frequently used in justifying our work and there are enough trained people in the Laboratory to see that it is well catered for. Is it possible, for example, to organise lunchtime or after hours tutorial sessions? Possibly many people, by personal contact have already organised something for themselves. If people aren't covered we suggest they contact their training officer to see whether anything can be arranged.

What ORBIT might usefully do is to have a question and answer page on Laboratory work; an attempt to answer 'What's a Bubble Chamber?' appeared in the last issue. If people care to write in with similar questions (such as, What are separators used for? Why have polarised targets? etc. . .) we could tackle one or two a month.

EDITOR.



Harold Wroe attended the Linear Accelerator Conference at MURA, Wisconsin, USA, in July. One evening's entertainment was a real, live, all-American rodeo.

The rodeo took place at 8.00 p.m. on a hot evening with the air loaded with horse smells. It was held in a dirt arena, a hundred yards by fifty, surrounded by a double steel wire fence about seven feet high attached to telegraph poles which also supported the arc lights and public address loud speakers. Simple stands for the spectators ran down the long sides of the arena, while one of the short sides was taken up by a row of five small pens or 'chutes' in which the cowboys mount the wild horses before being let out into the arena through a gate at the front. These gates were painted bright red and white and battered by the impact of innumerable hooves.

The proceedings opened with everyone standing to sing the National Anthem, led by Chief John White Eagle - Chief of all the Winnebagos - dressed in traditional costume with the famous feathered head-dress. This was an ironic and, to my mind, very sad spectacle, because the old Indian represented a way of life which has been completely crushed by modern America. His lands have been taken away from him and his culture destroyed and you could almost sense his forefathers turning in their graves.

At the start of the rodeo events, two professional cowboys on highly trained horses took up position in the arena. These are the pick-up men who ride alongside the competitors who manage to survive the eight seconds bone-jarring ride required by the rules and help them to dismount. They also clear the arena of loose horses or steers after each event, the performance of their mounts being a wonderful display of discipline and intelligence.

The first event was bareback bronc riding in which the cowboy has only a single hand hold. Next came saddle bronc riding, for which a light saddle, bridle and stirrups are used - the rodeo's classic event. The horse can do anything it likes in this game but the competitor is bound by a set of frightening rules. To qualify at all, let alone score any points, he must spur the horse high up on the shoulders on its first bound out of the chute.

This act of spurring or 'scratching' must be continued throughout the ride if the cowboy is to make anything like a winning score - which means of course that he can't stay on by gripping the horse with his legs and the experts seem to ride merely by an amazing sense of balance. He can be disqualified for changing hands on the rein, or loosing the rein, or loosing a stirrup, or being thrown off. Needless to say, a man who touches any part of the horse or gear with his free hand (didn't I mention that all the riding is one-handed?) is beneath notice.

The esoteric business of awarding points for each ride is done by two judges who are themselves professional cowboys. It was significant that on this occasion both judges were young men in wheel chairs and legs in plaster. They seem to be a special breed of man, lean, sunburned, tough, very fit and moving as if made out of spring steel. The world champion cowboy is the one who earns most money in rodeos in the season, this usually being around 40,000 dollars, though the risk of injury and sudden death makes it a hard way to earn a living.

Probably the most specialised event is steer roping. The steer shoots out of a pen and the cowboy must lasso it on horseback, leap to the ground, throw it onto its back and tie any three legs with a light rope, the winner being the man doing it in the shortest time. When the steer makes its swerving, jinking run it looks impossible for anybody to lasso it from a galloping horse. Even a specialist can't do much without a good cow pony. These horses are able to follow a steer closely and allow a good shot with the lasso - after a successful shot the pony stops dead and jerks the steer to a standstill. The degree of co-ordination required is so high that competitors rarely enter for the other rodeo events - the risk of injury is too great.

The heavyweight event is steer wrestling or bull dogging. The cowboy has an assistant or 'hazer' for this, who rides alongside the steer to keep it on a good line and enable him to fall on its neck, stop it and throw it to the ground. This is man-sized

## THE RODEO - continued.

stuff because the steer weighs a lot more than the cowboy - and it has horns. One man got his hold on the steer's neck in only a few seconds but was carried the full length of the arena before it gave in and allowed itself to be thrown. Once again, winning times can only be achieved with a first class team of horses and the owners of these, find it profitable to hire them out to other competitors in return for a share in their winnings.

As a hair-raising spectacle, Brahma bull riding takes some beating. These cattle are very quick, though they often weigh almost a ton and have tremendous power. The cowboy hangs on to a single rope passing under the bull's belly and held together only by his own single-handed grip, in addition to which he has to dismount by himself without the help of the pick up men used in other events. If he falls and the bull turns on him, which is as likely as not, the only help he has is from the rodeo clown who tries to distract the bull's attention. In one event both men were chased to the fence and vaulted expertly over it. This got a laugh but the bull wasn't kidding.

For light relief amid this powerful stuff, there were several acts of the circus type, with animals trained to do tricks. This always seems to me to be degrading the animals to some extent, though it's amusing to watch. The rodeo proper must be the only spectacle using animals in which their dignity is fully preserved, in fact the whole show is a triumph for them. The broncos are superbly wild and unbroken, tossing the less competent cowboys up in the air with contemptuous ease - even the man making a high score always looks to be on the point of being thrown off (the qualifying time isn't as low as eight seconds for nothing). The total effect seems an apt symbol for some of the things one admires about America - skill, enthusiasm, toughness, courage. There is a glimpse of that energy and drive which makes the place tick.

Unfortunately the rodeo was presented in such a way as almost to play down the genuine cowboy and to emphasise other aspects of America which are less admirable to an Ancient Briton like myself. This came to a head with the actual personal appearance of a TV cowboy, John Bromfield - the 'Sheriff of Cochise' and U.S. Marshal. His arrival was heralded by a phoney announcement by the commentator who, until that moment, had kept up a constant stream of talk, rising to a crescendo during the actual riding events. ("And next we have Dean Wiley a cowboy capable of winning this event and **HERE WE GO, HAY HAY WO WO. LOOK AT THAT BOY RIDE. WOW SEE THAT BRONC JUMPING THERE . . . .** He's on the ground. He can hear you now" - cue for applause.) This time, he announced

a robbery in town and a police request that roads near the rodeo be kept clear because the robbers were thought to be heading this way. A few seconds later an old jalopy roared into the arena, followed at high speed by 'the Marshal' riding his famous snow white Pontiac station waggon, a vehicle about twenty feet long with automatic transmission, power brakes, power steering, heater, radio, cigar lighter and six rear lights. They slithered round and round with the Marshal making high powered, wheel spinning turns which churned up clouds of brown dust so thick that soon we could hardly see the other side of the arena. Eventually they stopped, jumped out of their cars and blazed away at each other with blanks in their six shooters until the bad man lay dead.

Bromfield then went to a microphone and explained that the bad man was really a local policeman. He said how pleased he was to be there and how much he'd enjoyed staying with the Holmes family (the sponsors of the Madison Rodeo). He was impressed, he said ('and they don't know I'm gonna say this') with the barbecues and the real family life which they had. Then he told 'a few little stories' which consisted of explaining away the fake shootings which occurred on his TV show. Apparently the opening shot always shows his windscreen being shattered by a row of bullet holes and this is done by the effects man shooting celluloid pellets loaded with soot and vaseline. He gave the ingredients of fake blood and explained how men were apparently killed by Indian arrows, ('though this might be a little difficult for you to get'). The victim has a block of soft wood under his shirt with a piece of fine wire attached to it. The effects man has the other end of the wire and, at the appropriate time he flicks a special arrow down the wire on small metal rings. In between these stories he encouraged the children to drink milk, as he did (Bancroft's milk to be exact - Grade A, pasteurised, homogenised and fortified) and got in a plug for the dealer who supplied the Pontiac. Finally he called on God to bless the Holmes family and reminded us ('and they don't want me to say this') that they were, of course, the Holmes Tyre Supply Company. The mountain of scrap tyres visible behind the arena helped us to get the message. Then he jumped on the bonnet of his station waggon and was driven out of the arena. What could his P.R. man have been thinking of?

It seems more than likely that the Marshal will reach British goggle boxes before long, but few will see a real live rodeo. A pity. It's rugged.

An incident recently suffered by a member of the Laboratory which bodes ill for the fast approaching days of the two car family.

## Two Points of View

### His

About three years had elapsed since I gave my wife her last driving lesson and so, on a pleasant evening during August, I decided to give her another - just in case she might get the idea I was being undemocratic about the use of the car. The fact that it was insured for one driver only was due purely to economic reasons.

For safety's sake, we drove to a disused runway on a friend's farm where the only living things likely to be encountered were a few hares and rabbits. I felt that these stood a sporting chance of getting out of the way before being run over.

To begin, I gave a brief technical talk on how everything worked, trying to make things simple and interesting. After about half an hour, my wife looked up from what I thought were her notes to say "This grocery list seems to get longer each week."

It took only a few trial starts in first gear for me to regret bringing the children with us. Our youngest complained, "Why can't Daddy make the car bunny-jump like Mummy does." I thought this rather funny but for some reason it only made my wife annoyed. I pointed out that one must have a sense of humour to be a good driver and drew her attention to a man ahead who had hurriedly put his dog on the lead, as I laughingly put it, "Just for safety's sake." The clutch went in with a vicious bang and some rubber was left on the runway.

After a heated discussion on "Why did you say 'in' when what I was doing was to let the clutch pedal 'out' ". We progressed to changing gear while on the move. Strangely enough this went quite well until I said, "Stop by this tree." There must have been some doubt about which tree, as the sapling I had indicated was soon in a horizontal position and we were sliding with all wheels locked towards a substantial looking oak. We missed the oak and finally came to a halt with the front wheels deep in the mud on the edge of a stagnant pond.

I took a deep breath and with considerable self control suggested that it was time we went home, at which my eldest son said, "Well, we'd better be quick. We're sinking fast."

The walk to the farm to enlist the help of my farmer friend with his tractor took longer than I anticipated and his burst of laughter on seeing our plight did nothing to help matters. We eventually managed to haul the car back on the runway, only tearing off the rear bumper in the process. I drove home, convinced that it would be better if my wife attended a driving school and practised on their car.

### Hers

It must be at least four or five years since my husband gave me a driving lesson and as I found it inconvenient not being able to use the car for shopping, I started dropping hints. After about a week he thought that another driving lesson was his own idea and suggested going to the runway on a friend's farm.

We made rather a bad start as he insisted on giving a long, boring talk on technical trivialities, which I certainly didn't intend to bother with. However, I preferred not to argue and annoy him, so I quietly made out my grocery list.

About an hour later he finished talking and I actually drove the car. I will admit that I did not make the smoothest of starts but the rude remarks about 'bunny-jumps' and gales of laughter from the children and my husband were quite uncalled for. However I refused to be distracted or annoyed even when my husband started lecturing on 'a sense of humour when driving.' You should hear his language when other drivers give a wrong signal or beat him at the traffic lights. Some sense of humour.

Just as I was about to start off for the tenth time my husband distracted my attention by pointing out a man with his dog in the distance, as a result I let the clutch 'in' or 'out' rather less gently than I would have done. Admittedly there was a little bit of a jerk, but it didn't justify his remark about, 'covering the entire runway with a layer of rubber.' There are times when I get North and South mixed up and even occasionally left and right, but I know the difference between 'in' and 'out', which is more than most men do. My husband became almost incoherent when he tried to explain the action of the clutch pedal.

Next, I tried changing gear while moving and this went very well but I did not understand why my husband had one hand on the ignition key and the other on the handbrake most of the time. However, after a while he relaxed and then suddenly barked out; 'Stop!' This came as a bit of a surprise as we were only doing about 30 and there must have been at least 20 feet to the end of the runway. I pressed all the pedals at once and by skilful steering, missed several trees which I am sure were not there a few seconds before and brought the car to a halt near a pleasant little pond. 'Hubby' was quite annoyed, especially when I pointed out that we were not actually in the pond.

It only took a few minutes to fetch our friend with a tractor and to pull the car onto the runway and then we were speeding home.

Next day my husband was actually smiling as he wrote out a cheque for the local driving school, but I did hear him mutter, "Probably the cheapest way in the long run."



# Personnel News

## Suggestion Awards

At the Eighteenth meeting of the Suggestions Committee on Thursday, 30 July, the following awards were made :

£15 to D.A.Hutchings whose proposed modifications to thermostats covers has been successfully adopted with a saving of about 60 man-hours a year.

£5 to A.D.Wood for his proposal to convert the hand operated P.V.C. welding machine to foot operation.

£2 to J.E.Vanstone and M.Athawes for their proposed modifications to transducers in the injector quadrupole power supplies.

£2 to A.Holcroft for his suggestion to construct a multi gas and air jet burner and rotating stand, which was partially adopted .

£2 to A.Holcroft and F.Knott for their proposal to erect a safety barrier for the power guillotine in R 9.

£2 to F.Knott whose proposal to fit a safety collar to the Woden screw jack has been successfully adopted.

£2 to A.Holcroft and D.Baker whose proposal to fit two bar attachments to enable a fork lift truck to move sheets of metal has been adopted with slight modifications.

£2 to J.Crawford and D.Baker whose proposal to fit guards to the horizontal milling machine has been adopted.

Encouragement Awards of £1 were made to D.Baker, T.Morgan and W.J.Bridle.

At the Nineteenth meeting on Thursday, 20 August, the following awards were made :

£3 to B.Sizer and G.E.C.Fry for their proposal to replace the original locating pins of Smit units by ones of their own design. This has been successfully adopted.

£2 to L.Richardson for his proposed carrier for ammonia in Winchester quarts, enabling the entire contents to be used in the Engineers Print Machine.

£1. 10s. 0d. to G.Spink for his suggestion which drew attention to the over-flow scalding hazard from condensation spray in R 34.

£1. 10s. 0d. to P.J.Champ for his proposal to fit "Snap-Lock" pins to film badges.

Encouragement Awards of £1 were made to H.McGrath, A.M.Jackson and A.E.Tucker.

B. BRISCOE, Secretary.

## Comings and Goings

P. G. Dodd, R. G. Youthed, D. J. Bushnell, E. Rudkin and W. Butler join Nimrod Machine Engineering.

Miss P. L. Woodcock and Miss B. Hammond join General Administration.

K. Askey joins Nimrod HEP Engineering ; B. Lowe joins PLA Engineering.

M. S. Dykes and M. R. Barnes join the Bubble Chamber team at CERN.

M. J. Price, G. R. Remond, M. D. Ward (Central Engineering) and Mrs. L. Hall (Bubble Chamber) join as college-based Dip. Tech. students.

K. J. Mc.Kee, W. Spittle, D.J. Smith, Mrs. Rossiter, Mrs. Wilson, R.C.B. Holliday, A. J. Green and M. Russell have left us.

The following college-based Dip. Tech. students have also left us - Mrs. M. Bishop, S. G. Fidler, D. R. Good, J. D. Parker and A. Simpson.

R. L. Conrod, Mrs. J. C. Conrod and J. A. Hartigan have completed their fixed term appointments.

## Record

### Society

Throughout the winter months, the society hope to present programmes every Tuesday at 12.30 p.m. in the Lecture Theatre. The four programmes in October (on 6, 13 20 and 27 October) will be devoted to -

Bach : Ancient and Modern

Delius and Mahler

Modern Jazz : (Charlie Parker, Dizzie Gillespie and Art Tatum)

Piano works : (including Rachmaninoff Concerto No.2)

**SORT THIS ONE OUT -**

**IT IS IMPOSSIBLE FOR THE FASTEST RUNNER EVER TO OVERTAKE THE SLOWEST RUNNER BECAUSE THE FAST RUNNER MUST FIRST REACH THE POINT THE SLOW RUNNER STARTED FROM. BY THIS TIME THE SLOW RUNNER WILL HAVE ADVANCED TO SOME NEW POINT. THE FAST RUNNER MUST THEN REACH THIS POINT. BY THIS TIME . . . . . AND SO ON.**

## Swan Premium

The Institution of Electrical Engineers has awarded the Swan Premium to the authors of the papers, "Magnet Power Supplies for the 7 Ge V proton Synchrotron Nimrod" presented at an Institution meeting on 20 March, 1963.

There were three papers:

Part I - General - P. Bowles, H. Hadley, M.J. Marchbanks, J.J. Wilkins.

Part II - Rotating Machines - J.A. Fox, D. Taylor, R. Wilson.

Part III - Mercury Arc Converters - H. Hödle, K. Rollig.

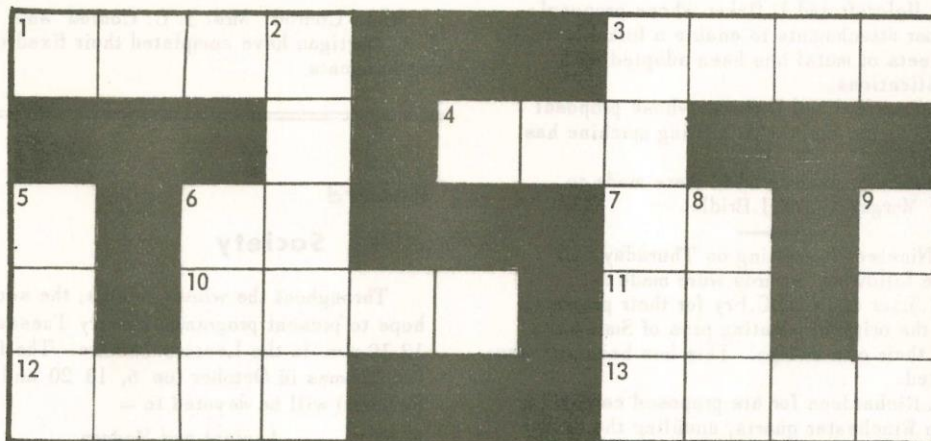
The authors have unanimously agreed to donate the monetary award of the premium to the John Wilkins Memorial Fund.

## ENGINEERS ANNUAL DINNER DANCE

A Dance organised by RHEL, AERE and Culham Laboratory engineers will be held on Friday, 16 October, in the AERE Restaurant.

Tickets, priced 25 shillings, can be obtained from G.E. Simmonds or A.H. Fryer R1, J.C. Louth or G.N. Venn R2, and J.B. Marsh R12.

## Perfect Squares



### Across

- 1: See 3 Across  
 3: 1 Across + 3,440  
 4: 5 Down + 300  
 6: See 9 Down  
 7: See 13 Across  
 12: 10 Across + 2,052  
 13: (7 times the  $\sqrt{\text{of 7 Across}} + 4)^2$

### Down

- 2: See 3 Down  
 3: 2 Down + 29,328  
 5: See 4 Across  
 6: See 9 Down  
 9: 6 Across + 6 Down + 39

All the numbers in the solution are perfect squares and no number begins with zero.

STOP  
PRESS

NIMROD REACHED THE DESIGN INTENSITY OF  $10^{12}$  PARTICLES PER PULSE ON WEDNESDAY 23 SEPTEMBER.