orbit

26th Issue

August 1964

The First Year's Research on Nimrod

G H Stafford

Dr. Stafford, Head of High Energy Physics Division, reviews 'Period 1' of experiments on Nimrod. At present, the machine is shut down while beam lines, especially the K 1 beam line to the Saclay Bubble Chamber, are prepared for the 'Period 2' experiments. Work is also underway on the machine and the Magnet Power Supply. Nimrod will be operating again in September.

I found myself very happy to have been asked by the Editor of ORBIT to write an article commemorating the first year of Nimrod's operation, because it gives me the opportunity to mention and commend particularly the spirit of collaboration that has been developing over the year between the Experimenters and the Nimrod group. Both our own H.E.P. staff and our University visitors are most grateful.

Research in high energy physics is a rewarding and challenging career for a physicist but it differs from nearly all other lines of research in the degree to which success depends upon efficient support from others. The satisfaction that is obtained from the conclusion of a successful experiment cannot be directly shared by the supporting staff but all, I hope, will recognise that they have, in fact, shared in this work of discovery and that if it were not for their efforts, these new discoveries could not have been made. In a busy laboratory, the high energy physicist has little leisure to explain to the non-specialist what it is that he is trying to achieve, but I hope that some of the sense of excitement and the feeling of achievement will rub off on to everybody as time goes by.

Journal of the Rutherford High Energy Laboratory

THE FIRST YEAR'S RESEARCH ON NIMROD - cont'd.

The first sign of this, was the excitement which was evident when the Westfield College/University College collaboration made a search for a new particle called the Z^+. At short notice we rearranged the schedule to fit in a 70 hour run. Everybody collaborated in a magnificent fashion and although the Z^+ was not observed, the fact that it has been possible to place a low limit to the probability of its existence, will in itself prove very important.

We set ourselves a formidable programme of experiments for the first period of operation on Nimrod. No fewer than six beam lines have been installed, seven experiments have already had some running time (albeit very little so far in the case of one) and in all, some 111 physicists are doing experiments. What is more, by the planned August shut-down, five experiments were completed and some were reported at the Dubna Conference. These experiments were selected because they did not place very severe demands on the performance of the machine nor require long hours for data collection. Experiments that are now being planned will place much greater demands on time and performance of the machine and, although we have so far managed reasonably to satisfy demands, it will be vital, if we are to meet our future commitments, to achieve longer spells of running and higher beam intensity as soon as possible.

Throughout the period during which Nimrod was being built, I can recall one of Britain's most distinguished theorists saying to me on several occasions, "What a pity Nimrod isn't working yet, because so many exciting developments are taking place". This was certainly true. It is no less true that research in the field of elementary particle physics is now entering a new phase of exciting activity. This is due to the fact that a pattern of behaviour is unfolding in the relationship between the properties of the many new "particles" and "resonances" which have been discovered during the past few years. These particles appear to fit into families, the characteristics of which can well be described by a mathematical model which goes under the name of Unitary Symmetry.

This theory was proposed independently by Gell-man and Ne'eman in 1961. Extended by Okubo and others, it has had great success in predicting the mass relationship between the particles of a given family (or super multiplet) and in particular, in predicting that there would exist an Ω^- baryon with isopin = 0, hypercharge = −2 and a mass = 1685 MeV which would complete the super multiplet of 10 particles made up of the $N^*_{3/2}$ (1238 MeV) pion nucleon resonance, the Y^*_1 (1385 MeV) resonance and the Ξ^* (1532 MeV) resonance. On this theory it was possible that there could exist another family of 10 baryons (heavy particles) for which two known resonances, the $N^*_{1/2}$ (1510 MeV) and the Y^*_1 (1660 MeV) were possible candidates. If this were so then the Z^+ mentioned above should have existed and the fact that the Westfield College/University College collaboration have not found this particle means that the assignment of the two "resonances" mentioned above to this family is almost certainly incorrect.

In the immediate future much of our work on Nimrod will be devoted to making measurements which will show to what extent the theory of unitary symmetry is valid and to what extent it will need to be modified to fit newly discovered facts. This theory has certainly caused a great stir in recent times and we are fortunate in having Nimrod available so that we in Britain can at last participate in this fascinating research.

Unitary symmetry has provided the first simplification in a situation that for many years had grown more and more complex and baffling. There can be little doubt that there is great significance in this model but equally it would be surprising if we had yet done more than just get a peep at the final deep understanding of this wonderland of elementary particles.

Up to the present, in science, the better one's understanding of a phenomenon has been, so has appeared its essential simplicity. We hope and expect this simplicity to develop in high energy physics but we may be wrong for as someone reminded me recently – "Remember the Almighty is a Theologian and not a Physicist"! In any case Nimrod can be assured of some very good hunting in the immediate future.

Nimrod Birthday Party

On Thursday, 30 July, a hundred thirsty members of the Laboratory gathered about 8.00 p.m. in the Restaurant Coffee Lounge. They were Nimrod machine men, experimenters and others whose relationship to Nimrod was more tenuous, and the purpose of the gathering was to celebrate in traditional fashion the first year of Nimrod's 7 GeV existence.

With the aid of several gallons of beer, one pianist and one double bass player, a swinging evening was had by all. A nucleus consisting of some of the fundamental building blocks of the Laboratory clustered round the piano. Beginning with innocuous renderings of 'Green Grow the Rushes' the repertoire gradually moved to songs less frequently broadcast by the BBC.

The success of the evening gave one more cause for regret that Nimrod didn't come into operation sooner.

Bubble Chambers at the Laboratory

M Snowden

The use of visual techniques for the study of fundamental particle physics started with the cloud chamber some fifty years ago and continues today in the photographic emulsion, the spark chamber, but most valuable of all, the bubble chamber.

Since the discovery by D.A. Glaser in 1952 that a trail of vapour bubbles can be formed along the track of a charged particle traversing a superheated liquid the bubble chamber has advanced from the test tube stage to become a highly engineered and complex assembly of equipment. The Rutherford Laboratory is now involved in work on four bubble chambers all of which merit this latter description.

Dealing with them chronologically the 1.5 metre hydrogen chamber, known as the British National Hydrogen Bubble Chamber (BNHBC), came first in 1959, being supported by a D.S.I.R. grant as a joint University project. After commissioning and initial tests by a combined University and Rutherford Laboratory team (ORBIT, March 1963) the chamber was taken to CERN for work with the 28 GeV Proton Synchrotron. Experiments are now in progress there using 6 GeV/c K-meson beams and later, when r.f. separation is available, even higher momenta beams will be used. Such work is beyond the range of beams available from Nimrod and is the justification for employing the chamber initially at CERN. Meanwhile CERN have been constructing a 2 metre hydrogen bubble chamber which is expected to be complete by the end of this year. Its satisfactory operation for physics next year will release the BNHBC for return to this Laboratory to be prepared for experiments on Nimrod.

At University College, London, interest had centred around the use of propane bubble chambers and in 1960 approval was obtained to construct a chamber 1.4 metre long at the Rutherford Laboratory. A combined UCL/RL team is now engaged in bringing this project to completion and its operation in a beam from Nimrod is expected this year. In addition to pure propane, the chamber can be filled with different freons and with propane/freon mixtures. Initial testing will be carried out using freon CCl_2F_2 but the first physics experiment with a πmeson beam requires the shorter radiation length obtained with freon CF_3Br.

The third chamber to be accepted on the Rutherford Laboratory programme was sponsored by Oxford University and is an 80 centimetre liquid helium bubble chamber. In this case one of the major interests is in studying the properties of light hypernuclei (combinations of nucleons and hyperons). It is the largest liquid helium chamber known to be under construction at the present time and will be cooled by a helium refrigerator larger than any previously made in this country. Before the end of this year the magnet, already tested at the manufacturers, and the refrigerator should be installed in the experimental area annexe. It is hoped that the chamber will be ready for the first physics run by the beginning of 1966.

In addition to these three Rutherford Laboratory bubble chambers we now have the Saclay 82 centimetre hydrogen chamber under erection for use in K and π meson experiments later this year. A specially designed separated beam, K 1, is being constructed for this purpose. It will be the first complex beam to come into operation on Nimrod and uses over 30 beam components including 50 feet of separator. The chamber is one of several large hydrogen chambers constructed at Saclay and is the third to leave Saclay for work in other Laboratories. The first 80 centimetre chamber went to CERN and has been doing invaluable work at the PS for several years and a further 80 centimetre chamber will be used at DESY, Hamburg, on the electron synchrotron. The chamber now at the Rutherford Laboratory started life as a 50 centimetre chamber but was later modified to be 80 cm × 50 cm × 50 cm. It will cycle at the full repetition rate of Nimrod and a magnetic field of 20 kilogauss is available to allow accurate momentum measurements to be made.

Until recently the chamber was in use for experiments with Saturne, the 3 GeV proton synchrotron at Saclay, using a π meson beam. This work can be continued and extended on Nimrod but, in addition, K meson physics of considerable interest to bubble chamber groups in this country can be pursued. At present these groups rely on a quota of the film taken at CERN by the Saclay and Rutherford Laboratory chambers there. The collaboration here will increase the amount of film available for analysis in this country and bridge the gap until the 1.5 metre chamber returns from CERN.

'To the expert in oceanography or high energy physics, nothing seems quite as important as oceanography or high energy physics.'

'Criteria for Scientific Choice' A M Weinberg
Physics Today, March 1964

What's a Bubble Chamber ?

A bubble chamber is one type of experimental equipment which enables the scientist to 'see' the minute fundamental particles produced at the accelerators. These particles are less than a millionth of a millionth of an inch across and they are often moving at almost the speed of light. It is obviously impossible therefore to 'see' them in any normal way and something clever has to be done so that the scientist can follow the paths of the particles and learn how they behave.

If we consider a hydrogen bubble chamber – a volume of hydrogen is kept under high pressure and at low temperature so that it liquefies but is almost on the point of changing back into a gas. It has been found that the liquid will vapourise more easily in the presence of charged particles. As a beam of charged particles from the accelerator passes through the bubble chamber the pressure is suddenly released and the hydrogen vapourises first along the tracks of the charged particles. The tracks are therefore picked out by a line of tiny bubbles and a photograph of the chamber at this instant provides a permanent record of the particles' passage.

When an incoming particle collides with a proton at the nucleus of the hydrogen in the chamber, interactions which are of interest to the scientists may take place. The products of the interactions are either charged particles, or are neutral particles which may 'decay' into charged particles before they escape from the chamber, and they too can be seen as bubble tracks on the photograph. Applying a strong magnetic field across the chamber causes a charged particle to follow a curved path and by measuring the curvature, information is gained on the particle's charge and momentum.

Knowing the bombarding particle and also the target nucleus in the chamber together with measurements on the bubble chamber photographs enables the scientist to build up a full picture of the interaction that took place.

Extracts from the 1962-63 report of the President of the Carnegie Institution of Washington, Dr. Caryl Haskins :

Quoting Professor R.H. Tawney, 'Excellence and a respect for it – these and these alone redeem a civilisation from triviality. Whatever its sins a society prizing liberty and revering excellence may hope to add some imperishable mite to the sum of man's achievement.'

'Greatness in a nation, like personal greatness, is a measure not only of character, not only of excellence but also of enduring significance both in ideals and in the shape and goals of effort.'

'A society committed to the search for truth must, for that very reason, protect and set a high value on the independent and original mind, for it is on such minds, in large measure, that the effective search for truth depends.'

'While it is likely that the small research group will continue to offer one of the most powerful environments for nurturing innovation, it would seem that neither the size of a research organisation, nor its situation in or out of Government, industry, private foundation or university, is of itself of decisive importance in determining how original, how distinguished, how relevant to modern frontiers its scientific output shall be, or how prolific it is in making such contributions.'

"Physical science finds itself on the very border of apprehending mass. To these borders of knowledge reached by contemporary nuclear physics, more than to anything else, we can apply the opinion of Engels about their relative and approximate character. Here, more than in any other sphere, the inexhaustibility of mass shows up the immense variety of its qualities and forms, only part of which we have succeeded in discovering up till now. Engels says, "The electron is as inexhaustible as the atom", and science today fully confirms his words, and will confirm them constantly.....The present 'elementary' particles are elementary only relatively, and one may assert with certainty that they will not remain so."

C. Simane,
Preface to "Accelerators of Ions and Electrons."

The Accelerator World

BNHBC in action at CERN

The British National Hydrogen Bubble Chamber is now in full operation with the 28 GeV PS at CERN. The 300-ton magnet left the Rutherford Laboratory for Geneva late in 1961. The rest of the equipment, part of which made the widest load ever to travel on some continental roads, was transported across England, Belgium and France early in 1963. The first experimental 'run' with the chamber began in November 1963.

The experiments involve a beam line (labelled T49) 200 yards long from the accelerator to the chamber. The complex beam transport system employs 38 elements – quadrupoles, horizontal and vertical bending magnets and three 30 foot electrostatic separators. The beam line is designed to provide a beam of K^- mesons at the chamber and supplies more of the particles, at a higher energy, than any other built so far. 10 to 15 particles with a momentum of 5 GeV/c are fired at the protons in the hydrogen chamber. Thirty pictures of the resulting interactions are taken every minute and in a year's work (about 50 days of actual operation) some four or five experimental runs of at least a quarter of a million pictures each will be made.

The initial experiments have two purposes – to produce and study the omega minus particles discovered earlier this year at Brookhaven, USA (ORBIT, February 1964); to investigate the production of other 'strange' particles such as the lambda and sigma hyperons.

Six groups are collaborating in the experiments. They are from the Universities of Birmingham, London (Imperial College), Oxford and Glasgow, the Rutherford Laboratory and the Max-Planck Institute in Munich.

Tandems

High Voltage Engineering Co. have received an order from West Europe for a 20 MeV tandem Van de Graaff. Dr. Robinson, president of HVEC, said the name of the purchaser could not be disclosed at the present time. "This is one of several large accelerator orders we have been expecting from Europe' Dr. Robinson said. "The first was from the University of Utrecht, Netherlands, and a further order is expected within two months.

HVEC have announced that a new version of their 3 MeV machine is now available. It will accelerate positive ion currents up to 750 microamps and can produce an 80% proton beam.

Two 20 MeV tandems in series are to be installed at the Brookhaven National Laboratory.

News from CERN

A novel feature in the fast extraction system of the 28 GeV proton synchrotron is operating successfully. This allows the extraction at full energy of 17, 18 or 19 of the 20 bunches in the accelerated beam, leaving the other 3, 2 or 1 still circulating in the ring for use with internal targets. The system works by adjusting the duration of the pulse in the kicker magnet to eject the required number of bunches about 10 milliseconds before the start of flat top.

A microwave particle separator, in which a particular kind of electromagnetic wave is used to deflect particles as they move with the wave through the waveguide, has been successfully tested with 10 GeV positive particles. Further equipment has to be completed before the separator can be brought into full operation. It is anticipated that with the higher energies now under consideration, this type of separator will replace the conventional electrostatic type.

A new beam line has achieved pure, high intensity negative kaon beams of momentum 1.8 GeV/c and antiproton beams up to 2.7 GeV/c ten times more intense than any previously available.

(CERN Courier)

'The growing public interest in science and technology and the enormous costs of some technical development projects have resulted in much more public attention being given to such matters than hitherto. It is good that this should be so. The more clearly the pros and cons of technical argument are presented, and the more widely they are understood, the better for our society.'

Sir William Penney
Press Conference, 16 July.

Trend Report

On 28 July Mr. Quintin Hogg, Secretary of State for Education and Science, in a written reply to a question in the House of Commons indicated the present government's intentions, if retained in office, with regard to the Trend Report.

1. The Advisory Council for Scientific Policy would be replaced by a Council for Scientific Policy. The new Council would advise on national scientific needs as a whole, including the fostering of new growing points ; on the broad allocation of resources ; on scientific manpower ; on international scientific policy and on the administration of science. It would consist entirely of independent members, maintaining links with other organisations through assessors appointed by Government departments and interested bodies.
2. The Department for Scientific and Industrial Research would be dissolved and its functions reallocated as follows :
   (a) The Science Research Council – university support and postgraduate awards. This body would also have responsibility for the National Institute for Research in Nuclear Science, The Royal Observatories and the space programme. Its annual budget is anticipated as £20 million.
   (b) The Natural Environment Research Council – geology, geophysics, fisheries, oceanography, hydrology, forestry and other subjects. It would also have the Nature Conservancy and the National Institute of Oceanography. Annual budget : about £3 million.
   (c) Industrial Research and Development Authority – the DSIR work on industrial research and development. Annual budget : £13½ million.
3. The only major recommendation of the Trend Report which would not be implemented is that the National Research and Development Council should form part of the IRDA. Instead it will remain under the Board of Trade and will be strengthened by increasing its freedom in placing development contracts and increasing its borrowing powers from £10 million to £25 million.

For further reading on the prevailing atmosphere with regard to nuclear science commented on in the Editorial of the July issue of ORBIT, see

DSIR – Report of the Research Council 1963.

Physics Today :

March 1964 'Criteria for Scientific Choice' A.M.Weinberg.

June 1964 'Two Open Letters' Weisskopf – Weinberg.

SCIENTIFIC MAN – MOST APPEALING OF THE BREED!

"The nicest kind of man to live with," says Lorraine Grey Walter, "is a mix of logic and emotion. Like my husband."

She is married to William Grey Walter, the Bristol University scientist who is doing research on the electric waves in the brain.

And she was confirming the advice of an American woman sociologist who says that if you want to be happy, marry a scientist.

What the sociologist, Mildred Savage, had to say about American scientists is just as true, it seems, for British brains.

Lady Sutherland, wife of the director of the National Physical Research Laboratories at Teddington agrees : "I'm all for marriage to scientists. They are so alive.

"They are wise. They make lovely friends for fireside evenings."

Jane Gaskell
Daily Express, 28 July.

TYPIST'S CORNER

The income tax inspector telephoned the business man. 'I note from your tax return' he said, 'that you are unmarried.' 'That is correct,' replied the man. 'And yet' continued the inspector, 'I see that you are claiming an allowance for a dependant child. This was no doubt a typist's error.' 'Quite' said the man.

(From AWRE News)

'Where is it ? Where on earth is it ? Where's my pencil ?'

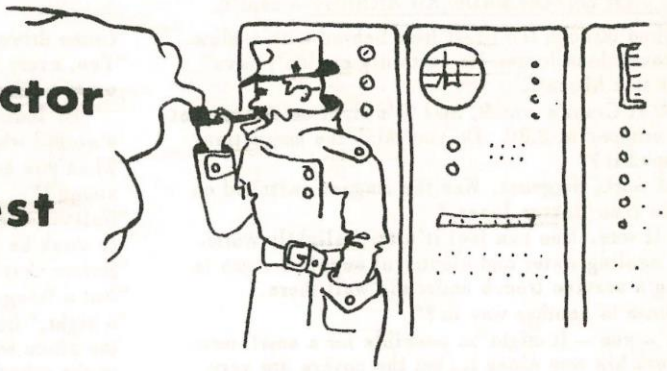
Secretary : 'It's behind your ear, Sir.'

'Come, come now. You know I am a busy man. Which ear ?'

In spite of the recent 'flu epidemic, Dr. Smith and his secretary carried on as usual.

MAIN ENTRANCE, BUILDING R 1

The Inspector Made an Arrest



The Inspector stood in the Control Room and looked round at the complex array of instruments, knobs and cathode ray tubes. He felt out of his depth. Murder was a thing he was used to, but in these surroundings it had taken on a weird, unfamiliar guise. He tried to recall his school certificate physics but it had all gone.

"I wish this Doctor Jones would hurry up Sergeant. We need an expert guide to this lot."

"I think this is him now, Sir."

"Doctor Jones? I'm Inspector Dunn – this is Sergeant Swift. We shall have to lean on you for technical advice I'm afraid – can you give us the general picture?"

"I think the best thing is to look at this TV Monitor. It's showing a view of the Experimental Hall. The particle beams come out of the accelerator along those aluminium pipes and at the end of each is an experimental rig. Some are enclosed in concrete block houses. We have to do that to cut down the radiation from the target. Now here is the latest beam line, just being assembled. You can see that the pipe doesn't go into the accelerator yet but the blockhouse is complete."

"And Grant was killed in that blockhouse?"

"That's right Inspector. I'll just switch to a camera inside the blockhouse itself."

As Jones fiddled with the controls, the Inspector saw the interior come into focus. It was much smaller than he had expected. Those concrete walls must be very thick, he noted. There was the end of the aluminium pipe projecting from the jaws of a massive steel casting. He asked about it.

"That's a large magnet and there is some electronic equipment, but, as you can see nothing else. We hadn't got very far with assembly."

The room was very bare. He could see the body slumped across the magnet with a slender rod sticking in its back.

"I think you had better talk to Jim Brown here. He actually saw the thing happen!"

"You were on duty here at the time?" he asked, taking in the young man in the white lab. coat.

"That's right. It was half-past two this morning. I had a phone call from the shift electrician. There is no permanent phone in the blockhouse, but they had a temporary intercom. fixed up to their local control room. The electrician was in there and answered it. Grant said somebody was trying to kill him and that he'd locked himself in the blockhouse for safety. The electrician then phoned here because we have the only other key."

"Nobody could get in then without your key?"

"Certainly not, Inspector. Anyway, I remembered the TV Monitor and saw Grant alone inside the blockhouse. He sort of staggered and spun round. When he fell over the magnet I saw that thing in his back. I immediately switched to the other camera to look round outside but there wasn't a soul! Shook me I can tell you!"

"Nobody inside and nobody outside, eh?.... Now you say this happened at 2.30. Can anybody confirm it?"

"Yes – the rest of the crew. They were out making some tea and I called out to them asking for an ambulance. I grabbed the spare key and went to the blockhouse as quickly as I could. When I got inside Grant was dead. The electrician and the vacuum shift foreman followed me in, about a minute later. We locked up and the room was as you see it now."

"Did anybody else see this Monitor."

"Yes, the lads came in and saw us go inside."

"But did anybody see inside the room as you saw it?"

"Well – no. By the time they had thought to switch to the other camera, we were all three inside."

"I see – that will be all for now. I think it's time to go and look for ourselves, Doctor Jones."

As they walked along the corridors and tunnels, down the stairs and through the labyrinth of large concrete blocks, he reflected that it would have taken Brown at least five minutes to reach the solid looking green metal door at which they finally arrived.

It only took a glance to see that Grant had been

stabbed through the heart from behind with a blow of tremendous force. He certainly couldn't have done that himself.

"Look at Grant's watch, Sir! It's right on the magnet and stopped at 2.30. Do you think the magnetism stopped it?"

"Good work, Sergeant. Was the magnet switched on at the time Doctor Jones."

"Yes it was. You can feel it's still slightly warm. The cooling water and electrical supplies come in along a service trench under the wall there."

"So there is another way in?"

"Well – yes – it might be possible for a small man to work his way along it, but the covers are very massive. They have to bear heavy loads and it would take a strong man to lift one."

The Inspector bent down and saw the uniform film of dust over the floor. He ran his finger through it. He rose slowly and looked at a complex mechanism on the end of the beam pipe.

"Oh, that's a vacuum valve Inspector. It's operated by compressed air and controlled from a panel at the other end of the pipe. You may have heard the hissing noise as we came down, I noticed that the pipe is under vacuum now. We have been having trouble with it for some time and the vacuum shift were looking for a leak, but they must have found it. That's very quick work."

"I'm surprised there were so few people about."

"Well, that's quite usual Inspector. There was only a skeleton crew on tonight. In fact the only men in the Experimental Hall were the electricians and vacuum shift foreman. Perhaps you had better talk to them. I think they're outside."

He looked at the thick-set, powerful man in the black army beret. Looks like an ex-commando.

"You were working nearby when this happened?"

"That's right. My lads had just gone off for some tea. I stayed behind to make sure she was pumping down alright and I saw Jim Brown run up and go into the blockhouse."

"You saw and heard nothing before that?"

"No."

"Alright, I may need you again later. Now where is the electrician, Doctor Jones? Perhaps you could fill me in on his duties."

"He had some installation work to do tonight and he does any electrical work arising from faults. He is also the crane driver."

"Crane driver?"

"Yes, every team has a man competent to drive the cranes. Here he is now."

He found himself looking at a small thin man in a soiled white overall carrying a bag of tools.

"When you heard Grant on the intercom., how did he sound?"

"Well... excited... scared and relieved. He seemed to think he was safe in there."

"Before that call, you saw and heard nothing unusual?"

"Not a thing."

"Alright," he sighed. The mechanical complexity of the place was getting on his nerves. He walked up to the other end of the beam pipe, but all he saw was another vacuum valve, identical to the one in the blockhouse. He had to find somewhere to think.

"Sergeant, let our Doctor and technical boys into the blockhouse, will you, and let me have the Doctor's report as soon as you can. Now Doctor Jones, two more things. Can I borrow an office and can you get hold of the personal files of the foreman, the electrician and Brown?"

An hour later he was waiting to hear from the Doctor from the Station. The files had told him nothing except that his hunch about the vacuum shift foreman had been correct – he had been a commando. Still things were clearer in his mind.

Sergeant Swift and the police Doctor came in.

"Well, that's what killed him," said the Doctor, holding out in a cloth a thin steel shaft about a foot long with a finely tapering point. "Nothing peculiar in that, but what is peculiar is the angle. That thing went in at an angle of 30°. If I didn't know the set up I'd say the blow was struck upwards from the ground. Well it's your worry – I'm off."

"But that's impossible Sir!"

"The whole thing is impossible Sergeant. Grant was alone in a locked room and he was stabbed in the back with somebody watching by television! Still the Doctor gave me an idea. I'll get some technical help from Doctor Jones and perhaps arrange a little experiment and then we'll see."

A few hours later the Inspector made an arrest.

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OVERHEARD IN CONVERSATION –

'HE IS ONE OF THOSE PEOPLE WHO, ONCE HE HAS MADE A DECISION, NO POWER ON EARTH CAN MAKE HIM STICK TO IT.'

Personnel News

Suggestion Awards

At the seventeenth meeting of the Suggestions Committee on Wednesday, 8 July, suggestions up to and including No.300 were considered. Awards were made to the following :-

£3 to R.P. Gover and D.W. Tansley whose proposal to fit calibrating plate separators has been successfully adopted.

£2 to E.H. Hester whose proposed modification to the centre lathes has been successfully adopted.

£2 to F. Burden for his suggestion in respect of a fire hazard in Lab.5, R1.

£2 to J.E. Vanstone whose proposed modifications to terminal blocks have been successfully adopted.

£2 to A. Holcroft and F. Knott whose suggestion for a sheet metal trolley has been adopted.

£2 to A.H. Fogg in respect of his proposed alterations to the positioning of the cable on the electric trolleys in the Magnet Room.

Encouragement Awards of £1 were made to H. Webb, A. Green and A.M. Jackson.

An Interim Award of £1 was made to D. Evans.

B. BRISCOE, Secretary.

Record Society

The programmes for September will be held at 12.30p.m. in the Lecture Theatre on Tuesday, 8 September and Tuesday, 22 September. In October and throughout the winter months programmes will probably be held once a week.

Comings and Goings

Mrs. J.B. Standen, Mrs. S.H. Walker and Miss A. Bray join Secretarial and Typing Group.

F.R. Jacobs joins Bubble Chamber Group.

M. Brain and W. Buxton join Machine Engineering; B.J. Furze joins Central Engineering; B.N. Richardson joins PLA Engineering.

Mrs. M.A. Sanders, Mrs. J. Turnbull, J.L.G. Berry, T. Williamson, A.D. Jones and A.W.R. Morrison have left us.

G.F. Snow has transferred to Daresbury.

Congratulations to -

Tom Rennie, Central Engineering, and his wife Alice on the birth of a son, Bruce, on 12 July.

Shirley Marshall, Administration, on her marriage to Bruce Adey on 25 July. Shirley would like to thank all those who contributed to her wedding gifts and offered their good wishes.

Norman Lipman, N1 team, and his wife Jill on the birth of a daughter, Lisa Barbara, on 4 August.

Brian Southworth, Scientific Administration, and his wife, Doreen, on the birth of a son, Philip Michael, on 4 August.

Charles Planner, Nimrod Machine Physics, on his marriage on 8 August.

Recreational Association Meeting

At lunch time on Wednesday, 22 July, a meeting was held in the Lecture Theatre to take the proposal to form a Recreational Association a stage further.

Prior to the meeting a group of people who felt strongly enough about an association had formed a temporary committee under the chairmanship of Ron Hazell, and had canvassed around the Laboratory in an attempt to gauge the general feeling on this issue and to pinpoint particular areas of interest. As a result of this canvas, a list of about 300 names of interested people was assembled and several activities received specific mention –

Lawn tennis (68 names), Table tennis (62), Record Society (48), Judo (45), Darts (38), Badminton (35), Swimming (24).

With this evidence, representatives from the committee consulted Dr. Valentine. Dr. Valentine indicated that before a formal approach to management for assistance and support could be made, a committee should be elected from among the staff. Support would most likely be in the form of capital assets rather than grants and the magnitude of the support would be determined by Treasury approval. The management would probably want to appoint a treasurer to the Association. No promises were made but the indications were encouraging.

At the meeting in the Lecture Theatre it was agreed '... that a Recreational Association be formed at the Rutherford Laboratory and that a committee be elected to undertake the preliminary steps towards this end.' The group who had initiated the move towards an association was elected to form the committee – Ron Hazell, Ron Hecken, Mick Hecken, Terry Harper, Jennifer Griffiths, Dorothy Owen, Eric Kirby and Ivor Spencer.

RECREATIONAL ASSOCIATION MEETING – cont'd

Their terms of reference are :

(i) To secure the support of management for the Recreational Association and to discover what facilities the management is likely to provide.

(ii) To make arrangements to offer membership to all personnel at the Rutherford Laboratory and all newly recruited staff.

(iii) To consider the subscriptions rate and the method of collecting subscriptions.

(iv) To form a committee comprising this committee and a representative from each club or society within the Recreational Association, as and when this becomes necessary.

(v) To draw up a draft constitution for the Recreational Association.

(vi) To report back to the membership, at a future meeting, progress made in respect of the above items.

(vii) To make arrangements as the demand arises for the formation of clubs and societies within the Association.

Discussion centred on two issues. The first concerned the possibility of prejudicing the existing relationships with the AERE Recreational Association. Brigadier Bell, Chairman of the AERE Association, assured the meeting that the setting up of a Laboratory Association would in no way prejudice access to the AERE facilities. He expressed the hope that the two associations would be complementary in their functions rather than in competition.

It was suggested from the floor that the committee should look into the question of formal affiliation to the AERE Association. It was also suggested from the floor that since Laboratory members will continue to have access to the AERE facilities, there should be a reciprocal arrangement for AERE personnel to join our association.

The second topic concerned how the committee could 'report back to membership' or use the word 'membership' in negotiation with management, when no membership can exist until a constitution is drawn up, subscription fees established and the plans of the association made known. It was realised that in this context 'membership' meant 'interested people in the Laboratory.'

The committee hope to make significant progress within the next three months when another general meeting will be called. The committee were asked to circulate the draft constitution to 'interested people' sufficiently in advance of the meeting to allow it to be studied.

SOLUTION FROM PAGE 8

The Inspector made an arrest

The Inspector eased his car through the gears as he drew steadily away from the Laboratory gates. Sergeant Swift, sitting alongside him, was musing over the case.

"Well Sir, I'd worked out that it couldn't be Brown from the Control Room. Nobody but him saw the murder, but the time factor let him out. When Grant's watch stopped, Brown was in the Control Room, so it must have been one of the other two. The electrician would know about that service trench and he is small enough to crawl along it but surely not strong enough to lift one of those cover plates."

"But he could have used the crane to get the plates off Sergeant."

"I did think of that Sir, but I'd swear those plates hadn't been moved – the dust was lying too naturally."

"I agree with you. That leaves the ex-commando and we know that the murder was committed with a commando weapon."

"But I still don't see how he got into that room! There was no way in apart from the door and the trench and he must have been able to see his target."

"Well the beam of particles must be able to get in."

"The beam pipe ? But that was closed at both ends by the vacuum valves."

"Come, come Sergeant those valves were closed when we saw them, but they can be opened just by pressing a button – and who better to do it than the commando-cum-foreman who knows all about that particular vacuum system. Do you remember that Doctor Jones was rather surprised to find the pipe under vacuum ? The valves were closed after our friend had killed Grant by shooting his steel arrow down the beam pipe. He was so confident, he left his locker open with the bow still in it and we've just tried it on another piece of pipe. The idea is very clever. He simply had to wait till Grant's body obscured the light from the blockhouse at the other end of the pipe and then fire. Couldn't miss !"

"But what about the angle Sir ? An arrow shot down that tube would travel horizontally, yet the Doc. says it was going up at thirty degrees !"

"You've forgotten the magnet. A steel arrow passing through a powerful magnet would be deflected. In fact when I tried, with the magnet working, the arrow just clanged onto it and wouldn't go through at all. It must have been going like a bullet when it struck Grant."

The car came to a halt at the Station and the Inspector smiled as he opened the door. "Perhaps there's something to be said for School Certificate after all."

Printed by Technical Administration Limited, 74 South Street, Reading, Berks.