Table Tennis

Despite not having a "home to go to" and therefore being somewhat short of practice, the Rutherford Table Tennis Club still manages to give a good account of itself in the Didcot Table Tennis League.

Though the 'A' team is having to struggle hard as newly promoted Division I contestants, the 'B' team is at present runner-up in Division III, and being only one point behind with four games in hand, have a chance of being top of their division, before the end of the season. They should also win promotion to Division II.

The 'C' team, also in Division III are in the top half of the table, whilst the newly formed 'D' team under the leadership of Brian Wyborn are leaders of Division V.

Brian himself with a 100% winning record in his league games, has also won the individual championship of his division, as has John Varley in Division III.

Next season, with practice sessions being back to normal, (we hope) we should see the spectacle of both Rutherford 'A' and 'B' teams battling it out for the leadership of Division II.

Didcot & District Tournament

The Rutherford players did well at this tournament, held on Sunday 18 March. Most of the players entered and two of them reached the last sixteen in the Mens Singles.
Bryan Wyborn of Rutherford 'D' team won the special Award for the best non-Division I contestant of the Tournament - a remarkable achievement.
Sandra Chilvers, partnered by a British Rail player, was runner-up in the Ladies Doubles.
Well played everyone.

Folk Club

Tickets for the following meetings are now on sale.

Friday 6 April: 'WAYLAND SMITHY'
'GREAT WESTERN BAND'
'NAVVIES'

Friday 4 May: 'THERAPY'

Both evenings start at 8.00 pm prompt (doors open at 7.30 pm) in the R22 Coffee Lounge. Tickets are £1.20 at the door or £1.00 in advance from -

Steve Halliday	Rm 1.23 R25	Ext 492
Steve Cox	Rm 2.34 R25	Ext 407
John Ellis	Rm 3.04 R2	Ext 6689
George Pullinger	PKBN 4	Ext 6661

Cricket

Maybe the winners of yesteryear had a little help from the pitch?

On the threshold of the Cricket Season once more, and with ambitions of winning the Downs League (we're perpetual optimists) we would like to hear from all budding Bothams and Gowers on the Rutherford Laboratory complement.

Of course we generally win the SRC Cup, but with a slight strengthening of the team (naturally, it's pretty good already) we could aspire to even greater heights.

All interested parties should queue up outside R58 for interviews with Mike Butler or ring Ext 6178.

Lunchtime Music 12.30 March 28 Lecture Theatre

ELECTRIC LIGHT ORCHESTRA -
"OUT OF THE BLUE"

After the poor response to the New Philharmonia and Debussy we are trying a rather different kind of orchestra and music.

The E.L.O. is big for a rock group - seven musicians compared to the usual four or five. This gives them a much bigger sound - especially on stage - and allows a greater range of instruments. These include, violins, 'cellos, wurlitzers, mellotrons and an assortment of guitars and percussion.

Though they have a big band sound this is not to say they are heavy or hard. They can be very melodious and the vocals are quite soft. However, when necessary, they can move like the 125 from Didcot to Paddington.

"Out of the Blue" is a double album and contains some of their best known 'works', notably "Mr Blue Sky", "Night in the City" and "Sweet Talkin' Woman". Unfortunately, time will allow us to play only about ten tracks.

Incidentally, the last time we had rock music, one or two people seemed to think that we had the "Moody Blues" live. We apologise if this impression was given. Perhaps later when we can afford £5,000 or so - but we'd have to guarantee at least a half-full Lecture Theatre ...

RUTHERFORD LABORATORY BULLETIN
Deadline for Insertions
1000 hrs Tuesday 3 April.
Editor: Jean Banford
Room 23, Building R20
Rutherford Laboratory
Chilton Didcot Oxon OX11 0QX
Abingdon (0235) 21900 Ext 484
Published by the Scientific Administration Group

RUTHERFORD BULLETIN
26 March 1979 No. 6

Dr G H Stafford CBE FRS

We are pleased to announce that on 16 March Dr G H Stafford was elected Fellow of the Royal Society:

> "for his studies of nucleon scattering and his leadership of the Rutherford Laboratory in its support of particle physics and in the diversification of its activities."

Dr Stafford, a graduate MSc of Cape Town University, received his PhD at Gonville and Caius in 1950, after a distinguished wartime career in the South African Navy. After Cambridge, he accepted a post with the South African Council for Scientific and Industrial Research and came to AERE Harwell under this appointment for two years. In 1951 he returned to South Africa as Head of the Bio-Physics Sub-Division at Pretoria, to develop the application of radio-isotopes in medicine and industry.

He was invited back to the Cyclotron Group at Harwell in 1954 and worked on the design of the Proton Linear Accelerator. In 1957 when the Rutherford Laboratory came into being, Dr Stafford was appointed Head of the PLA Group, became responsible for the high energy physics programme on Nimrod in 1963 and became Deputy Director in 1966. For many years he has had a close association with CERN, becoming the UK Delegate and Vice-President to the Council in 1973, and Chairman of the Scientific Policy Committee in 1978. Dr Stafford was appointed Director of the Rutherford Laboratory in 1969 and received the honour of CBE in 1976.

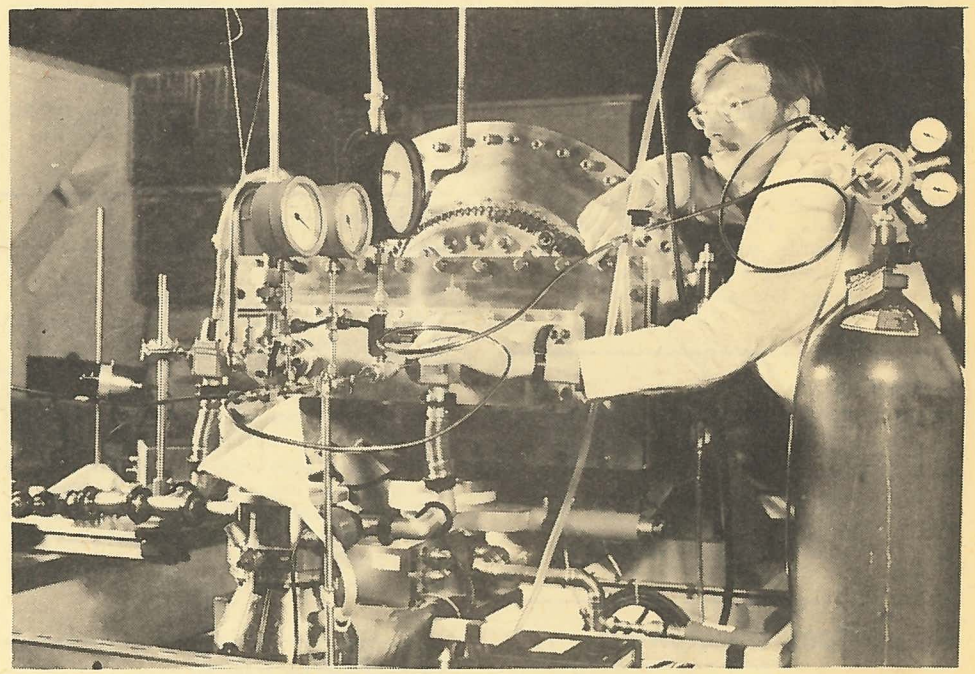
It is largely due to his foresight that the Laboratory has so successfully collaborated with university scientists in pursuing a wide range of scientific activities and provided first-class facilities which are so vital to these research programmes. We congratulate Dr Stafford on his election to the most prestigious Society in the world of science.

The ELF Exites

On Monday 12 March the first gas laser beam was produced using the ELF machine. ELF, an Electron-beam-excited Laser Facility, was first described in the December 1978 Bulletin. It has now been fully commissioned and a 50 nsec electron-beam pulse with more than 3000 joules of energy is now available for laser pumping experiments. The highly uniform electron-beam has dimensions (5 x 50) cm^2 and can operate at voltages up to 1.5 MeV.

A Krypton Fluoride (KrF) laser medium was used for these initial tests. The Laser cell and gas-handling equipment was attached to the output of ELF as shown in the photograph. The active laser volume in the cell was defined by two 10cm diameter mirrors, separated by a distance of approximately 60cm and the cell was filled with a high pressure (15 psig) gas mixture containing mainly Argon but with small amounts of Krypton (100 torr) and Fluorine (4 torr) added.

Laser action was achieved by firing the electron-beam pulse into the gas volume between the laser mirrors and the excitation thus produced caused the Krypton and Fluorine to combine in such a way as to produce laser action in KrF at a wavelength of 248 nm. Using the present laser cell, only a small fraction of the total electron-beam energy is utilised. In these initial experiments, approximately 250 joules was calculated to have been deposited in the laser volume. The KrF laser output was approximately 5 joules which gives an intrinsic efficiency of about 2%



Over the next few months it is planned to exite other laser media (eg. ArF, XeCl, etc) to obtain high-power laser action at many different wavelengths. Experiments will also be carried out to optimise the output power of these lasers and to investigate the conditions under which maximum efficiency can be achieved.

The experimental programme will also be extended to work on other lasers, in particular the atomic Selenium laser and further research proposals will be sought from university scientists who wish to investigate more efficient or near types of gas laser.

(We thank Mike Shaw and Fergus O'Neill for the information contained in this report).

INTERNAL Events

NIMROD LECTURE SERIES
LECTURE THEATRE - 1130 hrs
26 March: Prof J Steinberger/CERN
"Neutrino Experiments"

HEP SEMINARS
CONF. RM. R61 - 1100 hrs
28 March: G T Jones/Birmingham
"Partial Wave Analysis of the Diffractively Produced Kππ System"

COMPUTING SEMINARS
CONF. RM. R61 - 1400 hrs
3 April: Mr R W Witty
"DCS Programme"

EXTERNAL Events

THEO. PHYS. SEMINARS
CONF. RM. T.P.D. AERE - 1400 hrs
27 March: Dr D A Lever/AERE
"The Mechanics of Fluid Suspensions"

3 April: Prof F G Fumi/Genova
"Tensor Properties and Rotational Symmetry of Crystals"

NPD COLLOQUIUM
H8 AERE HARWELL - 1530 hrs
29 March: Dr M W Wormald/AERE
"Neutron Interrogation of Coal"

HEP SEMINAR
CAVENDISH LAB.CAMBRIDGE - 1500 hrs
4 April: Prof K Igi/Tokyo
Baryonium Spectroscopy based on Duality and Unitarity.

9 April: Dr D Saxon/RL.
'Hadron Production in e^+e^- collisions at 13 and 17 GeV in the Centre of Mass.

Nimrod model Hand-over

The Director of the Science Museum, Dr Margaret Weston will be visiting the Rutherford Laboratory on 2 April, to receive the model of Nimrod currently on display in the Foyer of R1.

The presentation will be made by Dr Manning and the Ceremony is scheduled to take place between 1115 - 1130 hrs in the Nimrod Magnet Hall.

Film Badge Notice

Period 4 issue of beta-gamma films commences Monday 26 March. Colour strip PURPLE. Please change your badges promptly and return old ones. Anyone requiring a new holder please contact Jenny Coates Ext. 430.

Missing

Would anyone knowing the whereabouts of a Wolf Electric Drill (1/4") AERE no. 24214, SRC no. 14/5280 Serial no. 617/A, last seen in the heavy duty Lab R25, please contact G Pullinger Ext. 6661.

Rutherford Yachtsmen

Yachtsmen at the Laboratory might like to note the dates of two lectures to be held by the White Horse Sailing Club at the Oxford Sailing Club House Farmoor Reservoir at 8.30 p.m. Visitors are welcome.

9 April: Home building a 'Rival 32' entered for this summers Azores single handed race.
14 May: Jean-Piere Poffe will be talking about the Glenans International Cruising Club.

Rutherford Wives

The April Coffee Morning at The Cosener's House will be on Tuesday 10 April between 10.30 am and 12 noon. This is during the school holidays and, as usual, young children are welcome.

The dates for future coffee mornings are:

Thursday 10 May
Tuesday 12 June
Wednesday 11 July

For further information, please contact Gillian Litt (Abingdon 26009) or Dorothy Gibson (Abingdon 25250).

Thanks

Mrs D Irvine has received a letter from the Regional Transfusion Centre, Oxford thanking all Rutherford Laboratory Donors for their attendance at the clinic held on Tuesday 6 March. They deeply regret the inconvenience caused by the abrupt cancellation of the Monday sessions. This was due to a lightning one day strike by their drivers. However 114 donations were taken, which enabled them to provide the fresh blood needed for patients with special requirements.

Lunchtime Films

LECTURE THEATRE
4 APRIL - 1235 hrs

'PIGMENTS' - This film uses colour photography and animation to outline the physics, chemistry and technology of organic pigments.

'THE IMPOSSIBLE VOYAGE' - An account of Chay Blyth's round the world trip in the 59 foot Ketch "British Steel".

CERN Fellowships

Details of CERN Fellowships during 1979-80 are now available from Mrs R Jeans, Personnel, R20. Scientists wishing to work at CERN can apply under the following schemes:-
Fellowships, Scientific Associateships and Travelling Fellowships.

Sales to Employees

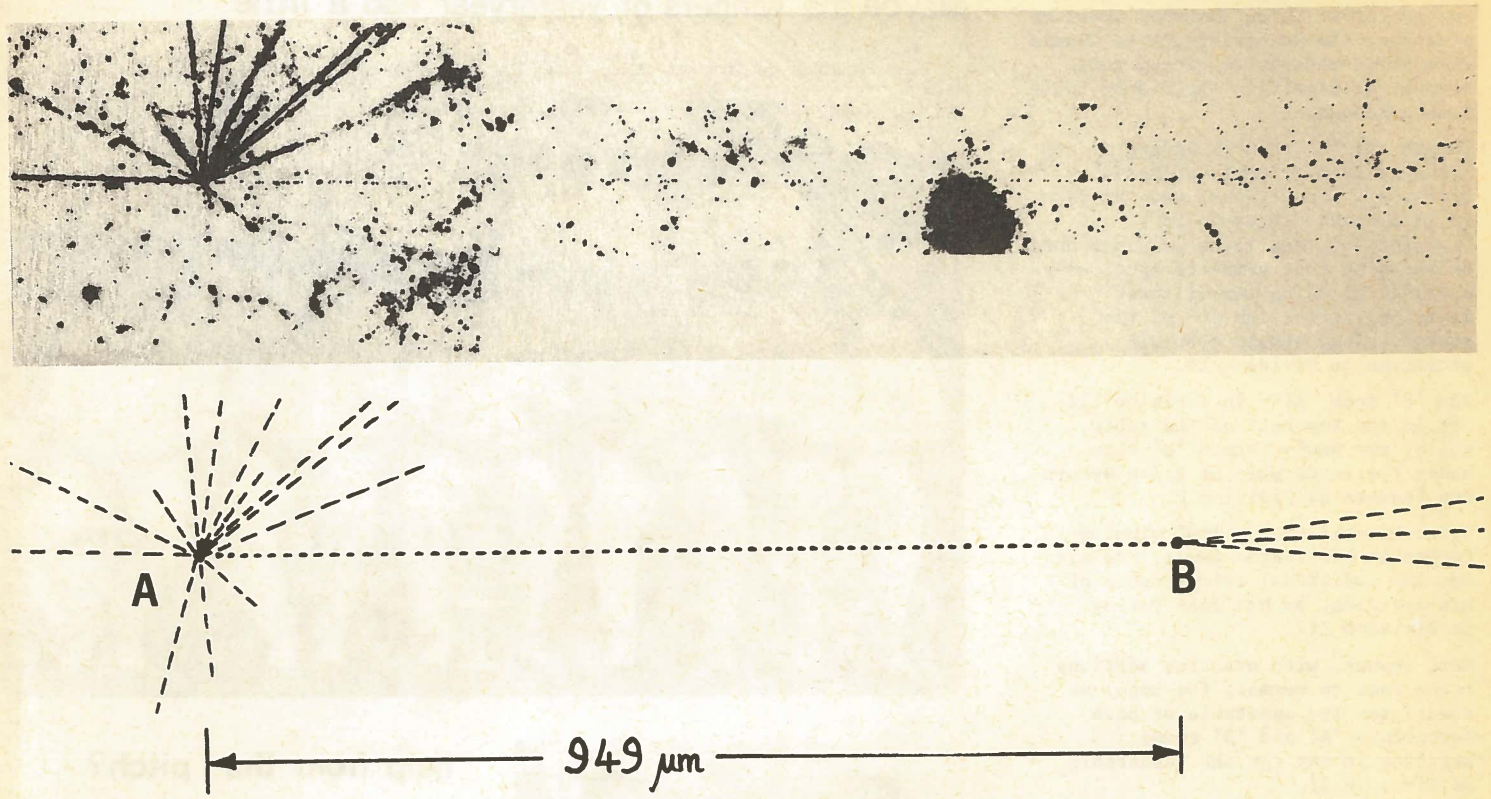
Sales of scrap metal/plastics as set out in RLN 12/73 will be made on 20 April at the scrap compound, rear of R40 from 1200 - 1230 hrs.

Christian Fellowship

EASTER SERVICE
LECTURE THEATRE - 1240 hrs
10 April: All Rutherford Laboratory personnel are welcomed to a non-denominational Service led by the Rev. Brian John of Wantage Baptist Church. The Service, accompanied by electric organ, will take the form of the annual Carol Service, with hymns and readings.

5 April: The meeting will be held at 1230 hrs in the R2 Conference Room. All are welcome to come along for a time of prayer and fellowship. Prayer does change situations and much seems unchangeable. Requests for prayers would be welcomed by any member of the fellowship.

Direct Observation of Charm



A microphotograph of the decay of a charmed particle observed in an emulsion/bubble chamber experiment at the CERN SPS. A neutrino particle (unseen) enters from the left and interacts at point A, producing a shower of particles. One minimum ionising track (the charm candidate) travels to point B and then decays into 3 charged tracks.

There has been considerable activity amongst particle physicists to hunt for so-called "charmed" particles (ie particles containing quarks with a special property known as "charm"). Theorists predict that these particles will have a lifetime of about 10^{-13} seconds - and therefore will only travel about 1 millimetre in a typical experiment before they decay into other particles. Since it is difficult to spot such short tracks - physicists have turned towards the traditionally highest resolution particle detector - the nuclear emulsion - in which distances of a few microns can be resolved. If charmed particles can be produced in the emulsion, further detectors may be placed downstream to identify the decay products and so pinpoint the exact location of the event.

We thank Dr Don Davis from University College London for this latest news of the direct observation of charm in an experiment at the CERN Laboratory:

A collaboration of groups from Ankara, Brussels, CERN, U.C. Dublin, U.C. London, Open University and the Universities of Pisa, Rome and Turin have exposed several large emulsion stacks to the wide-band neutrino beam at the CERN SPS. The stacks were accurately positioned at the entrance window of the Big European Bubble Chamber (BEBC). The bubble chamber pictures were scanned for signs of events where at least 3 high energy particles enter the chamber and point back to a common vertex in the emulsion. Subsequently, small volumes in the emulsion were scanned to identify the neutrino interaction. Once such an event is found, the precise information from BEBC and its associated External Muon Identifier are used to fully analyse the interaction.

In this way, some hundred charged current neutrino interactions have been found and these have yielded three charged charmed particle candidates, each of which has three charged secondaries among its decay products. A microphotograph of one of the charm candidates is shown in the photograph. A similar event was found by essentially the same group in a Fermilab experiment in 1976. All four candidates are seen to decay within one millimetre from the primary neutrino interaction and the resulting times of flight are in all cases a few times 10^{-13} seconds. The chance that all are due to background phenomena, mainly the nuclear interactions of pions, has now receded to about 1 part in 10^8.

OVERSEAS Visits

L Phillips to DESY 26-30 March for installation work on TASSO.
P Sharman to Erice, Sicily 25 March - 6 April to attend International School of Physics.
D A Gray to Rome 26-28 March to attend EPS Seminar.
N M King to Rome 26-29 March to attend EPS Seminar and Frascati Lab.
L G Denton to DESY 26-30 March to install Muon Filter Chamber.
M Snowden to Rome 26-28 March to attend EPS Seminar.
J A Lidbury and R T Elliott to Basle 26-27 March to discuss SNS Dipole manufacture.
M Edwards to CERN 26-30 March for test run of preshower chamber for EMC.
G E Kalmus to CERN 26-28 March to attend SPSC meeting.
D Evans to Paris 27-29 March to attend Plastics Conference.
R C Brown to SLAC California from 29 March - 15 May for data collecting for Exp. 201.
N M King to DESY from 1-7 April to attend DESY-EP and ECFA-LEP meetings.
D E Baynham to DESY 1-3 April to attend ECFA meeting.
D J Crennell to DESY 1-3 April for e-p meeting.
G E Kalmus to DESY 1-8 April for ep and e^+e^- meeting.
D W Duke to Fermilab USA from 1-14 April for discussions with Fermilab Theorists.
D H Saxon to DESY from 1-5 April to work on TASSO experiment and attend ECFA meeting.
C D Osland to Nijmegen, The Netherlands from 1-9 April to attend meeting on Computer Graphics.
R A Rosner and W A J Hendrick to Seillac, France from 3-6 April to attend European Prime Users AGM.