RUTHERFORD BULLETIN

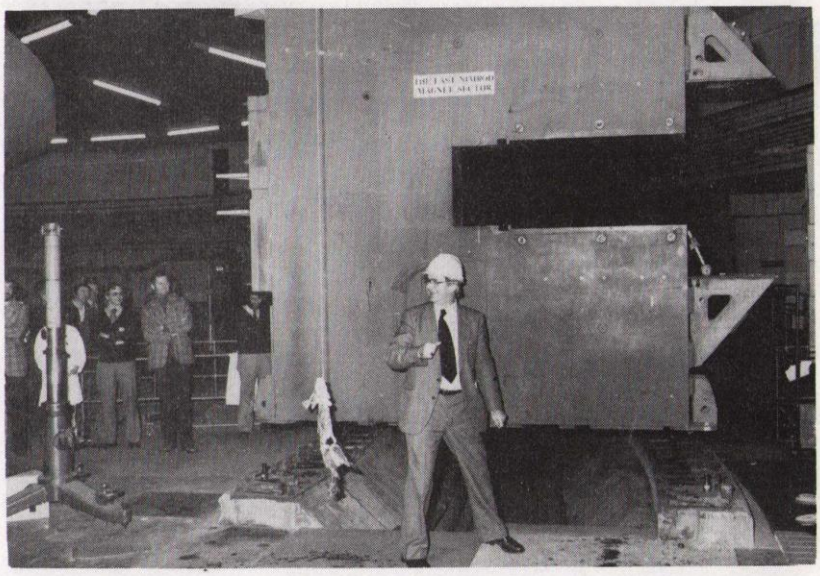
11 February 1980 No.3

Nimrod has Gone ~ Long Live the SNS

With the ceremonial removal of the last magnet sector on 1 February 1980, the ghost of Nimrod has finally been laid, and the alterations to the magnet hall for the SNS can now begin.

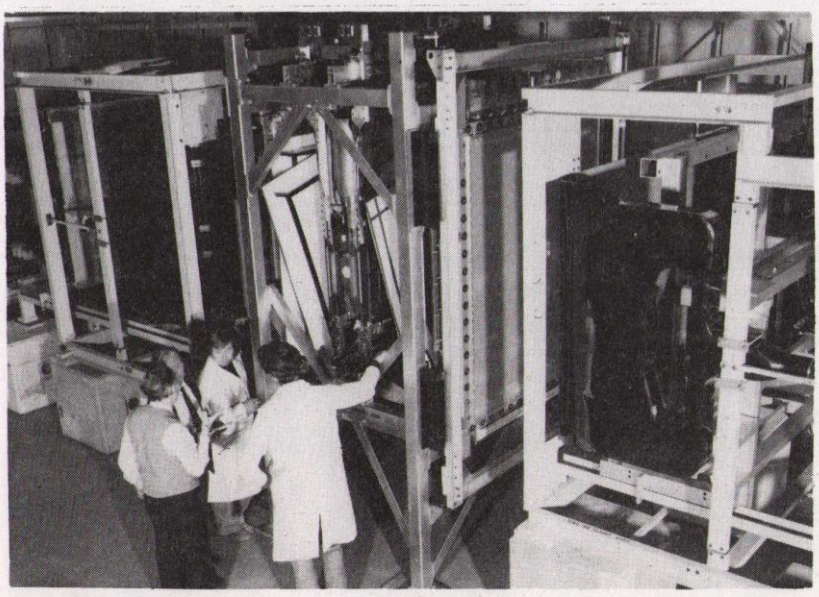
Watched by a large gathering of SNS and ex-Nimrod personnel, David A Gray performed the last rites in his new capacity as head of SNS. As he had been involved not only in the recent setting up of the SNS project, but also in the original design and building of the Nimrod Magnet Ring, it was specially fitting that he should be seeing out the old ready to usher in the new.

After thanking those concerned for their magnificent efforts in clearing the magnet sectors so that this really was the very last one to go, he took the opportunity to introduce himself to his new division. He recalled the early pre-Nimrod days - in particular he remembered the 2/7 scale model magnet, the poles of which came adrift and met in the middle as soon as it was first energised. Although this setback had been overcome by fitting polepiece jacks, he expressed his hope that we could avoid a repeat performance with the SNS. *(continued on p.3.)*



The 'un-launching' of the last sector by David Gray.

New Detector for CERN



The Recoil Counter Detection System, assembled for final checking prior to shipment to CERN.

Visitors to the Physics Apparatus Group's workshops in R12 are sure to find some vast and impressive piece of equipment under construction. The latest of these has just been dismantled prior to its shipment to CERN. It is the Recoil Counter System, part of the detecting equipment for an experiment on charged hyperons, using the uniquely designed hyperon beam of the Super Proton Synchrotron (SPS).

Rare Particles

Until five years ago only 160 omega minus events had been published, however rapid progress in recent years has produced beams of hyperons, which contain several types of rare particles, including omega minus.

A collaboration of physicists from Bristol, Geneva, Heidelberg, Orsay, Rutherford and Strasbourg produced a high quality high energy hyperon beam at CERN SPS (see Bulletin 16, 1978) and studies using this beam have produced data samples ten times greater than the previous world sample. *(continued on p.3.)*

INTERNAL Events

HEP SEMINARS
CONFERENCE RM R61 - 1400hrs

12 Feb: R C Moore/Manchester
"Pion Structure Function and Drell-Yan Processes"

13 Feb: Sir S F Edwards/Cambridge
"Visco Elasticity as a Quantum Field Theory Problem"

NOTE: This lecture is at 1100hrs in R22 LECTURE THEATRE

19 Feb: F E Barnes/Southampton
"Quark and Gluon Constituents in the MIT Bag Model"

NIMROD LECTURES
LECTURE THEATRE - 1400hrs

11 Feb: Dr Probit Roy/Tata Inst
"Gluonium"

18 Feb: Dr P Hasenfratz/
Budapest and CERN
(Title to be announced)

25 Feb: Dr J Ellis/CERN
"Grand Unified Theories"

SAFETY FILM SHOW
LECTURE THEATRE -
1230, 1315 and 1400hrs

20 Feb: "Principles of Machinery Guarding"
An outline guide to the provision, maintenance and correct use of machinery guarding with reference to the appropriate requirements of the Health and Safety at Work Act 1974.
Intended for supervisors and operators

EXTERNAL Events

THEO.PHYS.SEMINARS
T.P.CONF.RM.B424.4 - AERE - 1400hrs

12 Feb: Dr P M Hazzledine/Oxford
"Unstable Dislocations in FCC Metals"

19 Feb: Dr R D Smith/Risley
(Title not yet available)

26 Feb: Dr M W Finnis/AERE
"Energy Systems Analysis for the IEA"

NPD COLLOQUIUM
H8 CONF.RM - AERE - 1315hrs

14 Feb: Dr M S Tite/British Museum
"The Impact of Physics on Archaeology"

21 Feb: Dr T E Cranshaw/AERE
"Chemistry in Metallic Solutions"

PHYSICS COLLOQUIA
CLARENDON LAB - OXFORD - 1615hrs

15 Feb: Prof I Solomon/
Ecole Polytechnique
"A New Semiconductor with Industrial Applications: (hydrogenated) Silicon"

22 Feb: Prof P Nozieres/ILL
"Melting of ^{3}He and ^{4}He: Some Problems in Elementary Thermodynamics"

NUCLEAR STRUCTURE SEMINARS
NPD - OXFORD - 1430hrs

18 Feb: Prof W R Phillips/Manchester
"Neutron Densities in Nuclear Surfaces from Heavy Ion Reactions"

25 Feb: Dr A Shotter/Edinburgh
"The Decay of the Giant Quadrupole Resonance in Heavy Nuclei"

COMPUTING SEMINARS
NPL - OXFORD - 1630hrs

14 Feb: Dr D Parkinson/ICI Ltd
"The DAP Array Processor"

21 Feb: Prof F Sumner/Manchester
"Computing Architectures into the '80s' "

ELEM.PART.THEO.SEMINARS
NPLTh - OXFORD - 1430hrs

15 Feb: J C Taylor/Oxford
"Failure of non-Abelian Bloch-Nordsick Cancellations"

HEP SEMINARS
CAVENDISH LAB - CAMBRIDGE - 1500hrs

27 Feb: Dr F Loebinger/Manchester
"Results from the JADE experiment at PETRA"

ELEM.PART.PHYS.SEMINARS
DAMTP - CAMBRIDGE - 1500hrs

15 Feb: J R Klauder/Bell Labs
Title to be announced

22 Feb: A J G Hey/Southampton
"Are There Exotic Hadron States?"

PART.PHYS.SEMINARS
BIRMINGHAM - 1615hrs

15 Feb: Dr J Allison/Manchester
"Results from the JADE experiment at PETRA"

22 Feb: Dr P Landshoff/Cambridge
"Large t Elastic Scattering"

THEO.PHYS.SEMINARS
MANCHESTER - 1630hrs

13 Feb: Dr R Cant/Manchester
"The Fate of the False Vacuum: is the potential effective?"

20 Feb: Dr D Olive/Imperial
Title to be announced

SHEP SEMINARS
SOUTHAMPTON - 1430hrs

13 Feb: C Frogatt/Glasgow
"Quark and Lepton Masses"

22 Feb: P Hasenfratz/Budapest & CERN
"Field Theory on a Lattice"

Training

CONFERENCES

BRITISH COMPUTER SOCIETY

6 Feb: "Security, Reliability and Integrity in Process Control Systems"

IEE

16-18 April: "Communications 80"

29 April-2 May: "Effective Use of Electricity in Buildings"

UMIST

22-23 April: "3rd UMIST Solvents Symposium for Industry"

THE CHEMICAL SOCIETY

8-10 Sept: "Photoelectrochemistry"

13-15 April: "High Resolution Spectroscopy"

16-17 Dec: "Chromatography, Equilibria and Kinetics"

COURSES

NATIONAL CENTRE OF TRIBOLOGY

21 Feb: "Plant Lubrication Systems"

UNIVERSITY OF SALFORD

14-18 April: "Oil Hydraulic Circuits and Components"

LOUGHBOROUGH UNIV OF TECHNOLOGY

13-18 April: "Introduction to Environmental Toxicology"

15-18 April: "Principles of Designing Microprocessor Systems in Industry"

27 April-2 May: "Air Pollution in the Workplace"

UMIST

3 Day Courses repeated monthly throughout 1980 "Introduction to Microprocessor (for Engineers)

TRAINING SECTION, Ext 6285/266

New Detector *(cont'd. from p.1.)*

The new array is designed to be used in conjunction with this hyperon beam by a team from Bristol, Cambridge, Geneva, Heidelberg, Lausanne, Queen Mary College and Rutherford to measure hyperon-nucleon total cross-sections, to study the strangeness dependence of strong interactions as small momentum transfers.

Detection

Following the principle that the more elusive the particle to be detected and measured, the more complex the apparatus becomes, the Recoil Counter System has a central axis of 7 metres, a height of 4 metres, width of 3.5 metres and weighs about 20 tonnes. The main detection system consists of banks of multiwire proportional chambers (MWPC's) positioned either side of a hydrogen target (supplied by CERN) and at right angles to the beam. These counters are backed on either side by large time-of-flight and range counters. The banks of chambers comprise, inner chambers of all-wire MWPC's (900 mm x 300 mm) mounted in pairs immediately either side of the target with both anode and cathode read-out. Either side of the recoil structure are time-of-flight and range counters - each unit housing four large curved light guides/ scintillator assemblies, with a number of small ones concentrated inside around a lead absorber.

Supporting Role

The structure also supports the hydrogen target and its services. A further ten MWPC's, 6 beam chambers, and numerous hodoscopes and veto counters are located above and below the target - and in the parts other counters cannot reach!

Twenty-two of these beam chambers have already been supplied to CERN, as has a wide-angle gamma detector, which will be incorporated into the configuration.

The engineers have done their bit - we look forward to some exciting physics results in the near future.

We thank Ted Wallis for the information contained in this article.

Sales to Employees

Tenders submitted in response to Rutherford Laboratory Circular No 28/79 were opened on Monday, 28 January 1980, in the presence of D J Price, Union Site Convenor; R F Childs, Secretary Staff Side; H Aldred, Chief Storekeeper, and J Jenkins, Chief Finance, Accounts and Stores Officer. There was considerable interest shown throughout the site in the articles on offer and, with the exception of two items, all articles have been successfully bid for. The successful applicants have been notified.

Nimrod has Gone *(from p.1.)*

Each Nimrod magnet sector, he explained, had a history of its own. This last one, No 86, had been made at Sankey's and was finished on 5 July 1959. Moreover, it was one of a chosen few; the sixteen octant end sectors were selected for their mechanical precision and excellent magnetic characteristics. It may even have been one of the sectors that gained notoriety when its trailer broke down in the middle of Oxford's Cornmarket! Even now its usefulness was not at an end, since the sectors are scheduled as SNS target shielding.

Now, on this his first day at the SNS reins, he looked forward to getting on with the task in hand. This unique machine is an interesting challenge to its builders, and although there are many problems to be solved, there is the promise of lots of exciting Science for the future. He thanked Ron Russell, the departing head of SNS, for all his past help, and for the assistance he was counting on for the next few months.

Ron Russell in turn thanked everyone for their continuing effort and wished David Gray well in his new role. As a 'welcome back' token he presented him with a brand new pole-piece jack. Then, with a mighty swing, David smashed a bottle of bubbly against the last sector, which swung smoothly into a truck and out of the magnet hall, to the claps and cheers of those assembled. David was promptly awarded a score of 8.7 for artistic interpretation.

OVERSEAS Visits

F J Wickens to CERN from 14-21 Feb to work on NA11.
N M King to San Diego from 17 Feb - 8 March to attend Fusion meeting.
J S Hutton to CERN from 17-21 Feb to attend WA57 and WA4 analysis meeting and discussions.
G B Stapleton and D R Perry to USA from 18 Feb-9 March for discussions on SNS radiation problems.
P H Walker and B P Judd to DESY and CERN from 18-23 Feb to inspect R.L. equipment.
R G Evans to San Diego from 24 Feb - 8 March for conference and discussions on Fusion research.
A F Gibson and M H Key to San Diego from 24-29 Feb to attend ICF conference.
G Manning to CERN and Zurich from 26-28 Feb for meetings.
J E Bateman, T A Walker, J F Connolly, R J Gray, A G P Parham & S Jaroslawski to Vienna from 26 Feb - 1 Mar to attend wire chamber conference.
H Hurst and S J Tunstall to USA from 28 Feb - 1 Apr to attend SHARE Conference and visit computer installations.

Professor EHS Burhop

It was with deep regret that his many friends at the Rutherford Laboratory learned of the sudden death of Eric Burhop on 22 January.

Eric Burhop, a Tasmanian by birth, was educated at Melbourne University and Cambridge, where he worked under Rutherford in the heyday of the Cavendish Laboratory in the early 1930s. It was at this time that he started a lifelong association with Sir Harrie Massey.

After going to the U.S.A. during the war (with Massey), to work on the Manhattan Project, he returned to England and joined the Mathematics Department at University College London, later removing to the Physics Department where he remained until his retirement in 1978.

During most of his time at UCL he worked in experimental particle physics using the emulsion technique. This was a very important technique in the early days, both in Cosmic Ray and accelerator physics and the team at UCL was one of the leading groups in Europe. With the development of bubble chambers in the 1950s the use of emulsions became more specialized in its applications. A small group at UCL led by Eric Burhop continued with this work. Recently with the discovery of charmed particles having a very short lifetime ($\sim 10^{-13}$ sec) the emulsion technique re-emerged vindicating his belief that it had a place in the armoury of the high energy physicist. He pioneered its use in Hybrid Experiments both at Fermilab and CERN and his efforts were crowned by success, by the first observation of the track of a charmed particle in an emulsion stack exposed at Fermilab.

He continued his active pursuit of experimental particle physics even after he retired. The field has lost one of its most enthusiastic proponents and his many former students and colleagues, a warm friend.

Missing

One Telequipment D67 Oscilloscope - Serial No 424351 - possibly left on Rutherford Laboratory property.

Anyone who sees an oscilloscope answering to this description, please contact C Spence (CFM) Ext 4491 AERE.

A 'Stanley" finishing sander, has disappeared from R25 Workshop. Label No 004618.

Anyone knowing of its whereabouts please contact Roy Bell Ext 6137.

Film Badge Notice

It is period 2. Colour Strip PURPLE for beta-gamma films. Please check that you are wearing the correct film and all old ones are returned.

Next Film Change Monday, 25 February.

Crib Finals Night

The Evening was a great success. In the semi-finals of the Doubles match P Craske and R Newman beat R Hamilton and B Halsman, and Mr & Mrs Thompson beat D Evans and D Morrow. The final was won by P Craske and R Newman.

P Craske and D Morrow also reached the semi-finals of the Singles match, D Morrow losing to J Ackhurst and P Craske beating Mrs Thomas. J Ackhurst was the eventual winner of this competition.

The DINNER TIME League champions were the 'SAINTS' - A Grant (Captain), J Robertson and R Apsimon.

The Cups and Trophies were presented to the victors by Mr R E Thomas, Chairman of Rec Soc, and Mrs Thomas was presented with a bouquet by one of last year's winners Mrs B Powell.

I would like to thank all those who took part and made it such an enjoyable evening. Sorry it was late finishing but as you can see, some players were involved in both semi-finals, and finals.

T Morgan R18

Christian Fellowship

All Fellowship meetings are at 12.30, with a Welcome for all.

14 Feb: "Too Heavenly Minded to be of Earthly Use". A Bible Study/discussion led by Denis Williams in R2 conference room.

21 Feb: Guest Speaker Allan Joinson from AERE Christian Fellowship also in R2 Conference Room.

28 Feb: "The Kingdom of Heaven - Here and Now" Bible Study/discussion led by Jimmy Darius in Conference Room 3, R61.

Table Tennis

Rutherford Laboratory 'A' and 'B' teams continue their success in the battle for promotion in Didcot and District Table Tennis League.

The 'B' team of John Varley, Peter Tipper and Bob Hopgood have recently produced two more victories (even if by narrow margins) to keep their promotion hopes in Division II alive, by beating KAS and Howbery 'B'

Championship challengers, Rutherford 'A' (Tim Pitt, Eric Thomas and Colin Cherrill) won their latest tie with British Rail, - a hard earned, but well deserved victory - giving them a clear lead at the top of Division II.

Lunchtime Music

WEDNESDAY, 13 FEBRUARY,
1230 LECTURE THEATRE

SIBELIUS SYMPHONY NO 2 IN D MAJOR

BERLIN PHILHARMONIC ORCHESTRA conducted by OKKO KAMU

Okko Kamu, the brillian young Finnish conductor, says of the composer;

"One ought to do something for the genius of Sibelius. I want the 'intimate' meaning of his music to speak. A great deal is deeply hidden and he says what he has to say with the minimum of fuss. Genius is simple."

Chess

The latest positions in this years tournament are:-

Peter Craske	5½	points	from	6	games
Peter Hemmings	5	"	"	5	"
Neil Johnson	5	"	"	6	"
Dick Apsey	4	"	"	6	"
Asoke Nandi	3½	"	"	4	"

A close Tournament, there are still four rounds to go. All the leading players have still to play one another.

Folk Club

The next meeting will be on Friday, 7 March, featuring Mandy Morton and "Sprigons", a three piece band who play traditional and contemporary folk music.

Also appearing are the Reading Barber Shop Harmony Club, who will provide a variety of sounds to add to your enjoyment.

Tickets on sale at £1.40 on the door or £1.20 in advance from
John Ellis, Ext 6369/494
Alan Hodges, Ext 6323

Art & Craft Exhibition

The second Laboratory Art & Craft Exhibition is to be held in the R12 Conference Room on Tuesday 17th, Wednesday 18th and Thursday 19th June, during the lunch periods. It is hoped that members of the Laboratory will be willing to exhibit their work on these days.

The 1979 Rutherford Laboratory Exhibition Committee extend a welcome to the staff of Appleton Laboratory, and invite them to join us in exhibiting their work.

Application forms will be available shortly. For further information please contact Jenny Coates Ext 430 or Myra Gilbert Ext 6143.

Day-Trip

The itinerary for a coach trip to view the WEDGEWOOD FACTORY on Wednesday 23 April is as follows:-

Leave Rutherford 8.30 to 9.0 a.m.
Lunch on the way - not included in the price.
Arrive 'Wedgewood'- 1.30 to 2.0 p.m.
Depart - 5.00 p.m.
Arrive Rutherford - 8.00 p.m.

Fare £3.25
All enquiries to Sylvia Peston
Room G29 Building R1 Ext 6261.

RUTHERFORD LABORATORY BULLETIN

Deadline for Insertions 1000 hrs Monday 18 February

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Published by the Scientific Administration Group