RUTHERFORD Bulletin 19

8 - 22 November 1976

Network Unit Starts Work

Already at work on the top floor of R1 is the Network Unit of the Computer Board and Research Councils - a new group set up to look into the short-term development of communications links between computers at universities and Research Council Establishments throughout the country, including those of the SRC. Although it operates from RL, the new Unit, called the Network Unit for short, is not part of the SRC, and is funded jointly by the Computer Board for Universities and by the SRC on behalf of all the Research Councils.

Director of the new Unit is Mervyn Williams, formerly Director of the Post Office's Telecommunications Development Department and one time Deputy Director of Engineering at the Post Office. Mr Williams has played a notable part in the creation and implementation of world standards for data transmission systems. He has been a member of the SRC Computing Science Committee, the Department of Industry's Computers, Systems and Electronics Requirements Board and the Computer Agency Council.

Other members of the new Unit are Chris Morris, formerly Network Co-ordinator of the South West Universities Computer Network and Roland Rosner, ex-RL HEP man, who will be able to reflect the points of view of universities and research establishments respectively. Secretary to the new Unit is Janet Charles, who seems to be getting around a bit these days.

Networks between University Computing Centres and between Research Council Institutes have been formed mainly within geographical regions. There are also United Kingdom wide connections to the three large computing centres in the Universities of Manchester and London and the Rutherford Laboratory. The aim of the Unit will be to lay a foundation for rationalising and extending existing networks in a form that will be compatible with one another and with national developments being undertaken by the Post Office and the Department of Industry.

Another new unit soon to be set up at RL is the Secretariat of the Department of Industry's National Committee on Computer Networks. Chaired by ex-director of the Atlas Laboratory Jack Howlett, this committee has been set up to look into national computer network requirements in the 1980's and so has a somewhat wider brief than the Network Unit. The Secretariat at RL will be headed by Donald Audsley, now head of the Technical Operations Division of the Space Documentation Service of the European Space Agency.

Nimrod Beam Aids Cancer Research

Since 1971, a group of scientists from UK universities and hospitals has been collaborating with RL staff to investigate the possibility of using high energy particle beams to assist in the treatment of cancer, and the results of radiobiology and physics experiments carried out in the first five years' work of this collaboration are described in a report published by the Laboratory*.

Negative pions such as those produced by Nimrod, offer potential advantages over other radiation treatment because they can penetrate deep into a target volume and deposit much of their energy in a small region.

This gives a variation of radiation dose with depth where an initial flat region of relatively low dose is followed by a high dose region, and biological damage is further enhanced in this high dose region as a result of the nuclear fragments released being more densely ionising than fast-moving particles. In this way it is hoped that deep-lying tumours could be irradiated without causing undue damage to the surrounding tissue, and this effect may be enhanced by using several intersecting beams.

'Dose Fractionation' experiments, in which samples are exposed to repeat small doses of radiation over intervals of hours or days rather than a single strong dose, indicate that radiation effects using pions may be further enhanced compared with conventional radiation treatment.

Radiological experiments also show that low levels of oxygen, as occur in tumours with a poor blood supply, give increased susceptibility to damage by the nuclear fragments resulting from pion irradiation. This shows that pion beams could potentially be very effective in the treatment of cancer.

Further experiments on both the microdosimetry of the pion beam, in which the distribution of dose varies on the scale of some biologically sensitive structures, and on the effects of pion radiation in general on living tissues are in progress.

**Progress Report of the Radiobiological Work using a Negative Pion Beam at the SRC Rutherford Laboratory 1971-76 (RL-76-092).*

INTERNAL EVENTS

NIMROD LECTURE SERIES
Monday 8 November
11.30
Lecture Theatre

Coherent Parity Violation

G Karl/RL & GUELPH, Canada

HEP SEMINAR
Wednesday 10 November
11.00
R61 Conference Room

Vector Meson Search at DESY

C Bradasohia/Pisa

SPECIAL LECTURE
Thursday 11 November
15.15
Lecture Theatre

Nobel Prize 1976 (see page 3 for details)

Frank Close & Chris Damerell/RL

DIRECTOR'S STAFF MEETINGS
Friday 12 November
10.30 and 1400.
Lecture Theatre

A Staff Meeting will be held in the Lecture Theatre at 1030 hours with a repeat at 1400. The Director will address the meeting.
Invitations will be made by Divisions and closed circuit TV will operate in the R22 Coffee Lounge.

NIMROD LECTURE SERIES
Monday 15 November
11.30
Lecture Theatre

Arrangements for a lecture have not been finalised at the time of going to press.

Please watch notice boards for details.

HEP SEMINAR
Wednesday 17 November
11.00
R61 Conference Room

Some Interesting Classical Solutions to Gauge Theories.

E Corrigan/Durham

HEP DATA HANDLING GROUP SEMINAR
Wednesday 17 November
1330
R61 Conference Room

The Manchester University MUSS Operating System

G Frank/Manchester University

The Computer Science department at Manchester University has been developing a highly adaptable and portable general purpose operating system (called MUSS) and this system has been impelmented on the MU5 computer, ICL 1906, PDP11 and several other machines. The structure of the system which allows this easy adoption to many different installations will be described together with several useful software tools which are used during implementation as coding and documentation aids.

TRADE EXHIBITION
Thursday 18 November
1000 - 1600
R1 Foyer

Erosion, corrosion, insulation and temperature problems could be solved by this display of Anderman & Ryder 'DERANOX' alumina ceramics. The display will include large and small components, high and low temperature components, thick film printed alumina, and ceramic packages for hybrid.

NIMROD LECTURE SERIES
Monday 22 November
11.30
Lecture Theatre

Weak Interaction Review OR, Charm and CP Violation

Dr P K Kabir/CERN

SAD NEWS **Early this week news came of the death of Alf Armstrong on Friday 29 October. He had collapsed and died suddenly while working on his house.**

Alf, who was aged 60, had taken early retirement and left the Lab at the end of May, just five months ago.

He was one of the early pioneers, as before joining the Lab staff in 1960, he had worked here in the late 50s as a member of a small team from UKAEA Capenhurst carrying out vacuum testing on Nimrod components.

We extend our deepest sympathy to his wife and two daughters.

AERE MAIN GATE **As from Monday, 8 November 1976 the AERE Main Gate will be open for incoming traffic only from 0730-0900, not for outgoing traffic. Drivers should note that the road width will be restricted.**

OVERSEAS VISITS **M J Hotchkiss, to CERN, 7 Nov - 3 Dec., to work on WA3 experiment.**
P Haskell & G McPherson, to CERN, 10-19 Nov., hardware and software interfacing between NORD 10 and RL special purpose processor for WA7.
D B Thomas & G H Rees, to Erice, Sicily, 13-16 Nov and 10-22 Nov respectively to lecture at International School of Particle Accelerators - J R M Maidment will attend this school from 10-22 Nov, also F Atchison.
J M Valentine, to Strasbourg, 15-17 Nov., to attend international meeting on aspects of Administration of Research Establishments.
C J S Damerell, to CERN, 15 Nov - 3 Dec., to work on WA3.
D J Crennell, to CERN, 16-26 Nov, to work on computer programs for track following in BEBC and the EMI.
B D Jones, to CRNS, Paris, 16 Nov, to attend meeting to orgnaise Franco - British Meeting on Energy Systems.
W Cameron, to CERN, 23 Nov - 12 Dec., to work on hardware and software for the EMI and EPI systems for BEBC.

EXTERNAL EVENTS

THEORETICAL PHYSICS SEMINARS/CLARENDON LAB - 1615 hrs.
11 Nov : Dr R Bullough/UMIST - Solitrons in physics.
18 Nov : Dr B Buck - Clustering in light nuclei.

ELEMENTARY PARTICLE THEORY SEMINAR/NP LAB., Ox - 1430 hrs.
12 Nov : Dr J C Pati/IC - Observable Quarks, Gluons & the Leptons.
19 Nov : Dr L J Reinders/Ox - Isospin conservation in multi-particle production.

ELEMENTARY PARTICLE PHYSICS SEMINAR/NP LAB., Ox - 1430 hrs.
11 Nov : Dr D H Davis/UCL - Recent charm searches in emulsion.

THEORETICAL PHYSICS SEMINAR AT QMC - 1651 hrs.
15 Nov : Dr R J N Phillips/RL - The production of charmed particles.

APPLIED MATHS SEMINARS/ROYAL HOLLOWAY COLLEGE
10 Nov : Prof S C Haydon/Ox - Spatial & temporal studies of excitation and ionization phenomena in gases (1430 in Physics).
11 Nov : Dr K L Balaga - Ionization of helium (1500 in Maths).

THEORETICAL & HEP SEMINARS AT SOUTHAMPTON U. - 1430 hrs.
10 Nov : Dr J Cardy/CERN & Santa Barbara - Reggeon field theory.
12 Nov : Prof E J Squires/Durham - Can we do without quarks?
19 Nov : Prof A Houghton/Brown U. & UMIST - Critical phenomena and approximate renormalization group transformations.

HEP SEMINARS/CAVENDISH LAB. CAMBRIDGE - 1500 hrs.
10 Nov : D H Saxon/RL - Analysis of the reaction $\pi^- p \to \Lambda^0 K^0$ below 2 GeV (postponed from 27 Oct).
17 Nov : P G H Sandars - Neutral currents & the search for atomic parity violation.

HEP SEMINARS/MANCHESTER UNIV - 1415 hrs.
11 Nov : F A Berends/London - The Q.E.D. reactions in e^+e^- collisions.
18 Nov : E H S Burhop/UCL - Neutrino interactions in emulsions.

THEORETICAL PHYSICS SEMINARS/MANCHESTER UNIV. 1430 hrs.
10 Nov : Dr B Buckley - Intermediate-to-high energy electron-atom scattering.
17 Nov : Dr D Ter Haar/Ox - Some recent developments in plasma turbulence.

PHYSICS & GEOPHYSICS COLLOQUIUM AT BRISTOL U. - 1700 hrs.
8 Nov : Dr M G Priestly - Magneto-optic experiments in semimetals.

THEORY SEMINARS AT DARESBURY LAB - 1400 hrs.
8 Nov : Prof Indrek Martinsón/Lunds U. Sweden - Recent progress in studies of atomic spectra and transition probabilities by beam-foil spectroscopy.
15 Nov : C J Todd/P.O. Telecom. - Relaxation problems in auger spectroscopy: examples for metal, semiconductor and oxide systems.
22 Nov : Prof B L Moiseiwitsch/Belfast - The scattering of polarized electrons in mercury.

NUCL. PHYS. DIV. COLLOQUIA/AERE, CONF. RM., H8, - 1530 hrs.
11 Nov : Dr P J Twin/Liverpool - On-line computers - a user's view.
18 Nov : K E White/Water Research Centre - Application of tracers to the problems Water industry.

THEOR. PHYS. SEMINARS/AERE, CONF. RM. BLDG. 8.9 - 1415 hrs.
12 Nov : Prof N H March/I.C. - Bond charge density and the structure of amorphous silicon and carbon.
19 Nov : Prof R Cowley/Edinburgh - Neutron scattering from liquid helium.

MISSING EQUIPMENT The following items of equipment have been reported missing from Room 1.53, Building R1:-
One Silica lense, 1" diameter, 75 mm focal length (Oriel Corporation USA. Ser. No. All - 641 - 25).
Two small soft, coloured bags, stamped - Oriel, Stanford Conn.
The lense is only of value for very specialised work and is useless for general use. Anyone with information on the above items is asked to contact R J Homer, Ext. 6627.

A bicycle, Ser. No. RL 189 was collected from Taylors in error, following repair. Will the person now in possession of this machine please return it to the rightful owners, ie, R18 Electronic Workshop. Please contact M L Moore R18, Ext 6633/6327.

Electric Stanley Handsaw, AERE No. 1272, SRC No 14/2177 has been reported missing from Lab 4, R1. Anyone with information on the present whereabouts of the above item is asked to contact W Spinks, R1, Ext. 6209.

LAST SEEN ...? In order to trace the whereabouts of all typewriters on site would anyone with information on the following machines please advise Inventory Section, R20:-
Manual, Imperial 70. Ser. No. 7A-81892.
Manual, Imperial 66. Ser. No. 6F-78175.
Electric, Olivetti Forum, Ser. No. E16-9417943.

FILM BADGE NOTICE It is Period 12. Colour Strip - YELLOW for $\beta\gamma$ films and neutron packs.

Please check that you are wearing the correct disometer and that all old ones are returned.

Six monthly TLD dosimeter change for people with surnames commencing S, T, U and V.

NOBEL PRIZE 1976 The Physics Prize has just been awarded to two American scientists who discovered a totally new kind of elementary particle.

The extraordinary story behind this award starts with a heartbreaking near-discovery in 1970, which was not followed up in any of a number of laboratories where the new particle could have been found. Finally at the end of 1974, the particle was found simultaneously at two laboratories in entirely different kinds of experiments.

Subsequently the discovery of numerous relatives of the original particle has proved beyond resonable doubt a bold theoretical picture which enormously advances our understanding of fundamental physics.

Non technical people who are interested in knowing why the physicists have been so excited by these discoveries are invited to come to a talk by Frank Close and Chris Damerell, to be given on the second anniversary of the discovery.

After the talk on the S120 experiment given by Chris Damerell last November, we commented on the success he had in getting the objectives, development and achievements of his experiment across to a wide range of people. Nevertheless, we were a little surprised at the large demand for a repeat of the lecture which was given in January this year; we were not surprised by requests for more talks of that kind. The obvious message is - come early if you want a seat!
Chris and Frank will give their talks at 15.15 on Thursday 11 November in the Lecture Theatre.

CHRISTIAN FELLOWSHIP The next meetings are on 12 and 19 November when Frank Smith will be leading two studies in St Paul's Epistle to the Colossians. All are welcome to these meetings - R12 Conference Room at 12.30.

Retirements

As the retirement list grows an important fact is beginning to emerge; many of our old friends & colleagues are putting their long experience and expertise to very good use often to the benefit of those parts of society in need of specialised help.

Frank Telling is already using his considerable engineering skills and in particular his organising ability with REMAP, likewise Harold Wicks, and the list is growing. Jim Pinchin's 'know how' will help children in a school lab and the latest to join the ranks is Basil Fish who has now left the Lab to work fulltime as an instructor at a training centre for the mentally handicapped. He is no stranger to this work as for many years he has been the leader of a club for them at Abingdon.

Basil completed his engineering apprenticeship during the last war and went to sea as a marine engineer, notching up two trips round the world before emigrating to Australia four years later to work for two years on a hydro-electric scheme in Victoria. A spell of two years lumberjacking in New South Wales and Queensland was followed by marriage in Melbourne and a return to engineering before remigrating to England in 1953.

As a change from fighting bush fires Basil joined AWRE as a craftsman and following promotion moved to the RL in 1958 to work in magnet installation and alignment. He was transferred to the Bubble Chamber team in '62 and installed gas compression plant.

The return of the chamber from CERN in 1965 meant a change of work being transferred to the Safety Group because of his knowledge of dangerous gases, subsequently remaining with the Group, working on all aspects of safety.

Basil slipped away very quietly on 1 October - however he wishes, through these columns to say goodbye to all those he was unable to see before he left.

We wish Basil every success in his work with the mentally handicapped, a cause to which he has already given so much and to which he is completely dedicated.

* * * * *

Few people visiting R20 during the past 12 years will have realized that the quiet unobtrusive person they may have passed was an ex Cameron Highlander.

Born in the army, John Swain joined the Royal Artillery in 1929, transferred to the Queens Own Cameron Highlanders in 1933 and finally retired in May 1964 after nearly 35 years continuous service.

After rising through the ranks to Quarter Master Sergeant he was commissioned in 1940 and served in the regiment throughout the war in many countries. In 1946 John resigned his commission and reenlisted the same day as a private. Promotion was rapid as the same day he rose to Sgt and to Sgt Major the following day. He transferred to the Military Provost Corps the following year, transferring again in May 1950 to the Ordnance Corps as a Staff Sgt dropping a rank in so doing. Two years later he was commissioned as Captain Quarter Master finally retiring in May 1964 as Major Quarter Master still a Cameron Highlander.

John's wartime exploits alone could fill a book as he saw service in Palestine, Egypt, India, Shetlands, North Africa, North and South America, Netherlands, West Indies, Albania, Yugoslavia and Italy. His stories range from the fantastic hospitality he and his fellow Cameron Highlanders received during a few months stay in New York to hair raising experiences in Albania with the Partisans. John's dislike of flying stems from the latter as he and 5 fellow officers were sent to Albania to liaise etc with the local partisans. They went by plane, on the way the pilot casually remarked that of course, all had undertaken parachute training. They had not! Ten minutes instruction and out into the dark night into a strange land and an unknown reception which at dawn was at first - very unfriendly!

Sufficient to say that John's wartime service ended at Cassino. After leaving the Army, he worked at the M.G. Co at Abingdon on security for a few months before joining the Lab in Sept. 1964 to work in the Finance & Accounts group for 12 years, the latter half in charge of the Bill Paying Section.

Parting gifts of a golf trolley and two Edinburgh glass goblets were presented by John Jenkins on behalf of John Swain's friends and colleagues. In wishing him a happy retirement John (Jenkins) spoke of John's (Swain) years of consistent hard work particularly in the Bill Paying Section. The following has been received:-

"John Swain says 'Cheerio' to all friends and colleagues whom he did not see personally and thanks them all for the retirement gifts. He also hopes to call in for the odd 'Cuppa' and will most certainly be at the 'Christmas Bunfight.'"

* * * * *

Described by Bert Hadley as a man of many parts, Derek Smaje left the Lab at the end of Sept to return to full time education. By the time this appears Derek will have started a 4 year degree course in French and contempory studies at Oxford, after which he has hopes of a new career, probably involving simultaneous translations at technical conferences etc.

After completing his apprenticeship in electrical engineering Derek worked in the industry for a number of years before joining the Lab in 1958 as an electrical craftsman. By 1960 he had found his feet as a technican in the electronics outside manufacturing section where he remained until his departure at the end of September this year.

Derek however as Bill Hadley remarked at his presentation is a man of many parts and he diversified his activities long ago. In 1967 Derek began, in his own words - "an interesting, profitable and happy association with Staff Side and the IPCS. I gained a great deal more than I gave, and involvement in Staff Matters is recommended for anyone - particularly if they think they're important!"

Derek has a flair for languages, his French for instance is sufficiently extensive and fluent for him to run lunch time conversation classes for his colleagues. Other activities include writing stories, (one being presented on BBC television), another being in the catering industry including a cafe at Didcot & a service, part of which still exists, providing the whole wedding organisation of catering, clothes, flowers and transport.

Another lunch time activity since 1969, when Derek was converted to Christianity, has been his association with the Christian Fellowship which has brought him much enjoyment.

On behalf of his friends and colleagues, Bert Hadley presented Derek with book tokens to help with the long list of course books he will need and wished him every success in his degree and his second career.

As usual, the final words are from Derek:-

"My time here has been very, very happy and I would like to thank all I have worked with and talked with. Having launched three delightful children into the world and having an understanding wife I am looking forward with delight to my four years at Oxford."

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