RUTHERFORD Bulletin 18
3 - 17 October 1977

New Chairman for SRC

Professor Geoffrey Allen FRS appointed

The Rt Hon Shirley Williams, Secretary of State for Education and Science, has appointed Professor G Allen FRS to be Chairman of the Science Research Council for a four-year period from 1 October 1977. He succeeds Sir Sam Edwards FRS, who is returning to the University of Cambridge as John Humphrey Plummer Professor of Physics after four years as Chairman of the SRC.

Geoffrey Allen was educated at Clay Cross Tupton Hall Grammar School and the University of Leeds. He was appointed Professor of Chemical Physics at the University of Manchester in 1965, and has established his main research interest in the field of polymer science. He moved to Imperial College in 1975, as Professor of Chemical Technology, and was elected a Fellow of the Royal Society in 1976.

Professor Allen has served on the chemistry, neutron beam, polymer science and material science and technology committees of the SRC and is the current Chairman of the Engineering Board.

Three new members of the Council have been appointed, each for a term of four years. They are: Professor R L F Boyd CBE FRS of University College London, Professor J Brown of Imperial College and Mr D H Roberts of Plessey Ltd. Professor H Elliot CBE FRS and Dr A T James are retiring from the Council on completion of their terms of office.

Rutherford Hosts ECFA Study Week

but there will be sessions held at the Rutherford Laboratory Lecture Theatre (R22) which will be open to all to attend. These will be on Monday 10 October (9-10.30 am) and on Friday 14 October (all day).

The Friday talks will include US accelerator projects and summaries of the conclusions of the Study Week.

Further details may be obtained from Peter Norton Ext 209.

There will be an ECFA (European Committee for Future Accelerators) Study Week on ep Storage Rings, organised by the Rutherford Laboratory and held at Milton Hill House from 10-14 October 1977.

The purpose of the study is to look closely at the possibility of a future ep colliding beam facility in Europe.

Attendance at the Study Week is by invitation only,

INTERNAL EVENTS

USERS MEETING
Monday 10 October
1100-1600
Lecture Theatre

1100:	Coffee	
1130:	Report on Recent NPB Activities	*W Burcham*
	CERN Users Association	*J D Dowell*
	Report on ECFA Meeting on e^+e^- Storage Rings	*I Duerdoth*
1245:	Lunch	
1400:	Possible Plans for CERN in the 1980's	*S Fubini, F Bonaudi*
1600:	Tea	

HEP SEMINAR
Thursday 13 October
1100
Lecture Theatre

The Phenomenology of the Next Left-Handed Quarks

J Ellis/CERN

HEP SEMINAR
Wednesday 19 October
1100
R61 Conference Room

Status Reports on SPS Experiments:
(a) Leptonic Decays of Hyperons (WA2) — *R M Brown/RL*
(b) Two-Body Reactions, High p_T (WA7) — *B G Duff/UCL*

EXTERNAL EVENTS

THEOR PART PHYSICS SEMINARS/NP DEPT, OXF - 1430 hrs
5 Oct: Dr F Legovini/Trieste - The relativistic membranes.
14 Oct: Dr J E Paton - Two-dimensional QCD.

HEP SEMINARS/CAMB U, DAMPT, ROOM A - 1500 hrs
6 Oct: K Gaemers/CERN - Scaling Violations in deep inelastic lepton scattering.
13 Oct: D Olive/Imp Coll - Theory of monopoles.

HEP POSTGRADUATE LECTURES/CAVENDISH LABORATORY, CAMBRIDGE
Dr B R Webber will give a course of 6-8 lectures entitled "Hadron Interactions at High Energies" on Tuesdays and Thursdays, 11.30-12.30 starting Tuesday, 11 October in Seminar Room B, Rutherford Building.

PHYSICS AND GEOPHYSICS COLLOQUIA AT BRISTOL U - 1700 hrs
10 Oct: Prof R V Jones/Aberdeen - Ether drag and radiation pressure.
17 Oct: Dr B S Buxton/Cavendish - Electron microscopy diffraction effects in two dimensions.

HEP SEMINARS/MANCHESTER U - 1415 hrs
11 Oct: R Marshall/Daresbury - Photo - and Electro - production: selected topics from Hamburg.
18 Oct: A Donnachie, J Ellison/Manchester - Report from Hamburg Conference.

THEORETICAL PHYSICS SEMINARS/MANCHESTER U - 1430 hrs
9 Oct: Dr A D Bruce/Edinburgh - Structural phase transitions. Critical phenomena and the renormalisation group.
12 Oct: Prof Z Kopal/Manchester - X-Ray binaries.

THEOR PHYS SEMINARS/AERE, CONF RM BLDG 8.9 - 1400 hrs
11 Oct: Prof Sir Rudolf Peierls - The concept of relaxation time.
18 Oct: Dr M Burt/Cavendish - Negative electron affinity photocathodes.

NUCL PHYS DIV COLLOQUIUM/AERE CONF RM, H8 - 1530 hrs
13 Oct: Prof A Gibson/RL - High power pulsed lasers and the new SRC Laser Division.

OVERSEAS VISITS Dr R W Newport, Mr R Carter and Mr B Diplock, to CERN, 4-5 Oct, to attend meeting on European Hybrid Spectrometer.
Dr D H Saxon, to DESY, 5-6 Oct, to attend two meetings.
Mr A R Mortimer, to DESY, 5-7 Oct, to attend a JADE collaboration meeting.
Dr G L Greene, to ILL, 7-14 Oct, for discussions on design of Spin Rotation experiment and to attend Conference on Fundamental Physics with neutron beams.
Mr H Normington and Mr A Dobbs, to CERN, 9-15 Oct, to carry out work on the WA3 experiment.
Dr A Bryden, Mr M J Holmes, Mr A R Thorne, and Mr A S Dunn, to Munich to install and run RL exhibit at SYSTEMS 77.
Dr G C Stirling and Dr W G Williams, to Vienna, 16-22 Oct, to attend IAEA Symposium on Neutron Inelastic Scattering.
Dr J D Lawson, to the USA, 16-29 Oct, to attend Heavy Ion Fusion Study Group meeting at Brookhaven and to visit Cornell University and the Naval Research Lab, Washington.

CERN FELLOWSHIP Details of CERN Fellowships during 1977-78 are now available from Mrs R Jeans, Personnel, R20. Scientists wishing to work at CERN can apply under the following schemes: Fellowships; Scientific Associateships; Corresponding Fellowships and Travelling Fellowships.

MISSING EQUIPMENT The following item of equipment has been reported missing from an office in Building R1 _

12" Desk Fan, RL No 14/3428.

Please return to E Gibbs, Room 0.12, R1.

The following item of equipment has been reported missing in transit between repair at RL and experiment WA2 at CERN.

LeCroy camac Analog-to-Digital Connecter, Model 2248, Ser No 16100

Anyone with information is asked to contact R J Gray, R1, Ext 213.

FILM BADGE NOTICE Period 11 commenced Monday, 3 October. Colour Strip - ORANGE for $\beta\gamma$ films and neutron packs.

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

Six monthly dosimeter charge for people with surnames commencing O,P,Q and R.

Library News

For the past 2 months the Library has been learning how to use the immense facilities offered by a data base of 10-15 million references to books, journals, patents, reports, conferences etc.

As many of the worlds abstracting services for scientific information started to produce their publications using computers it was realised that the tapes they compiled could be also used for information retrieval.

The American space program required vast amounts of scientific and technical information and the Lockhead Aircraft Co developed an interactive computer system called DIALOG to access these tapes. DIALOG was made available to the European Space Agency who call it DIALTECH and the RL Library is now linked to both systems. Access is via the telephone system which links us to the TYMSHARE network and on to Palo Alto California for DIALOG or via another network to Frascati for DIALTECH.

About 70 data bases are available covering almost every possible subject in science, engineering, technology, medicine and the social sciences. The system is available through all working hours and the only break down so far has been for the New York power black-out as TYMSHARE goes through New York.

For further information and also for using the system contact Elizabeth Marsh in the Library Ext 6668.

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The Library has had made up some pads of request forms for general use. They comprise an original and 2 copies and list all the information which ideally is needed to obtain publications.

Staff should retain one copy as their own record of requests and send the other 2 to the Library; if the publication is not immediately available one of the copies will be returned with a note about action taken.

Sometimes things take a little longer to buy or borrow than expected and this should help staff to keep track of requests. It does help if all available information can be given, as references in books and journals are all too frequently unreliable, and the extra details help the various libraries to check for errors.

OFFICE MOVE The Technical Services Record Office of the Engineering Services Department has moved from R20 to R16 to which all documents, warrants, requisitions etc should now be addressed. Telephone numbers are unchanged.

LIFEBOAT FUND The recent collection around the Laboratory for the Civil Service and Post Office Lifeboat Fund realised a total of £44.63, a sum which betters the previous best by about £10.

The organisers wish to thank all those who contributed and in particular, the messengers whose efforts with the collecting boxes made it all possible.

YOGA CLUB For approximately 18 months now a small group of people have been getting together once a week in the lunch-hour to practice yoga. This consists of some gentle exercising followed by a short period of mental and physical relaxation. The combination of exercising and relaxing will help to counteract the effects that tension and lack of physical exercise produce during the working day. However, in order to continue the activities of this club, we badly need new members and anyone who is interested in coming along to join in is more than welcome. 6th October is now the date at which we can start - given enough support!

Teacher - Mrs L Cooke, R1

Time & Venue - R12 Conference Room, Thursdays 12.00-12.50

AMATEUR PHOTOGRAPHERS - YOUR ATTENTION John Hardaker would like to contact other amateur photographers on the RL site. He is not interested in forming a club so much as an informal, help one another association which could be of benefit in a number of ways such as the bulk purchase of materials etc. If any photographer is interested give John a ring on Ext 6694.

TABLE TENNIS NEWS The Evening League section of the Rutherford Table Tennis Club held a pre-season tournament as a preparation for the competitive matches ahead. In the first part, when each played everyone else, Tim Pett, John Varley and Eric Thomas each lost one game. A points count decided the draw for semi-final pairing. Eric Thomas defeated Peter Horton fairly comfortably, while John Varley beat Tim Pett, but only after the 'Expedite' rule had been brought into force (it had taken them 15 minutes to reach 13-all). The final was a hard-hitting affair, with John's consistant topspin trying to contain Eric's mixture of heavy chop and sudden forehand smashes. Eventually, Eric emerged the victor.

LOST A recent inspection of the Table Tennis Club's match table, which is kept in a locked room in R15, revealed that the net has been removed. If anyone knows where the net is now, would they please get in touch with Eric Thomas, Ext 6219.

FROM THE EDITOR A few months ago the Sci Admin Group said 'cheerio' to Gordon Fraser who left to take up the post of Assistant Editor on the CERN Courier only to discover that Swiss typerwriters produced rather peculiar words.

From CERN we welcome back John Litt; welcome back as John was a University visitor to the Lab from 1958 to 64 'experimenting' on both the PLA and Nimrod. He then vanished to the sunshine of California to work on the 2 mile long electron accelerator at Stanford.

As it was a long walk from one end of the machine to the other he moved to CERN where very sensibly the beginning and end of their accelerators are at one and the same place. He joined Daresbury Laboratory 4 years ago transferring to the RL on 1 January this year still however continuing to live and work in Switzerland.

John has discovered that although many things have changed in Britain during his 12 years absence, the faces at RL are still as cheerful as ever! He can be found in Room 35, R20, Ext 6607.

Drifting to CERN

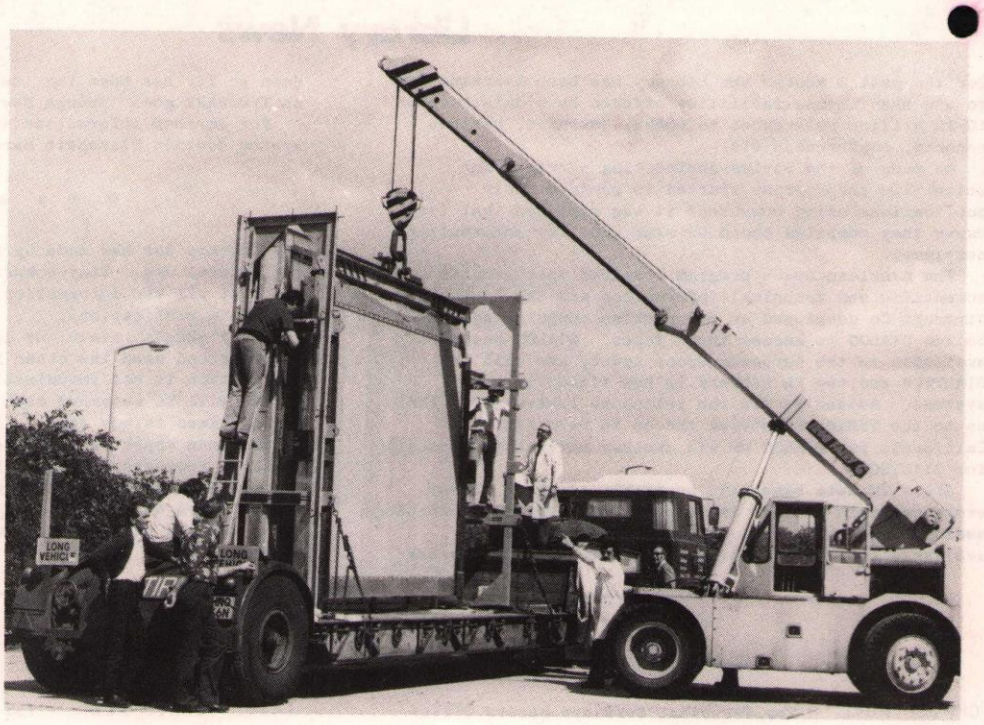

Photo: The first drift chamber being loaded for shipment to Geneva, to be used in the European Muon Collaboration experiments at the CERN SPS.

There was intense activity near building R12 at the end of August, as *all hands* were put to the task of loading an enormous drift chamber onto a flat-bed trailer. This is the first of a series of drift chambers, built at the Rutherford Laboratory, for use in the European Muon Collaboration experiments at the CERN Super Proton Synchrotron (SPS) in Geneva, Switzerland.

The chamber, 3m x 3.5m, was delicately placed onto the trailer and the snug load, over 5m high, began its six-day journey. The problems encountered at the A34 bypass roadworks and passing under the M4 were only the start! Although a special route was planned, several exciting moments were encountered *enroute*. Low bridges and overhead telegraph wires provided the most interesting distractions, and several detours were quickly arranged by the local police. On the last step of the journey, the overhead power cables had to be switched off as the load crossed the main railway line at Meyrin, near CERN. However, such excitement is just the start, for there are several more drift chambers under manufacture and some will be even larger!

The European Muon Collaboration involves 13 groups of physicists from institutions and universities in France, Italy, Germany and the UK. A large-scale set of equipment is being prepared at several major laboratories in Europe to be assembled in the North Area experimental zone of the CERN SPS.

The physics programme involves an extensive study of muon physics at high energies (up to 300 GeV) using intense beams (of up to 10^8 muons per pulse at 200 GeV) available only at the new CERN accelerator. This international physics programme, due to start early in 1978, is presently coordinated by Dr Erwin Gabathuler of the Rutherford Laboratory.

The UK contribution to the experiment is to provide a substantial software effort and several major items of experimental apparatus. The Rutherford Laboratory is building multiwire proportional chambers and their associated readout electronics, drift chambers and, in conjunction with Lancaster University, a 100-tonne calorimeter.

An array of lead glass counters is being prepared in collaboration with Sheffield University and beam halo counters are being provided in part by Oxford University.

A large-volume polarised target is being built as a joint project between Liverpool University, Rutherford and CERN, with Rutherford responsible for the superconducting solenoid and Liverpool for the cryostat.

The amount of work involved in providing the proportional and drift chambers was so large, and the timescale so short, that several groups were involved from the Instrumentation, Engineering and Nimrod Divisions

The first proportional chamber (a 3-plane chamber, 2m x 1m) was shipped to CERN during August and is now successfully installed in the beamline; two further chambers are under construction. The readout electronics for the MWPC have been specially developed by the Electronics Group.

The drift chambers are being made in two sizes (3.5m x 3m and 4.5m x 3.5m) and are fabricated using glass fibre honeycomb panels with three planes of sense wires and their associated graded high-voltage wire planes etched onto a flexible glass fibre laminate. These detectors, of which 12 are needed, are capable of determining the position of a charged particle track to within 0.3 mm over this large area.

The superconducting solenoid for the polarised target is being built by the Technology Division. The main coil has been wound and tested, and work on providing the trim coils is in progress.

There is much excitement in the North Area of CERN SPS as large pieces of equipment are arriving from several countries to be installed to form the European Muon Collaboration's huge magnetic spectrometer. But for the greater excitement we must await their first physics results early next year!

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1000 hours Tuesday 11 October

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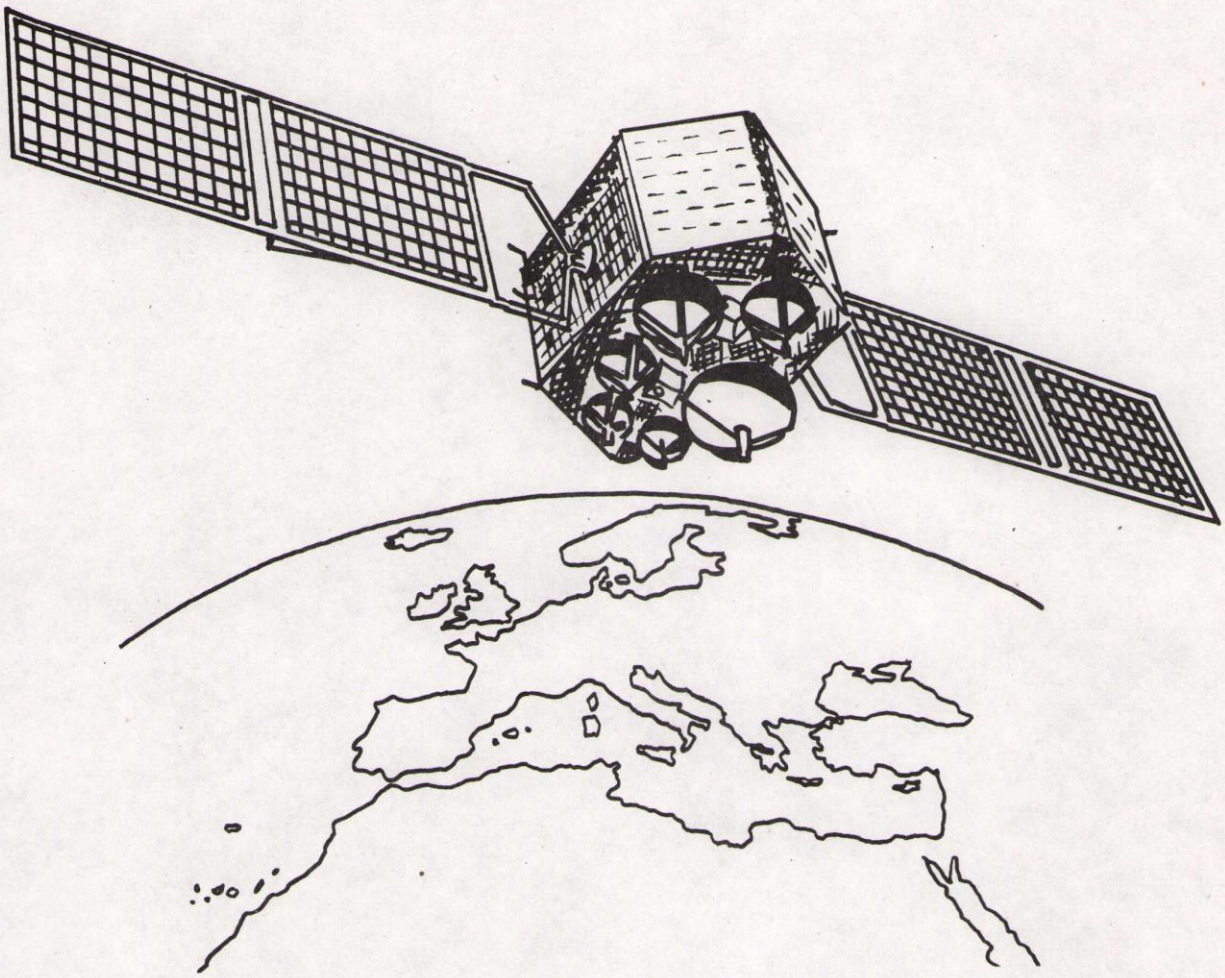
Europe's Telecommunications For The 1980s



Ten countries are involved in the development of a new European telecommunications network for the 1980s, including Belgium, Britain, Denmark, France, West Germany, Italy, The Netherlands, Spain, Sweden and Switzerland. The network is to be based upon four satellites communicating with a number of ground stations, and designed to carry a large part of the European telephone, telegraph and telex traffic and to relay Eurovision programmes. The satellites will be of a new type, designed and built in Europe.

The first step in the programme is to launch an Orbital Test Satellite (OTS) to perform several experiments to thoroughly checkout the performance of the new equipment. The European Space Agency has prepared the test satellite, and about 50 European institutes, universities and telecommunication authorities are involved in the various tests using more than 30 small ground stations and a few large stations.

Introducing....STELLA

One of the experiments on the OTS is to set up a high-speed data link between the Rutherford Laboratory, DESY, Saclay and CERN, in close collaboration with the telecommunication authorities in each country. The experiment was initiated by the EEC who have approved the funding of a small earth station and associated computer equipment for use at CERN. The British Department of Industry is funding the Rutherford Laboratory installation, and similar government funding has been arranged in France and Germany.

Called STELLA (Satellite Transmission Experiment Linking LAboratories), the project aims at demonstrating the possibility of sending data between ground station computers at speeds comparable to the processing speeds of the computers themselves, and at extremely low error rates, using a new frequency band (11 to 14 GHz). The links will be used to transfer high-energy physics data between laboratories involved in international collaborations.

Launch Setback

As readers have probably heard via the news media, the launch of the OTS from Cape Canaveral in Florida on 14 September was a failure. The rocket and satellite were destroyed in the air less than one minute after lift-off. This was an extremely sad blow to the programme; however, a back-up satellite will probably be launched in spring 1978 provided the Americans can give some assurance that a similar accident with the Delta rocket is extremely unlikely to happen again. If the launch goes ahead and is successful, one can look forward to using STELLA early in 1980.

The STELLA project is headed at CERN by Mervyn Hine; at the Rutherford Laboratory, John Burren is coordinating the project with Chris Adams providing the computer software and interface hardware and Mike Jane in charge of installing the earth station.

Already the United States has made a considerable investment in its own satellite communications programme and has recently approved a system involving hundreds of small ground stations for high-speed digital transmissions. The Orbital Test Satellite will provide valuable experience for Europe's future telecommunication network and the STELLA experiment will make its contribution to this exciting European venture.