Rutherford Laboratory

14-28 August 1972

bulletin 27

TD-IA SATELLITE - A FURTHER REPORT

In Bulletin No 20 we reported on the failure of the on-board tape recorders. At that time it was estimated that 16-18% of the data could be recovered using ESRO ground stations and possibly up to 25% if NASA ground stations could be used. The following report from Harold Wroe shows that the situation is now much improved.

Attempts to resuscitate the back-up tape recorder on 8 June were not successful and both recorders have now been abandoned. However the situation with respect to real time contact with the spacecraft is better than appeared at one time. Over thirty stations have been brought into operation compared to three or four which were available for normal operating with tape recorders. Most of the supplementary stations are receive only, some belonging to ESRO and some to NASA. One or two are three men mobile stations operated by ESRO personnel. The difficulty is, of course, that large parts of the earth's surface are not accessible either for political reasons (stations in Russia or China for example, are hard to establish) or geographical reasons - it is difficult to support stations at the poles or in the Pacific Ocean. One proposal was to make use of a station at McMurdo Sound, provided the proper crystals for the receivers could be dropped by air! Another proposal is to equip a small ship to operate in the Pacific. Some of the Pacific Islands such as Easter Island, Hawaii and Fiji will probably be used - a nice bit of foreign travel for somebody!

The spacecraft should be in contact with the ground for 40% of the time or over 50% if the ship station can be used. The sky coverage for S2/68 is rather less, since some of the stations overlap partially, but it should be 30-40% which is better than appeared originally.

The other TD-1 subsystems continue to operate well. The spacecraft recently survived an eclipse of the sun which effectively switched off the sun, as far as the attitude control system (ACS) is concerned, for a short time when TD-1 passed through the eclipse zone. The ACS was switched into one of its redundant modes ahead of time and successfully restored to normal after the eclipse.

S2/68 is also still operating very well. Some excitement was created on 25 July when a wrong command was transmitted which switched off the whole detector system! However, it was switched on again a few hours later with no harm done except an additional loss of data. At the time of writing about 73% of the sky would have been mapped, the whole sky being covered on 17 September. The satellite passes into eclipse at the end of October and re-emerges in the spring of 73. It may be possible to re-activate it at that time and collect data for another seven to eight months.

On the data side, the preparations for the computer reduction of the final data are well advanced at the Atlas Laboratory and we understand that the first ten tapes from ESOC are at Heathrow. It is hoped that the first computer reduced data output will be obtained in a few weeks time. Twenty 'in-house' projects for use of the data have been identified and these will be carried out at Mons, Liege, ROE, UCL and ARU. Thirteen requests for data have been received from astronomers in other laboratories.

An important line of research for which S2/68 data is particularly valuable is the subject of interstellar absorption, ie 'absorption' or to be more precise, scattering of starlight by the dust particles which exist between the stars. Interstellar reddening curves have been obtained for a variety of stars, ie the variation of photon flux with wavelength which is attributable to the dust. These results show that the reddening is not so variable from star to star as was previously believed. Some Wolf-Rayet stars have been identified. These are interesting objects showing strong emission lines which are thought to be due to the excitation of an extensive atmosphere round the star by light from the star itself.

Another fascinating observation was made just before the tape recorder failure when the Magellanic Clouds were seen. This is an extended object outside our Galaxy and is in fact our nearest galactic neighbour. The UV emission at short wavelengths is higher than expected and is apparently still rising at the short wavelength cut-off in S2/68. The object is a few degrees in extent and thus the spectrum scanning process in the spectrometer does not operate (it only works for point sources). However, by using a UV photograph of the same object obtained on the last Apollo mission, it may be possible to 'deconvalute' the S2/68 data to give a map of the Magellanic Clouds at about 1500 Å.

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INTERNAL EVENTS

NIMROD LECTURE SERIES
Monday 14 August
11.30
Lecture Theatre

Deep Scattering

Professor R Blankenbecker/SLAC

HEP DISCUSSION GROUP
Wednesday 16 August
11.00
Conference Room, Building R1

The Breakdown of μ-e Universality

Peter Watson/Carleton University - Canada

NIMROD LECTURE SERIES
Monday 21 August
11.30
Lecture Theatre

Recent Progress in Dual Models

Professor S Fubini/MIT

NIMROD SCHEDULE

CYCLE 10.8 8 72 - 29 8 72 — MACHINE PHYSICS — HIGH ENERGY PHYSICS

Team	Beam	Experiment	State
Glasgow University RHEL	π9,N4	Polarisation Measurements in $\pi^- p$ Charge Exchange	Setting up
Bristol University Southampton University RHEL	K15	$K^+ p$ and $\pi^{\pm} p$ Differential Cross-Sections	Data
Churchill Hospital Oxford RHEL	π11	Radiobiological Experiment	Data
Imperial College Southampton University	π7	Studies of η ω and A_2 mesons	Data and parasitic
RHEL/UCL/Berkeley/ Torino	K9	4 GeV/c $\pi^+ p$ interactions in track sensitive target	Data
Cambridge University RHEL	K13C	Associated Production Cross-Sections	Parasitic
Imperial College	K12A	Calibration of K^+ detectors	

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ALEXANDRA ROSE DAY 1972

A letter has been received from Mrs Hilda Salmon, the site organiser for the Alexandra Rose Day expressing her thanks for the efforts made by the collectors and contributors for this Charity. The total collected, (SRC, MRC, Culham and Harwell) was £142.80½ which was 6 pounds up on last year. The SRC total was £18.30.

UNDELIVERED MAIL

A postal packet from CERN containing Omega Development Note HW-13 (revised) and Omega Hardware Development Note HW-15, addressed to Mr S Lauper and an air-mail letter from Marcello Conversi, Universita Degli Studi, Roma addressed to Dr Achar, can be obtained from the Editor.

OVERSEAS VISITS

Mr W Russett and Mr A Dobbs, to CERN, 13-25 August for installation work on $\bar{P}$ -P experiment.
Dr T G Walker and Mr C A Baker, to CERN, 15 August - 3 September, to work on the SI04 experiment.
Dr C M Fisher, to CERN, 29-31 August, to prepare data for ECFA Tirrennia meeting and to hold discussions on future track sensitive target designs.

SOCIAL NEWS

RUTHERFORD LAB MEMBERS SUCCESS AT JULY SHOW

The AERE Horticultural Society's July show drew 337 entries, the classes for preserves, cooking and needlecraft in particular being very well supported. Bad weather conditions this season were reflected in the vegetable classes and the freak weather also made the flower entries rather poor. However the roses and sweet peas were good. The fruit entries were first class with strawberries, gooseberries, raspberries and currants all of excellent quality. Flower arrangements were down on last year but the standard of exhibits was at a high level. It is nice to record that the judges commented very favourably on all classes. The Rutherford Laboratory members did extremely well as the following list of awards shows:

Valerie Goodwin (Deputy Directors Secretary) - 1st, Jar of Jam
2nd, Annuals (only award)
2nd, Crocheted Article - Double knit

Wendy Morris (Directors Secretary) - 2nd, Table Centrepiece - Flower arrangement

Myra Gilbert (Superintendent Typing Centre) - 1st & 3rd, Sweet buffet dainties
1st & 2nd, Any Sweetmeat
1st, Hand knitted article
2nd & 3rd, Jam tarts
2nd & 3rd, Handicraft
3rd, Shortbread
3rd, Savoury flan

Mary Wells (Typing Centre) - 1st, Knitted garment for adult, 4 ply
1st, Knitted garment for adult, double knit
2nd, Knitted garment for a child
1st, Crocheted article
1st, Crocheted article - Mercerised cotton

Pam Richens (Typing Centre) - 2nd, Sewn article - evening dress
3rd, Crocheted article - double knit

George Didcock (Vacuum Group) - 1st, Sweet peas
1st, Carrots - stump
1st, Carrots - long
1st, Shallots
1st, Any other vegetable
2nd, Cauliflower
2nd, Rhubarb
3rd, Peas

Tom Molyneux (Mech & Elect Services) - 3rd, Pot plants

Philip Crane (Building & Civil Engineering) - 1st, Cactus or Succulant

Ernie Bristow (Electrical Contractors on Site) - 1st & 3rd, Blackcurrants
2nd, Gooseberries
3rd, Red Currants

Mrs Bristow (Ernie's wife) - 1st, Marmalade
1st, Fruit in syrup
1st, Lemon Curd
3rd, Jam
3rd, Miniature flower arrangement

Denise Gibbins (Chief Engineers Secretary) - 2nd, Crocheted article - Mercerised cotton

CHALLENGE CUP FOR VEGETABLES - GEORGE DIDCOCK

Tray for Needlework - Mary Wells : Tray for Cooking - Myra Gilbert : Tray for Preserves - Mrs Bristow

Congratulations to all the prizewinners as it must be obvious to all that a lot of effort went to so many of the entries. It does appear that Fred Gilbert has a sweet tooth, Ernie Bristow likes his jam on both sides and George Didcock hasn't lost his touch on growing vegetables.

It's all a lot of fun (and hard work) so why not join the Society and take part in the Autumn Show to be held on 14/15 September. An added attraction is the Society programme for next winter, with a very imposing series of evening lectures with really top class speakers - one even from Wisley. More details soon.

CHRISTIAN FELLOWSHIP

Friday 18 August - All welcome to attend a Study on "The Five Steps to Heaven". Step one is entitled "Who is God" and the study will be led by Ernie Newbold. The meeting commences at 12.30 pm in the R12 Conference Room.

Friday 25 August - 2 Corinthians Chapter 11 tells of the suffering of St Paul. Tim Packer will lead a study on this chapter and all are welcome to come along - 12.30 pm in the R12 Conference Room.

* *

BILL PARMENTER SENDS HIS THANKS Bill Parmenter who retired recently has sent the following letter of thanks and wishes to say cheerio to all those friends he was unable to see personally before leaving.
"My wife and I would like to say thank you all, for your very generous gifts on my recent retirement which we shall always treasure. The scroll with so many signatures of my many friends will always bring back many pleasant memories of the happy years at the Rutherford Laboratory".

PADDY O'KEEFE ALSO WRITES .... "Mr Paddy O'Keefe wishes to thank all his friends in the Stores and Laboratory for their kind expressions of good will and Gods Speed on his recent retirement. He regrets he was unable to visit all his Tiger Moth first soloists, but promises that his emotional Card of names will always bring happy memories".

I am sure readers will join me in wishing Bill, Paddy and Tania a long and very happy retirement - Ed.

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Deadline for Insertions	GENERAL & SOCIAL NEWS	INTERNAL & EXTERNAL EVENTS	
	Tuesday 1600	Wednesday 1200	Abingdon 1900 Ext 484

TRAINING CONCESSIONS 1972 - 73

Bulletin 25 reminded prospective students that it is time to apply for training concessions for the academic year 1972-73. It is now possible to give further details of enrolment arrangements.

Oxford Polytechnic - Dept of Science	Enrolment on first day of class
Oxford Polytechnic - Dept of Engineering	) Enrolment cards available in
Reading College of Technology - Depts of Electrical & Mechanical Engineering	) RHEL Training Section must be) completed by Wednesday 30) August 1972
North Berks College of Further Education - Dept of Engineering & Science	Old students of the College should use the pre-enrolment forms to be distributed with examination results
South Berks College of Further Education - Dept of Engineering & Science	Enrolment on first day of class

The following students must enrol in person at the times shown in the College prospectus:-

Those who wish to attend other colleges
Those who wish to attend other Departments at the above Colleges
Those who wish to attend Oxford and Reading Engineering Departments but do not meet the deadline at 30 August
Those who wish to discuss proposed courses with College staff

The following changes from previous years should be noted:-
(1) All enrolments at Reading Department of Science must be made in person.
(2) All fees at Oxford Polytechnic must be paid by the students on enrolment or on the first day of class: the Polytechnic will no longer invoice employers.

FILM BADGE NOTICE

Period 9 commenced Monday 7 August. Colour Strip - ORANGE for βγ films and fast neutron packs. Please make sure you are wearing the correct dosimeter and that all old ones are returned.
Six monthly dosimeter changes for people with surnames commencing GHIJ.

MISSING EQUIPMENT

The following item item of equipment has been reported missing:-

Stop Watch Serial No 67/0046. Information to Mr H Wroe Ext 468.

PULSES GALORE

During the month of July the main Nimrod Magnet Power Supply produced the record total of 1,091,514 magnet pulses. This includes another monthly record of 173,773 pulses with an intermediate platform.

TANIA HAS THE LAST WORD!

Mrs Tania Walker recently retired after spending over eleven years at the Laboratory. She has asked if the following letter of thanks could be published in the Bulletin to which request the Editor is most happy to agree.

"May I be allowed to express through 'The Bulletin', (Tania's apostrophes - Ed) my appreciation for the many cards, messages and presents sent by colleagues with such genuine warmth and goodwill upon my retirement from the Laboratory.

I regret being unable to get around personally as I would have wished, but I send sincere good wishes to all the enduring friends I have made, and say - do please continue to drop in when passing and see us, you will always be welcome."

SRC SUGGESTION AWARD SCHEME

At the meeting of the Local Suggestion Awards Committee held on 28 June, forty suggestions were considered; the following awards were made:-

Mr C Thornber - Nimrod R25 - £9
Mr N R Goddard - Nimrod R55 - £11
Mr R E Johnson - Eng R7 - £25
Mr J Pattinson - Nimrod R3 - £5
Mr J Rouse - Nimrod R2 - £15.50
Mr B Keen - Nimrod R2 - £15.50
Mr H McGrath - Eng R18 - £5
Mr E Rogers - Nimrod R2 - £5
Mr F Harris - Nimrod R8 - £75
Mr J B Knight - Eng R18 - £5

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