



APPLETON LABORATORY NEWSLETTER

Nos. 212/213/214

May/June/July 1979

Birthday Honour

We offer our congratulations to the
Chairman of the Science Research Council,
who is now Sir Geoffrey Allen, having had
conferred upon him the Honour of Knight
Bachelor in the recent Birthday Honours
List.

Ariel VI

Britain's sixth scientific satellite in the UK/Ariel series has been designed for investigations in high energy astrophysics. This is one of the most exciting fields at present being studied in the physical sciences and one in which UK astronomers and physicists have pioneered many of the techniques of measurement and analysis used.

Ariel VI carries a cosmic ray detector for Bristol University (Professor P. H. Fowler, FRS) and two X-ray astronomy experiments, one for Leicester University (Professor K. A. Pounds) and the other provided jointly by Birmingham University (Professor A. P. Willmore) and University College London's Mullard Space Science Laboratory (Professor R. L. F. Boyd, CBE., FRS).

Two technology experiments are being carried for the Royal Aircraft Establishment, Farnborough, to investigate the performance in orbit of new types of solar cell and of metal oxide semiconductor devices in a space environment.

The satellite was launched just before midnight (GMT) on Saturday, 2 June. The launch was totally successful and the orbit was entirely satisfactory.

Commands to control and collect data from the satellite in orbit are generated at the Operations Control Centre and, normally, are sent via data link to Winkfield, for transmission to the satellite. If available, other NASA ground stations will be used for additional tracking support and for telemetry data acquisition when required by operational circumstances.

Data processing procedures are similar to those currently employed for Ariel V, in that partially processed data will be transmitted from the Appleton Laboratory via data links to the experimenters almost as soon as they are received on the ground. Complex software has been prepared for control of the satellite in orbit because the number of commands which need to be transmitted to the satellite during each pass over Winkfield, require an automatic command and data reception system. This differs from the semi-automatic system which was employed for Ariel V.

During the early hours of the mission almost everything was entirely satisfactory. The first indication that there might be difficulties ahead was on Sunday 3 June, when one of the on-board tape recorders, which should have been recording data, was spuriously turned off between two passes. Throughout the Monday there were a number of apparently random occurrences of change of state of switches on board the satellite and it was clear we had a problem. At that stage the most serious implication was that random switching off of the on-board tape recorder would result in loss of data. In order to obtain more information about the fault, from day one onwards we began to ask NASA for extra ground station coverage, with the result that AL staff had to begin to work for longer hours than had been originally envisaged. The changes of state on board the satellite also posed severe problems for the data processing team.

As the first week of operations progressed the spacecraft problem tended to obscure the fact that in every other way we had a near perfect mission. The highly complicated automatic commanding system was thoroughly exercised and worked perfectly, as did the attitude control system. By day 9 however we faced a more serious challenge, when it appeared that the random changes of state were also having an effect on the X-ray experiments from Leicester and MSSSL/Birmingham.

The situation now is that Marconis are attempting to diagnose the trouble. All experiments appear to be in perfect working order, we are managing to collect almost all the data from the Bristol Cosmic Ray experiment, but because of the fault we are only able to collect about 30% of the data for the X-ray experiments.

In an attempt to improve this situation we have obtained additional NASA Ground Station coverage and we have moved the Control Centre and the 1904S Computer on to 24 hour operations. To accomplish this we have drafted in some contract workers for a 3 month period but, even so, the strain on our own staff has been immense.

Although Ariel 6 operations have proved to be extremely difficult during the early phase of the mission, given the problems that have had to be faced by the operational team headed by Alan Rogers, Harry Bevan and Mike James, by the data processing team lead by David Eccles and by the Computer Group operational and programming support staff, our Laboratory's performance in support of this major S.R.C. project can only be described as magnificent.

ARIEL VI FIRST DAY COVERS

"Has it gone up yet?" - a query voiced over and over again by anxious staff philatelists. The final launch delays held up the issue of our first day covers and there was of course the added complication that the Post Office will not postmark any mail with a date when they are not actually working. The launch delay period included Sundays and a Bank Holiday too!

Still at last all was well and Ariel VI finally blasted off (and we ceased blasting!) at 23.24 hours GMT on 2nd June - a Saturday.

The first day's cover designs were drawn and printed on site and nearly 1,000 were sold to staff. These were hand postmarked with the attractive Windsor Castle stamp by the Windsor Post Office staff.

The envelopes were addressed to destinations all over Great Britain and the Channel Islands and overseas to U.S.A., Norway, Bermuda, West Germany, Australia, Canada, Sierra Leone, Zambia, Italy, New Zealand, Sweden, South Africa, Argentina and the Falkland Islands. A very successful philatelic launch!

Thanks to all those who helped in this operation including the Drawing Office, Typists, Reproduction, Office Services and the Windsor Post Office staff.

L.R.M.

Staff News

Congratulations to :

Miss E. M. Austin	H.E.O.
B. P. Gardner	S.E.O.
K. J. Sheridan	Ldg. Hnd.
S. J. Cook	Ldg. Hnd.
A. H. Gabriel	D.C.S.O.
R. J. Emery	P.S.O.
R. Holdaway	P.S.O.
K. H. J. Phillips	S.S.O.
A. M. Zavody	S.S.O.
M. J. D. Courthold	H.S.O.
R. J. Ely	H.S.O.
J.W.F. Goddard	H.S.O.
P. A. Eggett	S.O.
J. L. Monks	S.O.

Welcome to :

A. R. Meredith	ASO
Miss P. Baxter	SCS (Culham)
N. Leelasorn	SCS
D. J. Marshall	SCS
K. L. Macrae	SCS
S. M. Sani	SCS
J. G. Witney	SCS
Mrs. J. Early	SCS
P. Brickley	ASO
R. Isherwood	SCS
Miss L. Tabor	ASO
Mrs. E. E. Thomas	Cleaner (p/t)
R. Chadha	Vacation Worker
T. Bassett	Exp. Wkr. II (Chilbolton)

Resignations, Retirements etc. :

M. Danby	P.T.O. II
Miss P. A. Pargiter	Cleaner
M. J. S. Quigley	P.S.O.
R. Dalziel	D.C.S.O.

Other Changes :

G. I. Janes	E.O. to U.K.A.E.A.
W. Smith	S.O. to Daresbury

Obituary

Mr. H. C. Bryant

It is with regret that we report the death of Mr. H. C. (Bert) Bryant at his home in Chilbolton on April 24th last. Bert retired from work for the third time in August last year and recently became ill for probably the first time in his long life. After a short spell in hospital he appeared to make a good recovery and returned home looking forward to enjoying his garden once more. Unfortunately it was not to be and he suffered a relapse from which he never recovered. We express our deep sympathy to Mrs. Bryant in her sad loss.

J. A. McG.

Observations

'Stars and Man' by Hanbury Brown

'Together with his sister Caroline, one of astronomy's saints, Herschel made an incredible number of these observations, mostly from Slough. I have always been amazed that anyone in Slough could have seen the sky long enough to make all the observations which William and Caroline undoubtedly did'.

(D. Long.)

Diary of Sir John Herschel Aug. 17th 1853

'I desire here to record my deliberate opinion that any man having anything to do with the Public Service under the Treasury who can do anything else is a fool. Though it is writing his own condemnation'.

(G. W. G.)

Retirement of Mr. R. Dalziel

Bob Dalziel came to Ditton Park in 1961 from the Signals Research & Development Establishment at Christchurch where for many years he had been involved with applications of electronic techniques to military communications. A graduate of the University of Glasgow, he obtained first-class honours in mathematics and natural philosophy in 1941. At RRS he took charge of the division concerned with ionospheric and upper atmosphere research including rocket and satellite borne experiments in the ESRO and UK programmes. In particular he had the important role of Project Scientist for Ariel IV.

In 1972 he was appointed to the newly created post of Head of Space Science Management and has since been involved with a number of satellite projects, including Ariel VI, which was launched just after his retirement. He was Project Manager of the UK contributions to IRAS during the crucial early stages of international negotiation and project definition.

We hope that the tenacity and good humour that served him well here at Appleton Laboratory will continue to accompany his efforts on the golf course. We wish him and Mrs. Dalziel a long and happy retirement.

Dr. Gabriel now Head of Space Science Management

Congratulations to Dr. A. H. Gabriel on his promotion to D.C.S.O. and on being appointed to succeed Mr. Dalziel as Head of Space Science Management.

Alan Gabriel joined the staff in 1973 when the S.R.C. Astrophysics Research Unit at Culham became a division of the Appleton Laboratory. A physics graduate of University College, London, he remained there to obtain a Ph.D. in Atomic Physics in 1956. That year he entered A.W.R.E at Aldermaston to work upon the spectroscopy of hot plasmas, moving to the Culham Laboratory in 1962 for further work in plasma spectroscopy in the UV and X-ray regions of the spectrum. With the establishment of the Astrophysics Research Unit in 1968 he was appointed leader of the Solar Physics Group. He became an Individual Merit S.P.S.O. in 1971 and was appointed head of A.R.D. on the retirement of Barry Shenton in 1978.

Dr. Gabriel is Joint Principal Investigator in the X-ray Polychromator experiment in the Solar Maximum Mission and also in the Coronal Helium Abundance Spacelab Experiment destined for Spacelab 2.

A former Chairman of the Atomic Physics Division of the European Physical Society he is, at present, Chairman of the Solar Physics Study Panel of the British National Committee for Space Research. As an Honorary Lecturer in the Physics Department of U.C.L., he gives occasional post-graduate courses in Plasma Spectroscopy.

We all wish him every good fortune in his new responsibilities.

Sports & Social Club

The long-awaited Bar-B-Q this year is going to be held on Saturday, 25 August 1979 starting at 7.30 pm. Apart from good food there will be bar extension and a Disco from 8.00 pm to midnight. All this will cost you just £1.00 for adults and 50p for children. Tickets will be available very shortly from usual sources. Watch the notice board for more details.

Indoor Sports Day 1980

This will be at the Oasis Leisure Centre in Swindon on Friday, 18 April 1980. Events will commence at 11.00 am with trophies being presented at 6.15 pm. The disco and supper will be at Central Office. The Oasis Leisure Centre is sited adjacent to Central Office so directions, parking and access should be no problem.

Hari Shah.

MAY/JUNE/JULY 1979 REPRINT LIST

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Internal Memorandum

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