



APPLETON LABORATORY NEWSLETTER

Nos. 156/157

May/June 1974

ROCKET EXPLORATION OF DAYSIDE POLAR CUSP

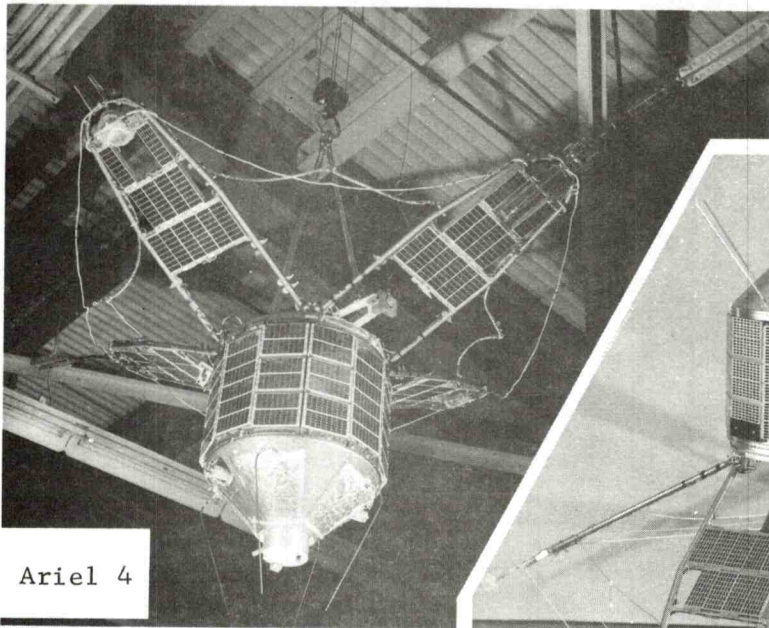
Sounding Rockets Division are making arrangements for SRC to participate in a series of rocket experiments to be made during the coming winter from Søndre Strømfjord in South West Greenland.

The Laboratory is very familiar with the various geophysical phenomena of aurora and disturbances in the geomagnetic field. Some phenomena of solar origin are transmitted directly to the earth by electro-magnetic radiation, but other phenomena via the solar wind and magnetosphere plasmas. The interaction of the solar wind with the magnetosphere and how the magnetosphere works as a transmission link between the solar wind and the ionosphere is not known even though some suggestions have been made during the last decade.

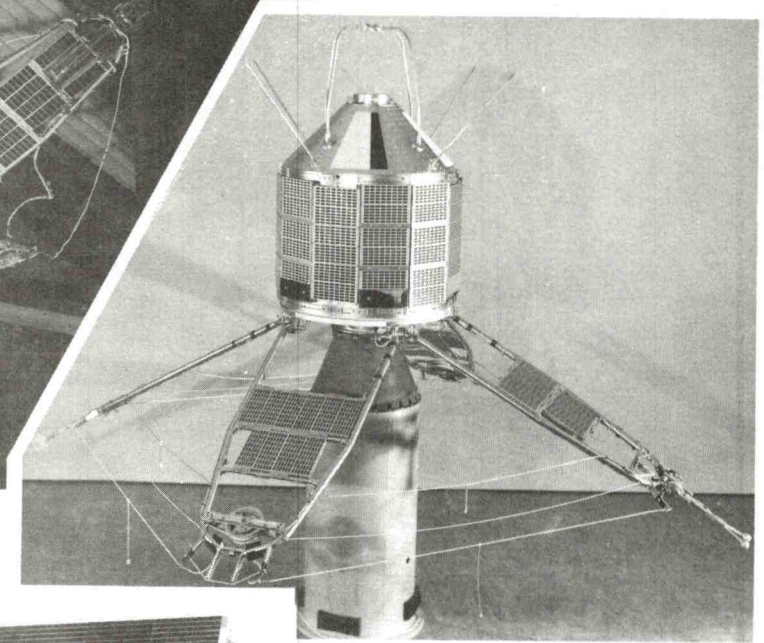
Recently increasing attention has been paid to the polar cusp region in the magnetosphere, which is likely to play a major role in the solar wind - magnetosphere - ionosphere coupling. The experiments are to investigate these phenomena using barium shape charge experiments on 3 Black Brant Rockets by the Max Planck Institut, 1 Nike Tomahawk by the Meteorological Institute, Denmark, and 4 Petrel Rockets with lithium trail release experiments provided by Dr. Rees of UCL.

Arrangements are well in hand and equipment will be leaving the UK for Greenland within the next few days. AWRE will provide launch support as usual for this campaign.

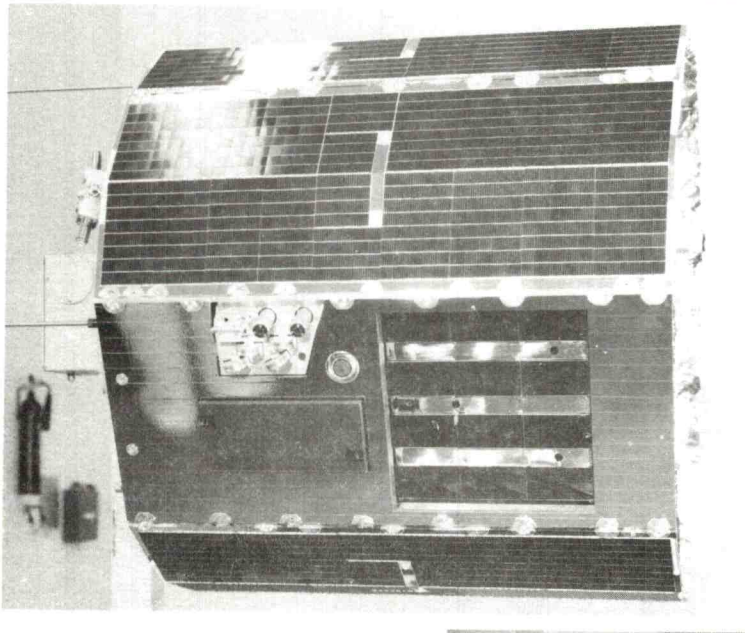
E. W. V. Acton



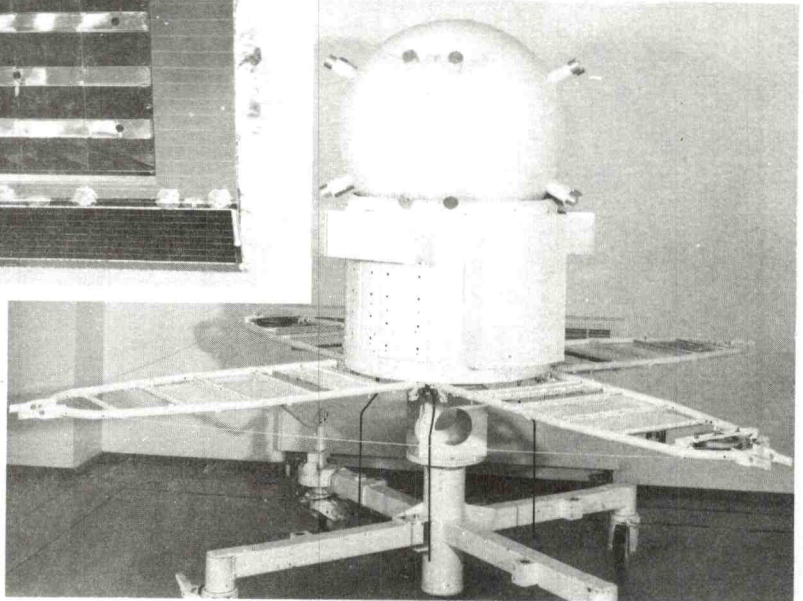
Ariel 4



Ariel 3



U.K.5



U.K.6

A SEQUENCE OF SATELLITES

Past and future satellites in the U.K. series, named Ariel after launch. Included are the cosmic X-ray observatory, U.K.5, referred to in our previous issue, and U.K.6 which will be devoted to heavy cosmic particle and X-ray studies

STAFF NEWS

Congratulations to:

Peter and Ann Barber on the birth of their son Gavin on 11th April

Henry and Pril Rishbeth on the birth of their daughter Tessa Jane on 4th May

E.G. Westbrook	now	H.Ex.O.
R.G. Evans	"	S.S.O.
D.M. Willis	"	P.S.O.
P.C. Barber	"	S.S.O.
C.C. Bray	"	" " "
M.E. Farman	"	" " "
F.N. Goodall	"	" " "
D.S. Hall	"	" " "
M.D. Lawden	"	" " "
A.D. Smith	"	" " "
B.C. Stewart	"	" " "
Z. Warhaft	"	" " "
E.H. White	"	" " "
A.E. Whittaker	"	" " "
M.W.U. Haq	"	H.S.O.
A.T. Hatter	"	" " "
M.A. Johnson	"	" " "
D.M. Kelley	"	" " "
R.J. Knight	"	" " "
A.J. Lucas	"	" " "
Mrs.E.M. Morgan	"	" " "
D.R. Vizard	"	" " "
Miss Y.E.P. Dias	"	S.O.
J. Payne	"	"

Welcome to:

A.G. Richards	R.F.	(Culham)
K.W.A. Ballinger	S.C.S	"
N.J. Main	"	"
Mrs. J.I. Scislowski	S/H Typ.II P/T	
H.W.B. Gordon	P.S.O.	(Salisbury Australia)
Miss S.M. Mackinnon	Pers. Sec.	
A.H. Massey	S.C.S.	
T.G. Dimbylow	H.S.O.	
J.W. Ashford	S.C.S.	
H.J. Milsom	S.C.S.	(Culham)

Resignations

Miss S.E. Berrido	Clerk/Typist	
K.L. Seal	S.O.	
T.P.W. Winteringham	S.O.	
Dr. E.M. Doyle	S.S.O.	
J.D. Burge	H.S.O.	
G.A. Gaston	S/S Labourer	
Mrs. B.J. Adley	Canteen Asst. P/T	
Mrs. C.M. Percival	Typist II	(ret. to U.K.A.E.A.)

Other Changes

Miss A.L. Palmer (Ex.O) Transferred from Divn 1 to Finance 1.4.74
D.H. Long (SSO) Transferred from Divn II Grp 1 to Divn VI Grp 6 (Dr.Bramley's Group)
P.A. Smith (SSO) Transferred from Mr. Dalziel's Grp 2 to Divn IV Grp 3
(J.W. King's Grp 9.4.74)
R.J. Pratt (HSO) Transferred from Mr. Dalziel's Grp 2 to Divn III Grp 1
(G.W. Eastwood's Grp) 1.4.74
E.G. Westbrook (H.Ex.O) Transferred from Finance to Divn III 16.4.74

STATION NEWS

The Director and Deputy Director will be attending the C.C.I.R. Plenary Assembly in Geneva from 15th-26th July.

The Deputy Director will then be attending the Inter-Union Committee on Frequency Allocation which will be held in Bonn on 29th July.

Full financial authorisation has now been received for the provision of the new Computer Building referred to in the February Newsletter.

SUCCESS IN THE FAMILY

A month or two ago we had the pleasure of congratulating Norman Woodall on his promotion; now we are glad to hear that his son, Gordon, has gained the Silver Trowel which signifies the Apprentice of the Year in the High Wycombe College of Technology apprentice bricklayers course. Congratulations Gordon!

SPORTS AND SOCIAL CLUB NEWS

AWAY TO A.C.O.

Thursday, May 23rd, was a day of conflict. Conflict between professional and social interests, conflict between Appleton Laboratory and the Admiralty Compass Observatory. This latter was a most friendly affair, in which we pitted our wits and skills against the other inhabitants of Ditton Park at cricket, football, bowls, tennis, badminton and darts. The former conflict was induced by the heavens, which threatens to open at any minute, providing valuable tropospheric radio communication statistics, but which would have dampened (sor!) the spirits of eager and enthusiastic competitors.

Fortunately, the gods were benevolent, for the rains did not arrive until later in the evening, when light was failing anyway.

The results of these Ditton Park Olympics were, as far as I can discover, mostly draws. Rain stopped play, as they say, at cricket, resulting in the ubiquitous draw. The selection rule formed by the narrow goal mouths proved too stringent for the footballers. The bowlers drew, and the tennisers and badmintoners underwent osmosis, precluding any them-v-us results. We did win, I think, at darts, with some assistance at divisional-leader level.

A general migration towards the bar rounded off the evening, the energy exhausted by the exertions being restored by the excellent food supplied by the ACO ladies, and inducing some folk into a curious Brownian-type motion, which seemed to be correlated with the music.

To use a cliché, a most enjoyable time was had by all.

Chris Gibbons

GOLF

Anyone who is interested in playing golf is asked to contact a committee member as soon as possible, because local games are soon to be arranged.

A team has been entered in the S.R.C. competition.

John Cathrew

BRIDGE CLUB

In the last league match of the season the club won 7-3 against Computer Services Centre, who took the Division VI cup with 86 League Points, whilst we finished with 83 League Points and the Runners-up prize. This qualifies us to play in Division V next season.

The ex-DSIR cup competition held on 12 May in the canteen was won by the Transport and Road Research Laboratory with a score of 40 out of a maximum possible 50 Victory Points. Our first and second teams were third and fourth with near-average scores of 26 and 24 respectively. Thanks are due to Mrs. Loudensack for ensuring that the refreshments were as enjoyable as the Bridge itself.

A. J. Gibson

TABLE-TENNIS

League tables have been published but at the time of writing the final table for Div.3 is not available. The 'A' team in Div.2 played 20 matches, won 7, drew 2, lost 11, and finished 8th out of 11 in the Division. The 'B' team played 20 matches won 10, drew 1, lost 9, and finished 6th or 7th out of 11. The individual records of regular players is below:

<u>'A' Team</u>	<u>Played</u>	<u>Won</u>	<u>%</u>
A. Buck	54	39	72
J. Dudeney	45	24	53
P.A. Smith	54	16	30
J. Delury	6	5	83
Doubles	20	3	15
<u>'B' Team</u>			
P. Muzlish	60	32	53
J. Moore	48	24	50
P. Eggett	57	25	44
Doubles	20	8	40

It is hoped that it will be possible to enter two teams again for the 1974-75 season starting in September.

P. Muzlish
Hon. Sec.

REPRINT LIST MAY/JUNE 1974

B.C. Fawcett R.D. Cowan and R.W. Hayes	A theoretical and experimental study of Fe XIX to Fe XXIV Solar Flare Spectra and Isoelectronic spectra in sulphur	The Astrophysical Journal 377-383	1974
B.C. Fawcett M. Galanti and N.J. Peacock	Emission lines of Vanadium XVI to XXI due to transitions between levels of principal numbers 2 and 3	J. Phys.B: Atom Molec Phys., Vol. 7 No.4	1974 L106-L107
A.M. Zavody	Effect of scattering by rain on radiometer measurements at millimetre wavelengths	Proc. IEE Vol. 121 No.4	April 1974 257-263
F.G. Firth E.F. Freeman A.H. Gabriel B.B. Jones C. Jordan C.R. Negus D.B. Shenton and R.F. Turner	Observations of the solar spectrum in the region 150 Å to 870 Å emitted from the disk and above the limb	Mon, Not R Astr. Soc. 166	1974 543-560
D.M. Willis G.R. Thomas R.J. Pratt	Solar proton entry to the magnetosphere on 18 November 1968 and 25 February 1969 - II Comparison of trajectory computations in two model magnetospheres	JATP	1974 1019-1035
G.R. Thomas D.M. Willis R.J. Pratt	Solar proton entry to the magnetosphere on 18 November 1968 and 25 February 1969 - I Interpretation of satellite data using trajectory computations in a model magnetosphere	JATP	1974 995-1017
G.R. Thomas D.M. Willis R.J. Pratt	Simplified representations of the magnetopause boundary surface for a quantitative model	JATP	1974 1037-1044
C.J. Gibbins	Nomograph for estimating clear-sky zenith atmospheric attenuation in the range 80 to 130 GHz	IEE	1973 605-607
A.H. Gabriel	Highly charged ions in astrophysics	Physica Scripta	1974 306-312
H. Rishbeth	Some problems of the F region	Radio Science	1974 183-187
P.L. George P.A. Bradley	A new method of predicting the ionospheric absorption of high frequency waves at oblique incidence	ITU	May 1974 3-7

INTERNAL MEMORANDA

NIL