

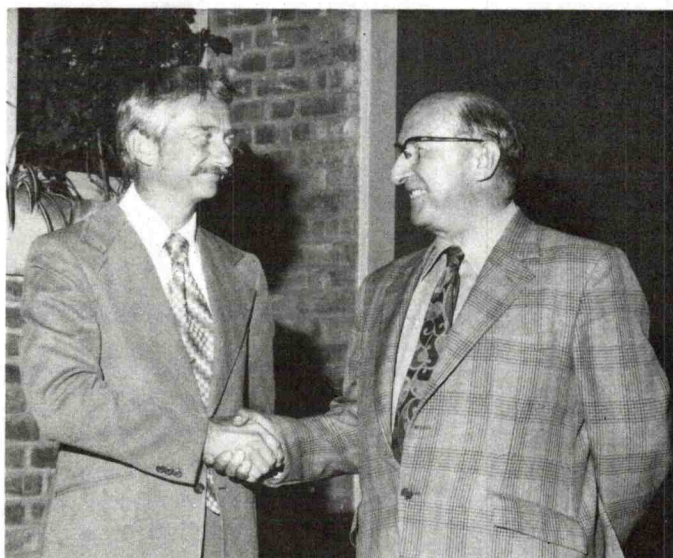


APPLETON LABORATORY NEWSLETTER

Nos. 160/161

September/October 1974

AMERICAN ASTRONAUT VISITS THE APPLETON LABORATORY



Dr. Owen Garriott, the astronaut, visited the Appleton Laboratory on September 3rd. He spoke to the staff about his 59 days in space, when he was one of the second 3-man crew to occupy Skylab.

Dr. Garriott - a native of Enid, Oklahoma - is no stranger to Ditton Park. In 1961 he spent six months at the Radio Research Station, as we were then called, on leave of absence from Stanford University, California. During his visit he joined in the Station's research work on the ionosphere. He also joined in lunchtime games of cricket and made many friends at the Station.

In 1965 Dr. Garriott left his post as an electrical engineering professor at Stanford University, and joined NASA as a trainee astronaut. Keeping up his scientific interests, he published in 1969 a textbook on the ionosphere. This book was an Anglo-American project, its other author being Dr. Henry Rishbeth.

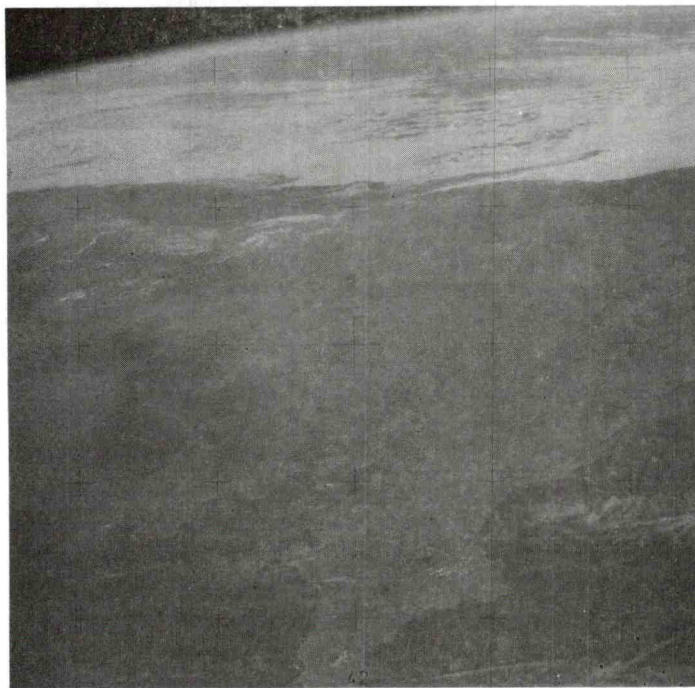
After eight years of training, Dr. Garriott's turn for a space mission came last year. He was launched from Cape Kennedy in July. After docking with the orbiting Skylab, his crew had to extend the "parasol" that had been erected by the first crew two months earlier. The "parasol" reduced the high temperatures inside Skylab, that had resulted from accidental damage sustained by the spacecraft at its original launching.

His main work in space consisted of observations of the sun. With a battery of film and TV cameras, and specialized instruments, the Skylab crews made completely new discoveries about the violent "storms" which take place on the sun. The radiation produced by these "storms" influences the earth's upper atmosphere; it disturbs the ionosphere - and so upsets radio communications - and causes vivid displays of aurora or "northern lights" in high latitudes. Dr. Garriott also helped to look after the spiders, Arabella and Anita, that successfully spun webs in space; and the minnows that swam round in circles when exposed to weightlessness.

Weightlessness was no worry, apart from bouts of motion sickness in the first two days in orbit, the crew were in excellent physical shape. Their good condition was attributed to their daily hour of hard exercise taken on specially-designed machines, and they felt no ill effects on returning to earth. Dr. Garriott made use of weightless conditions to carry out a series of demonstrations of basic scientific principles. He found it easier to demonstrate Newton's Laws of Motion (propounded in the seventeenth century) in Skylab, than on earth where gravity complicates matters. One of his films, demonstrating the basic principles of rotation, received its first-ever showing at the Appleton Laboratory.

Life aloft was so busy that there was little time to look out of Skylab's window. But he did want to get a good photo of Great Britain; he waited a long time for a suitable day and eventually took a superb picture showing most of England and Wales. Skylab has been seen by thousands of Britons, thanks to the accurate predictions of its orbit, made at Ditton Park and published in the Press. Incidentally the spacecraft (now unoccupied) is not visible from Britain just now; it will be visible in the evening in late October.

After visiting Ditton Park, Dr. Garriott spent some days at the Farnborough Air Show as the representative of President Ford. The previous week he and his wife had attended a conference in a remote part of Russia. Now he is back at Houston, Texas. In his new NASA job of Acting Director, Science and Applications, he is busy with past results and future plans in the U.S. Space Programme.



Prospect of Britain

A view from Skylab taken by Dr. Garriott

STAFF NEWS

Congratulations to:

Terry Adams	now Cfn.I
Joe Baines	" " "
Brian Warburton	" Shift Leader
Bob Young	" " "

Welcome to:

J.W.F. Goddard	S.O.
Mrs. A. Snowdon	A.S.O.
C. Sethna	P.T.O. I
M.A. Stuart	A.S.O.
A.R. Thomas	A.S.O.
Mrs. J. Coombes	A.S.O.
B.H. Miller	H.S.O.
Mrs. M.E. Robinson	Dup. Op. P/T
Mrs. M.E. Hayward	Telephonist
Mrs. M.J. Spence	C.O.
Mrs. J.M. Johnson	Dup. Op. P/T
W.H. Parker	S.C.S.
M.A. Roberts	E.O.
Miss H.L. Corder	Mach. Op.
I.R. Mercer	S.C.S.
R. Smith	Craftsman I

Resignations:

Miss G. Halliday	S.C.S.
Mrs. I.W. Gibson	Typ. I P/T
J.C. Cole	A.S.O.
B.T. Austin	P.T.O. III
M. Sweatman	A.S.O.
K.W.A. Ballinger	S.C.S.
A. Liput	S.C.S.
A.J. Knight	Vac. Worker
Miss J.M. Payne	"
I.N. Botnen	Vac. Worker (IAESTE)
D.G. Cox	"
Miss B. Okolotowicz	"
K. Kircaldy	"
A.H. Massey	S.C.S.
T.H. Lim	Vac. Worker
A.P. Coulson	"
H.J. Milsom	S.C.S.
R.A. McKenzie	C.O.
Miss K.M. Dickson	S.C.S.
T.M. Paget	H.S.O.
N.J. Main	S.C.S.
J.W. Ashford	S.C.S.
D.J. Stanley	A.S.O.
G. White	Vac. Worker
D.M. Kelley	H.S.O.
A.W. Bryant	S.C.S.

Other changes:

N.W. Ferguson	P.T.O. II	from Rutherford	to A.L.
T.J.L. Jones	S.S.O.	"	A.L. to Rutherford
G.W. Ackland	P.T.O. I	Changes from Div.I Grp 2 to	Div. III Grp 3
Mrs. M.T. Parissien	C.O.	Changed from Accounts to Measurements Lab.	(Div. VI, Grp.4)
M.T. Clowes	Cfn.I	Changed from D6 to D5,G2 (tour of duty	in France).
S.M. Cherry	H.S.O.	Changed from D6,G2 to D3,G4	
R.F. Hufton	S.O.	"	" D6,G2 to D2,G1
M.J.D. Courthold	S.O.	"	" D5,G1 to D1,G2 (IUE)
A.F. Smith	H.S.O.	Returned to duty at A.L. (from	Falkland Islands)
P.P. Reader	S.S.O.	Changed from D6,G5 to D3,G3	
R.J. Powell	H.S.O.	"	" D6,G2 to D6,G5
M.E. Farman	S.S.O.	"	" D5,G1 to D3,G4
A.L. Hardie	S.O.	"	" D5,G2 to D3,G4
M.E. Sparkes	S.C.S.	"	" D6,G6 to D4,G3
E.W. Smith	S.S.O.	Returned to Met. Office (1.10.74)	
C. Jordan	P.S.O.	Returned to duty at Culham from unpaid	leave

RETIREMENT - MR. R.A. MCKENZIE

Ronald McKenzie, or Mac, as everyone knew him, retired from his post in the Measurements Laboratory in September on his 70th birthday, after spending over 40 years in Government Service, both at home and overseas. He had a strong sense of duty, was always methodical in his work and, with the added wisdom of his years, could always provide practical advice on most problems. On behalf of his many friends on the Staff, he was presented by Mr. Meadows with a bedside table and lamp, 2 pipes and some of his favourite tobacco. We all wish him a long and happy retirement.

D. Howard

NEWS OF FORMER STAFF

Retirement of Mr. F. Kift

A ceremony recently held at Support Command Signals Headquarters R.A.F. Medmenham marked the retirement of Mr. Frank Kift who, until his transfer some nine years ago, had been a member of our Staff since the late nineteen-forties. After joining the Radio Research Station, as it then was, he undertook duties at virtually all the Outstations which were established in the next decade, and his increasing expertise in H.F. Propagation studies gained him advancement in his career at home. The opportunity for an appointment at Medmenham came and he held the post of Assistant Director, Radio Engineering at HQ 90 (Sigs) Group R.A.F.

Links with Appleton Laboratory remained, however, for he served as Liaison Officer, M.O.D. (Air) on the Laboratory Committee. At the ceremony he was presented with a cut-glass whisky decanter and water jug on a silver tray, together with a hand-carved desk stand and cigarette box bearing an inscribed silver plaque. A contribution to these presents was made by old associates at Appleton Laboratory who joined with his Signals colleagues in wishing him a happy retirement.

G.W. Gardiner

OBITUARY

Mr. A.G. Vincent

It is with regret that we record the death, at his home in Chilbolton, of Alfred George Vincent. Alf who died on Friday September 20th, worked at the Field Station, as it then was, from the start. He was with A.E.I. during the construction and joined us in 1965. He retired for the second and last time in 1969.

His first retirement was from farming. He was a successful pig farmer and breeder and won many awards for champion show animals. Because of his very long association with the Chilbolton site, which went back to before the war, he was a fund of historical fact and anecdote, he knew practically every stone on the ground having, as he often said, moved them around enough times.

Even when ill health forced him finally to quit, he retained his great interest in the Observatory and its doings to the end.

We offer our condolences to his widow and family.

J.A. McGivney

LABORATORY NEWS

Ditton Park

The Deputy Director attended the Fifth International Conference on Atmospheric Electricity, which was held at Garmisch-Partenkirchen, Bavaria, from September 1st-7th. This conference was organised under the auspices of the U.G.G.I. Dr. Bent, a former member of staff, was also present.

Dr. Horner has also recently been elected to the Education, Science and Management Divisional Board of the Institution Electrical Engineers.

-CULHAM

Welcome back Carole Jordan, on 16 September, from her unpaid leave of absence at Harvard College Observatory and also Dr. McWhirter, from his three months' visit to Boulder, on 23 September.

Dr. Leonid Presnyakov of the Lebedev Institute in Moscow arrived on 14 October. He will be spending approximately four months in the Division. His interests are in theoretical atomic collision physics and its application to astrophysical problems.

Mr. W.M. Burton is attending the NASA LST Faint Object Spectrograph Instrument Definition Team Meeting at Hale Observatory, Pasadena, USA from 22 October until his return on 27 October.

(With acknowledgements to ARD News)

SPORTS AND SOCIAL CLUB NEWS

Dates for your Diary

The Christmas Dance will be held this year on December 14th, and the Childrens' Party will be held on December 21st. Watch this space for further details!

BONFIRE NIGHT

November 5th is fast approaching and as always, volunteers are urgently needed for wood-gathering, rubbish-stacking and similar energetic pursuits. Anyone who is willing to help should contact Chris Gibbins.

TABLE-TENNIS

The Slough League Table-Tennis Season starts during the first week in October and this year three teams have been entered, one in each of Divs. 2, 3 and 4. Home match nights are Tuesday and Thursday.

P. Muzlish
Hon. Sec.

MOTOR CAR CLUB

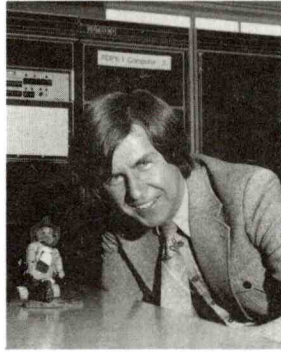
Century Oils Ltd., who distribute lubricants for the CSMA have advised that they are not supplying anti-freeze this year. This coupled with the high price and difficulty of obtaining supplies anyway means that the Car Club will not be selling anti-freeze this year. Prices in the shops and garages seem to vary between 45p and £1 per pint when available at all. The lower price is almost certainly for ethylene glycol and methanol mixtures. Those requiring anti-freeze probably have very little choice in the matter.

The position on motor oil has not changed. Only 5 gallon drums are available from the suppliers and the price per gallon is similar to that for gallon cans in shops. It is not worth the Car Club stocking oil at present.

P. Muzlish
Hon. Sec.

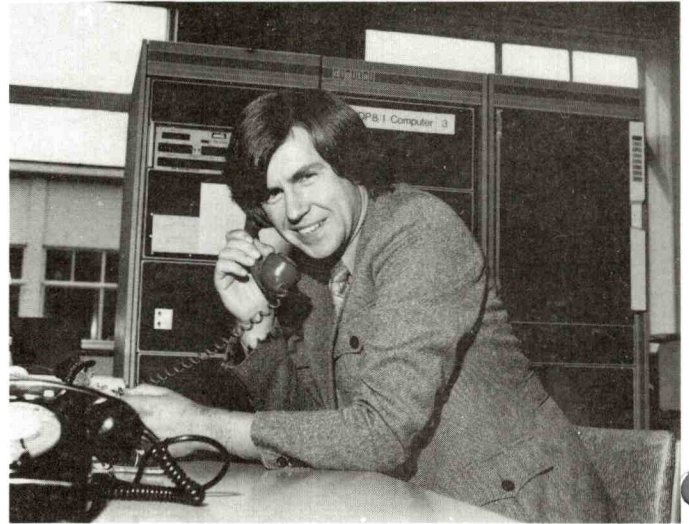
SCENES FROM THE SHOWS

James Burke and Michael Rodd are given a glimpse of
'Tomorrows' World' at the Appleton Laboratory



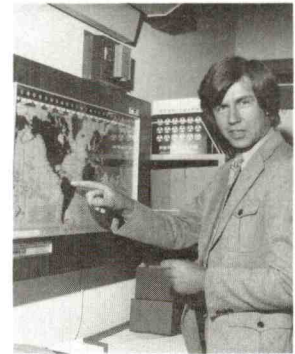
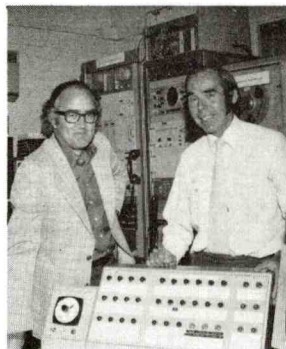
Australasian* Δ

Communication ▷



Inspection ▷

Introduction ▽

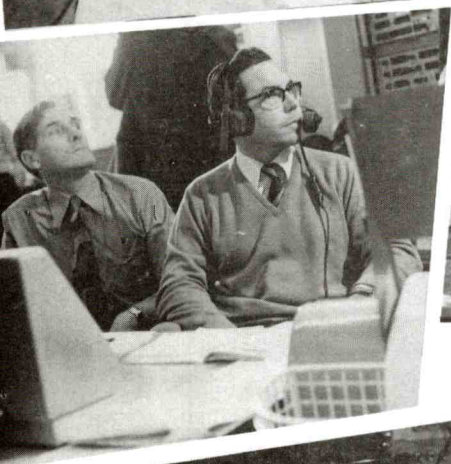
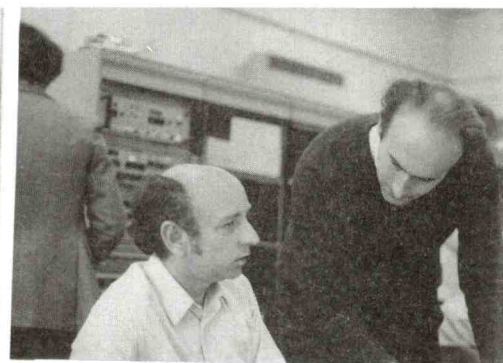


Δ Location

◁ Instruction

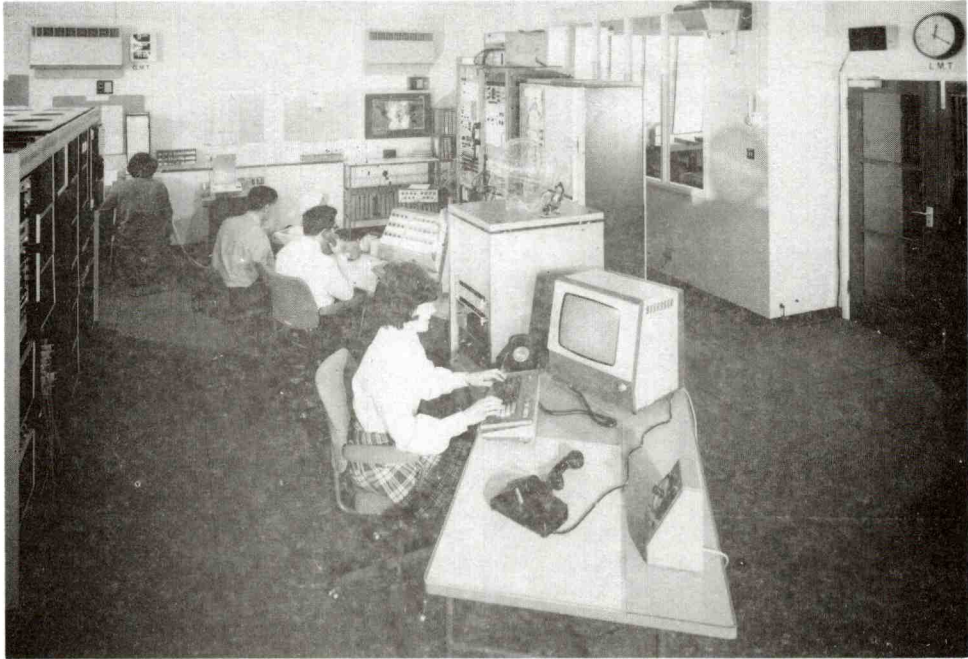


* The one who isn't Michael Rodd is a 'Principal Swagman'
attached to U.K-5 for special duties.

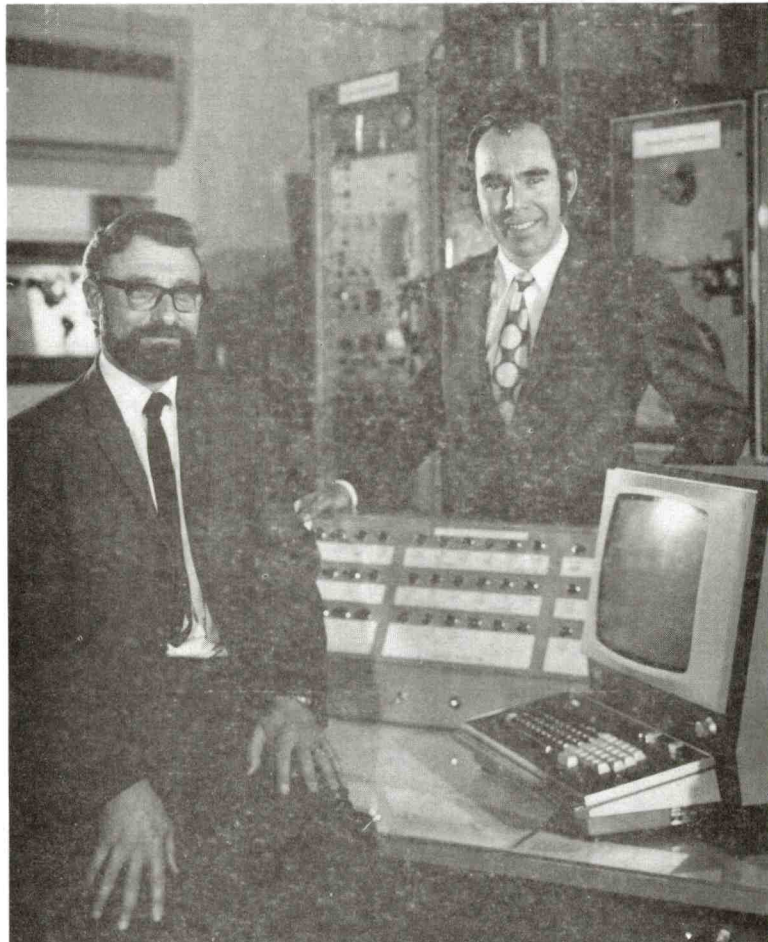


She's away - we think
Tense moments at lift-off

All systems GO for Ariel V



The control centre staff stands by



Peter Barker and Barry Martin confident of the outcome

Throughout the weekend prior to the launch all the computer programs were given final tests, and the 1904A computer and the two PDP8 Control Centre computers were thoroughly checked out.

The final moments of the count down were accompanied by the whirring of television cameras and the clicking of press cameras. Suddenly Ariel V was in orbit. There then followed a very tense period while everyone waited for the first pass over the Quito ground station. The satellite duly arrived there at precisely the predicted time and it was then clear that we had a good orbit. During the rest of the day the satellite was slowly despun from 140 r.p.m. to 11 r.p.m. and later that same evening the first experiment was switched on.

During the course of the next few days all the experiments were gradually tested out and several manoeuvres were carried out, all with complete success. At this early stage it would be foolish to assume that there are not going to be problems, but, so far, the project has been extremely successful and a major part of the success is due to the part played by members of our Laboratory, not just by the management team and the control centre software and hardware aspects, but also by all the support provided by the workshop, the drawing office, the typing section and the photographic section. Even the football team must be congratulated for keeping some of the key members of the project in good condition.

Everything suggests that UK5 is going to be a very successful project. We must now start planning so that the UK6 project will be even better!

B. R. Martin

Letter to the Outstations

We appear, as you see, Janus-headed though not I trust, more two-faced than is always necessary for the exercise of editorial discretion. This has been, one way and another, the month of Spacecraft, what with Dr. Garriott's visit and the apotheosis of UK5 into the celestial Ariel V.

The latter event was, I imagine, more a matter of sheets of flame and smoke from an off-shore rig rather than one of those splendid scenes where useful-looking girls, critically draped, can be seen sailing upward, all pointing aloft to the particular big-wig who's paying for the painting (or not, according to how aristocratic his attitude to patronage of the arts).

So, maybe we lacked baroque splendour, still there were sights to be seen remarkable enough. A friend arriving at 8.10 on THE DAY was took flat aback at the already half-full car park. He had scarce pulled himself together before receiving a second, bigger, shock. Along the corridor, a trolley, loaded to the gunwales with cups was moving with all despatch. Staff desperate to fulfill their norm? A faulty watch? No; just something to quench the parched throats of any press who turned up. (A drop of the hard stuff? - they should be so lucky - coffee, biscuits and a touch of astrophysics was deemed sufficient for the likes of them.)

The marvels of science triumphed, Ariel's task exactly was performed. Quito, San Marco, Goddard and Slough spoke with one another and agreed that it was good. After having spent some time roaring answers down a telephone in response to faint noises from a caller all of ten miles away, this global converse was perhaps the greatest source of wonder to,

Yours sincerely,

The Editor

The launch Dress Rehearsal was on Friday 11th and was delayed by seating and communication problems on the Santa Rita platform, by shut-down of the spacecraft Automatic Checkout Equipment, and by delays in ferrying data from the San Marco platform to the Santa Rita platform by rubber boat. In all over an 18 hour day. On the Saturday after meetings to resolve the logistic problems further experiment checks were run as a software change had been requested. Only a 15 hour day. Luckily we had the Sunday to recover as Monday 14th was election day in Kenya and CRA's local employees had to be allowed time to vote.

On the Monday we travelled to the Base Camp for 1700 hrs, had dinner there and went out in the launches at 1900 hrs. It was very dark (the Ramadan moon had almost departed), the channels were not well marked, it was near to low tide and the overloaded Santa Rita boat went aground on the sand bar. Only the skill of the Kenyan boatmen avoided what could have been a disaster, and we got safely through.

The countdown itself went extremely well with only one minor hitch in the early stages, and some slack hours in the early hours of the morning when a little sleep was attempted. The procedures were identical with other launches except for the evacuation of the Santa Rita platform in the darkness by rubber boat. The last set of experimental data nearly went into the sea when the Marconi man involved lost his footing on the net but managed to keep the bag with the data in it between his teeth. This and other data had of course to be approved by the experimenters and the Project Scientist before the count could continue.

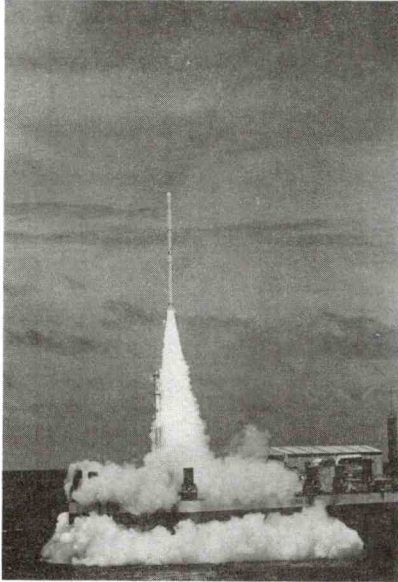
After vehicle erection at first light the pace of the count accelerated with the network communications being set up at T-2 hours - after which one was trying to listen to 2 headsets, a loudspeaker and often a telephone handset as well.

Although we had considerable anxieties about the cloud cover and the range safety requirements for a 8000 ft. minimum cloud base, the terminal count went absolutely without any hitch at all and vehicle 1st stage ignition was .25 secs after the start of the launch window at 1047 local time. All the Scout systems behaved correctly and although the 1st stage burn was slightly under nominal the other stages must have been "hot". After 9 mins and 33 secs the UK5 spacecraft was in an orbit which was slightly better than predicted and almost perfect for the X-ray astronomy which should extend over the next 2 years.

J. Smith

Control Centre

Preparations had also been taking place back home at the Control Centre and the tension was heightened as a result of the advance national publicity received when the Laboratory featured in the Election night 'Tomorrows World' programme shown on B.B.C. television.



ARIEL V NEWSLETTER

The interest aroused by the recent visit of Dr. Garriott, followed by the launch of Ariel V has provided an excellent opportunity to present an illustrated feature on both events. There will, I hope, be many occasions in the future when other aspects of the Laboratory's work can form the basis of such articles; meantime, may I offer congratulations to all concerned in the project from all of us associated with the production of the Newsletter.

The Editor

At 08.47 B.S.T. on October 15th the Ariel V satellite was launched into a near perfect orbit.

San Marco

In the last Newsletter readers were given some idea of the expected progress of the UK5 launch preparations. These were broadly true although the travelling difficulties were greater than expected especially on the San Marco Base Camp road. Just after we arrived the contractors moved in and large amounts of loose sandy soil were bulldozed around giving at times up to half a mile of loose dust, many inches deep, to traverse. There were very few of us indeed who managed not to be stuck at some time or another.

The boat journeys were much as expected, but although rougher at first, conditions on the whole improved towards the end of the six week preparation period. During the first weeks the rubber boat journeys between the platforms were very dampening, with 6 ft. trough to peak waves being noted. The daily hazards of leaving and regaining the launches by the "Billy Pugh" net were not inconsiderable and it is surprising that only a few bruises and grazes were the worst injuries received. Unfortunately there were quite a few health problems and two people had to be invalided home with a serious illness.

