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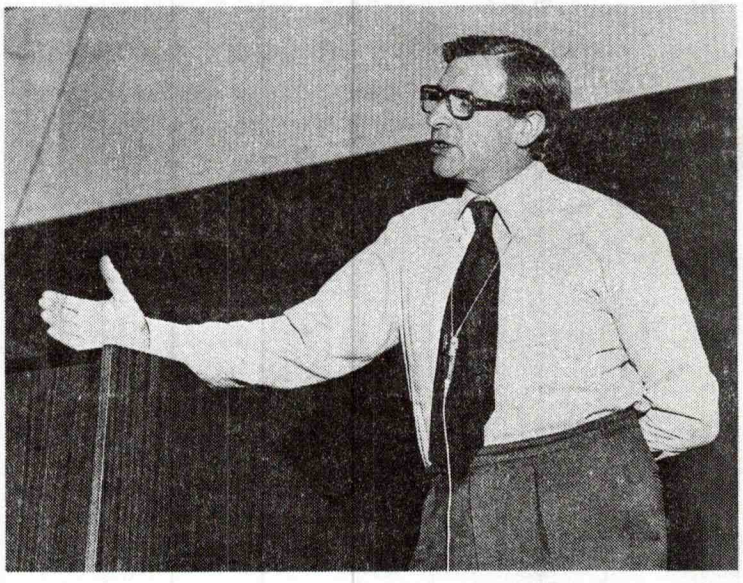
APPLETON LABORATORY
NEWSLETTER

No. 198 January 1978

Professor Allen visits the Laboratory



In keeping with his policy of seeing as much of the work of the Council establishments as soon as possible, the Chairman, Professor Allen, visited the Appleton Laboratory on 13th December and addressed all the staff. He also talked to the ARD staff alone and, later, to the Staff Side and Trade Union representatives. During a tour of the Laboratory he was able to see and discuss much of the work being carried out in the research programme.

The Chairman visited the Culham Laboratory on 18th January to see some of the work of ARD. He also had a further brief discussion with representatives of the IPCS.

F. HORNER

INFRA-RED ASTRONOMICAL SATELLITE - IRAS

Successful Preliminary Design Review in Holland

The IRAS satellite was proposed by the Dutch in 1974 as a successor of their ANS (Netherlands Astronomical Satellite) and they invited NASA to collaborate with them in executing the project as a joint undertaking. At a later stage the UK was invited to join in as part of the Dutch side : in exchange for a financial contribution from the SRC, UK scientists were to participate in the design of the experiment and would receive scientific data from it, and a guaranteed fraction of the SRC contribution would be spent with UK industrial contractors. It occurred to the writer that a more satisfying involvement of the Appleton Laboratory would be to provide ground telemetry, tracking and control for the project, using existing in-house facilities and building on its experience with Ariel 5 and UK-6. With Director's approval this offer was made. Following a series of scientific, technical and management discussions - a "getting to know you" process as much as anything else - by international agreement it was decided to entrust this vital function to the Appleton Laboratory. In fact, in addition to the ground station (known as IGO, which is short for IRAS Ground Operations), the Laboratory was also requested by the IRAS Project (used in the international sense) to carry out preliminary scientific data analysis (known as PAF-Preliminary Analysis Facility). The purpose of this is to monitor scientific data from the telescope in near-real-time for operational reasons, to identify astronomical objects for further observations, and to provide scientific output well in advance of the source catalogue which is the final objective and is the executive responsibility of the Jet Propulsion Laboratory. In the PAF especially, scientists in the Appleton Laboratory work very closely with those from universities in all three countries. The UK Project Scientist is Professor Jennings, UCL. Professor Marsden (Leeds) and Dr. Clegg (QMC) are also heavily involved, with Dr. Clegg taking a special interest in data handling.

A Preliminary Design Review of the Laboratory's work on both IGO and PAF was held in Holland last month. Members of the staff made presentations to a Review Board and other scientists from the USA, Netherlands and the UK. Criticisms were invited and collated. The appended statement from the co-Chairman summarises the outcome and expresses international appreciation for the Laboratory's contribution. This project has gone off to a good start.

Such recognition by senior members of the Jet Propulsion Laboratory, Pasadena, and the Netherlands Agency for Aerospace Programmes is certainly a compliment to the Appleton Laboratory. Inside the Laboratory the work breaks down into four major parts under the leadership of Barry Martin, Eric Dunford, Mike Quigley and Alan Rogers. It is planned that both the tracking station and control centre will be on the site at Ditton Park. Every 12 hours or so, telemetry "dumps" of 7.10^8 bits will be received from the satellite which will be in sun-synchronous orbit and fresh instructions will be transmitted to the on-board computer. In the intervening periods the telemetry data will be processed and analysed and fresh commands will be prepared. Data will be transmitted to the USA and to Holland.

The IRAS will carry out an all-sky survey of astronomical objects which radiate at infra-red wavelengths. The telescope is a Ritchey-Chretien Cassegrain with an aperture of 60 cm. It will be cooled to $15^{o}K$. There are 62 detectors in the focal plane cooled to about $3^{o}K$ with photometric response in four wavelength bands 8-15μ, 15-30μ, 30-50μ and 50-120μ. The cryogen is superfluid helium and enough will be on

board to last for one year with a margin of safety. There are various scan modes and the operation of the satellite will be controlled by the on-board computer. This cryogenically cooled telescope with its long-life superfluid helium Dewar and sensitive detectors at the focal plane is an advance in technology that will make this very much a new experiment at the time of its launch. It is expected that the data will greatly extend the understanding of the science of astronomy. It will not be surprising if new sources are discovered - 120μ is the radiation peak for a black body at about 30^{o}K.

iras

Conclusions from IGO/PAF Preliminary Design Review

Schiphol, 15 December 1977

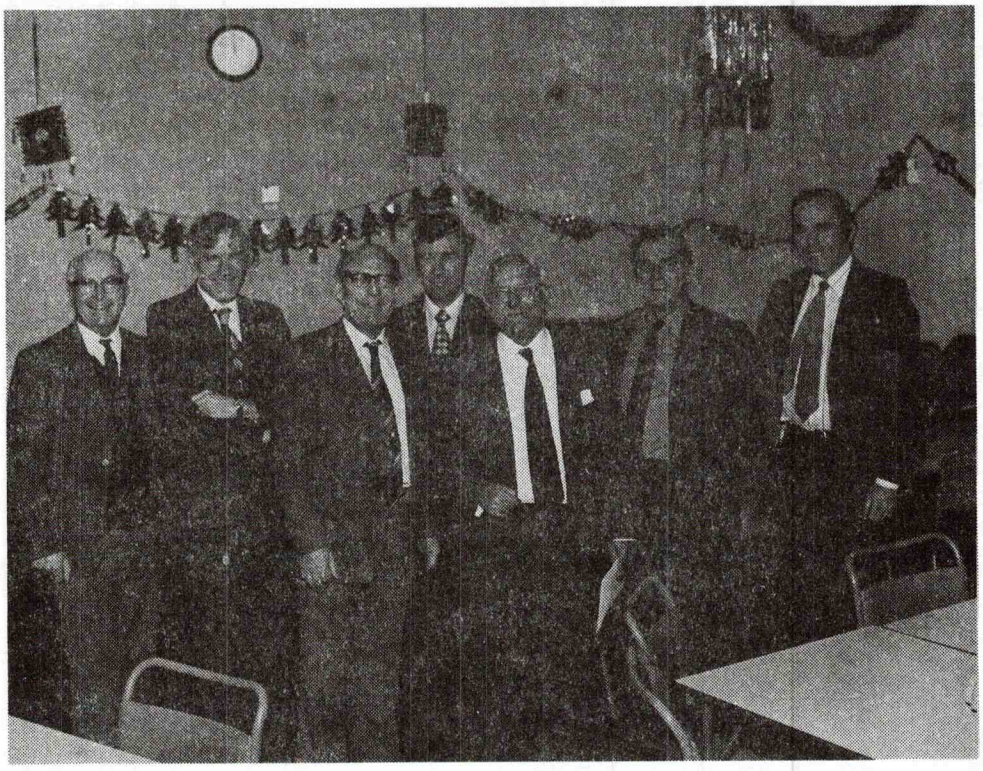
To : IRAS project
From : JIPEG co-chairmen

The following summarizes the points which came up during the IGO/PAF PDR of December 1977.
It first lists the action items and next some disposition items which resulted from the concerns and recommendations brought forward during this review.
A complete list of the actual concern items concludes this note.
The details on following pages do not include the overall conclusion which is that both IGO and PAF presentations were very professionally conducted and substantially increased the confidence with regard to these subsystems.
The IGO review fully met the review objectives.
The PAF system on specific points needs further definition and will be reviewed again for some updated parts during next joint project meeting.
We like to express our appreciation to all those participating in the presentations for a job, excellently done.

E. Kane Casani P.F.J. Linssen

R. Dalziel

Retirements



Mr. A. J. G. Moorat

Mr. A. J. G. Moorat retired at the end of December after more than thirty years in Government Science.

Alf. Moorat's career began in the field of sound recording, prior to the second World War. He served in the R.A.F. from 1940 to 1946 where he gained experience in radio engineering, particularly that of high-power transmitters and their aerial systems. Wishing to continue in radio work he joined the Radio Research Station, (as we were then called) in 1946. For many of the following years he was concerned with experimental studies of the Ionosphere and is the author of several papers on the subject. This period included three tours of duty at our old Singapore outstation, one of which covered the International Geophysical Year.

More recent responsibilities have been for the work of the Satellite Predictions Group and, latterly, he has been one of the team planning and co-ordinating work on UK6.

Members of Staff recently gathered to present a token of their good wishes for the future to this popular colleague. His amiability and humour have been a valuable addition to his professional skills and we all hope that his retirement will be long and happy.

G. W. Gardiner

Mr. D. B. Shenton

Barry Shenton retired from the SRC at the end of 1977 as Head of the Astrophysics Research Division. He plans to return to Australia, which he left almost exactly 20 years ago to take up a post with the UKAEA at Harwell. Barry was a member of the spectroscopy group led by Bob Wilson. When the group turned its attention to the study of natural plasma he was engineer and project manager for a series of successful solar UV experiments using Skylarks, one of which carried the first Stage 1 ACU. In 1969 the Astrophysics Research Unit was formed out of the UKAEA spectroscopy group and transferred to the SRC. In 1971 an SPSO post of Projects Manager was created and Barry got it. When Professor Wilson left the SRC to join UCL in 1973 ARD was incorporated in the Appleton Laboratory with Barry as Division Leader. That is when most people at the Appleton made his acquaintance - although of course he was already known to some of us who had connections with Skylarks and IUE. His versatile engineering talents were used to advantage on a quite different project during 1975/76 when he carried out an impressive feasibility study on the proposed mm-wave facility.

Barry has taken advantage of the SRC's early retirement option, which will enable him to return to Australia soon where he has two sons and their families.

He is liked and respected by all who have had the pleasure of working with him. May he enjoy a long and happy retirement, and our best wishes go with him and Mrs. Shenton.

R. Dalziel

Mr. & Mrs. C. E. Masters

On the two occasions recently when their friends and colleagues met in the canteen to offer them good wishes for their retirement many of us had very mixed feelings about Mr. and Mrs. Masters leaving the Lab. Over the years we have got used to the idea that a leaving ceremony was usually caused by someone going to a better job or for some other good reason of their choice. For Mr. and Mrs. Masters they were being retired and it all seemed a bit different because we did not really want them to go yet. Who would, when we have got so used to their very pleasant company and good humour. As well as their devotion to duty and hard work. Old fashioned attributes in some eyes but not to ours who have benefitted so very much from help. Did either of them know the phrase "I could not do that!" when asked to do a job however difficult it might have seemed to fit in at the time. It is this sort of thing that made us sorry to see them go but glad we had the opportunity to know them both.

These "unofficial" leave takings then wer an excellent opportunity to say thank you and good wishes to Charlie and Lydia and opportunity has been taken here to record these thoughts in our Newsletter for posterity and for those, too, who could not get to the canteen on the day.

R. J. Tucker

Mr. D. R. Howard

Dennis Howard retired from the Laboratory on December 15th a few months before attaining retiring age. At an informal gathering in the canteen he was presented with a crystal wall clock by his Divisional Head, Ross Meadows. Mr. Howard joined the laboratory in 1966 from Woolwich Arsenal, where he had been engaged in microwave development work. One of our most versatile experimentalists, he covered work from medium waves to microwaves, and, among other things was responsible for advising staff on techniques and apparatus whilst he was in charge of the Measurements Laboratory. Never one to push himself or make a fuss, his quiet but useful presence will be much missed. We wish him and Mrs. Howard all the best for a long and happy retirement.

R. W. Meadows

Mrs. P. Taylor

Mrs. Phyl Taylor, part-time C.A., retired from the Laboratory on 31st December 1977. During her 3½ years with the Laboratory she worked on the IUE project and developed a reputation for cooperation and helpfulness. We wish her well in her retirement.

P. Vaughan

Mr. G. Ackland

Gerry Ackland (PTO I) retired on 31st December 1977. His career has spaned the Post Office, private business, AWRE and SRC. He will be most remembered at AL for his significant contribution to the International Ultraviolet Explorer Project on which he worked from 1971 until the end of 1976.

Gerry's hobby for many years has been model engineering and we wish him well with this and give our best wishes for his retirement.

P. Vaughan

Mrs. M. Clarke

Just before Christmas, Margo Clarke transferred to London Office after being at the Laboratory since 1965. During this time she has been secretary to Divisional Heads and successive Deputy Directors.

Not only in her official capacity has she dealt cheerfully with the various crises that arise; she has helped those of us who wish the Animal Kingdom well but haven't known quite how to help damaged pigeons, hungry horses or cows in labour. She always seems to know the right people to call for aid and helps the creature till they arrive.

Her many friends gathered to wish her well in her new post and present her with a gift to mark the occasion.

G. W. Gardiner

STAFF NEWS

Congratulations to :

Francis and Susan Goodall on the birth of their son David Edward on 28th November.

Mrs. Mary Thrift, now Personal Secretary.

Welcome to :

B. N. Ellison	S.O.
D. W. Wellby	S.O.
D. J. Stickland	S.S.O. (Transfer from R.G.O.)

Resignations :

Mrs. A. Snowdon	A.S.O.

Letter to the Outstations

Dear Colleagues,

Blank mind confronts blank paper - an unfruitful conjunction. Maybe a subject will emerge from the sub-concious. It does (Id did?) Can't be used though, children might read it and it's much too good for them.

There being, then, no peg on which to hang a laboriously fashioned comment this letter reports no letter from

Yours sincerely

The Editor

JANUARY 1978 REPRINT LIST

A.1228 W. M. Burton

'A compact astronomical echelle spectrograph'

The Observatory, 1977, Vol. 97, pp. 132-139.

INTERNAL MEMORANDUM

I.M. 376 'The application of Infra-red superheterodyne techniques in studies of gaseous pollutants'

J. A. Lane