



R S R
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N E W S L E T T E R

No. 93

January, 1969 ✓

Mr. A. F. Wilkins

At the end of 1968 we said farewell to Mr. Wilkins on his retirement after 38 years in Government Service, much of it spent at Slough. For the past five years he was Deputy Director, a post he filled with distinction, with great sympathy for the staff and understanding of their problems.

It is perhaps only natural that Mr. Wilkins should, from the professional point of view, be remembered best for his great contribution to the development of radar in association with Sir Robert Watson-Watt, but he has also left his mark on the Station's work on ionospheric propagation and radio communication, an important part of our programme over many years.

Staff will have had an opportunity to see the profile of Mr. Wilkins in the January issue of "Quest", the House Journal of the S.R.C. and also the fascinating article by him in the same issue: there is therefore no point in repeating here all that was written there. However, I am sure that everyone at Slough and the outstations will want to join me in a final word of appreciation to him for all that he has done for us and for the Station's reputation, and also in wishing him well in what we hope will be many happy years of retirement.

Mr. Ratcliffe has expressed a wish to be associated with the Station's tribute to Mr. Wilkins on his retirement and in a letter to me has written -

"I am sorry I cannot be with you when you all say farewell to Wilkins and join to wish him all happiness in his retirement, but if possible I should like to pay my tribute to him on that occasion. I first met him when we were working here in Cambridge together on an aerial problem, next when I worked with him in the early days of the war, and latterly when we were together again at R.S.R.S. I would like to thank him for all the help he was always so ready to give on these different occasions, and especially for what he did as Deputy Director in my last years at Slough. No-one could have been more helpful, or more willing to take on some of the most awkward and difficult organisational problems. But much as we have all valued his work for the Station, I am sure the greatest debt we owe him is for what he did in getting radar going in the early days: if it had not been for Wilkins I doubt whether it would have been ready in time.

So I hope I may be allowed to join with you all in sending him my very best thanks for all he has done, and my very best wishes for all happiness in his retirement."

J. A. SAXTON

Professor F. G. Smith

Following Mr. Wilkins' retirement Professor Smith has joined us as part-time Deputy Director and will spend two days at Slough each week, normally Thursday and Friday, in that post. He will be particularly concerned with helping in the direction of the Station's scientific programme and is likely to be with us for something like two years.

Professor Smith is well known to many members of the staff and enjoys a high reputation, not only as a radio astronomer, but also for his wide ranging knowledge of and contribution to radio physics. We are fortunate indeed in having him at R.S.R.S. and the Staff will, I know, want me on their behalf to give him a very warm welcome.

J. A. SAXTON

Dr. F. Horner

The changes following the retirement of Mr. Wilkins include the appointment of Dr. Horner as Assistant Director, in which post he will have a major responsibility for the administration of the Station. Dr. Horner is well known to the staff and needs no introduction, but all will I am sure share my confidence in his ability to further the interests of the Station and its staff and will wish him well in his new work.

J. A. SAXTON

Tropospheric Irregularities and their Effect
on Radio Waves

This project (16/01), which was the subject of a recent progress review, now combines work, on the fine structure of the troposphere, carried out with both refractometers and lidar. A new refractometer with 5 cavities was completed during the summer and, together with an improved telemetry system, was used in balloon soundings at Cardington in September and October. In some of these experiments, simultaneous soundings were also made with the R.S.R.S. vertical-incidence lidar and with rapid-response thermometers and humidimeters operated by a group from the Norwegian Defence Research Establishment. The results are still being studied, but it is already evident that the layer-type echoes sometimes observed on the lidar are probably caused by back-scattering from aerosol particles trapped in a stratum just below a temperature inversion. The lidar beam-width at a height of 1 km. is about 1 m. and by studying how the echo-pattern changes with beam-angle and with time, it is possible to derive information on the nature of small-scale structure of the troposphere. Some further joint studies with the refractometer, lidar and the Norwegian equipment are planned for 1969.

J. A. LANE

Symposium on H.F. Communications

The latest in the series of R.S.R.S. one-day symposia was held here on 3rd December 1968, with the title "Present and Future Trends in H.F. Communications". In spite of the view, often expressed, that h.f. as a means

of communication is "on the way out", there was no lack of interest in the meeting when it was announced; in fact the final list of invitees was limited by the size of the Board room. Including R.S.R.S. staff, sixty four people, from thirty five organizations, attended; numbers which would have been higher still, had not 3rd December been one of this winter's few foggy mornings.

The morning session was devoted to a discussion of present practice and experience in the operational use of h.f., particularly from the propagation point of view. Most contributors said that current frequency predictions and circuit performance are generally satisfactory; but there is room for improvement, for instance in the avoidance of flutter fading, the prediction of ionospheric disturbances, and more efficient use of sporadic E. There was some discussion of the possibility of real-time frequency-allocation schemes to alleviate the problem of interference from other users, which appears to be a major source of trouble. Although for this and other reasons some users are hoping to get out of h.f. as soon as possible, e.g. by the use of satellites, there seems little doubt that h.f. will continue to be of major importance for at least the next ten years.

In the afternoon, new ionospheric research techniques and methods of applying the results to practical communication problems were discussed in contributions from R.S.R.S. and G.C.H.Q. The most important of these techniques are the use of satellites for global ionospheric surveys, and oblique sounders for real-time circuit evaluation; but neither has been fully exploited as yet. A method of obtaining the detailed structure of the remote ionosphere from back-scatter records at a single station was also described.

In a final session, current developments in h.f. communication systems were reviewed in a contribution from S.R.D.E. Considerable effort and ingenuity are being expended on modulation - demodulation schemes which use error-correcting codes, but with limited success to date; it appears that more information is required on the fine structure of the ionosphere, both in space and time, to improve these. New aerial systems were also discussed; an exotic example is the wide band Luneberg lens, which is a wire mesh affair, 150 feet high, occupying 25 acres and costing half a million dollars.

Altogether, the Symposium was very useful in bringing together representatives of the many organizations concerned with h.f. communications, and in providing food for thought on the problems requiring further research for their solution.

E. N. BRAMLEY

Station News

Professor Smith and Dr. Horner will attend the URSI Inter-Union Commission for Frequency Allocation for Radio-Astronomy and Space Research which meets in Brussels at the end of February. Professor Smith is the Chairman of the Commission and the Secretary General is Dr. Smith-Rose.

It is proposed to hold Station Open Days during the period June 24th-27th.

Dr. Rishbeth and Dr. Dunford will be attending the Equatorial Aeronomy Conference at Ahmedabad, India from 3rd-10th February.

A number of Staff are representing the Station at the Inter-Union Commission on Solar-Terrestrial Physics meetings taking place in London during 27th-31st January.

Congratulations to :

Janet Clarke and Ken Johnson on their engagement.

Marie Huggins and Vince Foley on their engagement.

Welcome to :

J. Allan
Yew Kiam Lim
Keng Cheng Siow
Chon Tee Chua

Local recruit Falkland Is. for 3 yr. contract
Tech. Off. locally recruited Singapore
Tech. Off. locally recruited Singapore
A.E.O. perm.

Resignations :

G. F. Flynn
R. S. Fitchew
Mrs. P. J. Whitehead
R. J. Hilliam

C.O. perm. transferred to Rutherford
E.O. non-perm.
S.A. perm.
Sp. Tele. Op. transferred to Met. Office
Bracknell
Tech. Assistant
Skilled labourer - retired

Other Changes :

A. C. Roberts
E. N. Bramley
P. A. Bradley
M. C. W. Sandford
D. R. Howard
L. T. J. Martin

E.O. trans. to Dr. Halls group
P.S.O. trans. from Div. IV to Div. VI
S.S.O. " " " IV " " VI
S.O. " " " IV " " VI
S.E.O. " " " IV " " VI
S.E.O. " " " IV " " VI

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| J. A. Murphy | E.O. | trans. from Div. IV to Div. VI |
| A. F. Smith | E.O. | " " " IV " " VI |
| A. J. Gibson | A.E.O. | " " " IV " " VI |
| P. H. McPherson | A.E.O. | " " " IV " " VI |
| H. S. Meswani | A.E.O. | " " " IV " " VI |
| A. D. Hart | S.A. | " " " IV " " VI |
| R. A. Marsh | S.A. | " " " IV " " VI |
| D. L. Croom | P.S.O. | " " " V " " IV |
| B. N. Harden | P.S.O. | " " " II " " IV |
| R. J. Powell | E.O. | " " " V " " IV |
| J. L. Hancock | A.E.O. | " " " II " " IV |
| L. D. J. Harris | A.E.O. | " " " V " " IV |
| J. Riley | A.E.O. | " " " V " " IV |
| S. L. Close | S.S.A. | " " " V " " IV |
| F. D. G. Bennett | E.O. | " " " II " " III |
| A. Anderson | Labourer regraded to semi-skilled labourer | |

Sports and Social Club News

THE NEXT SPORTS AND SOCIAL CLUB EVENT WILL BE ON

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|----------------------|----------------------|----------------------|
| <u>FEBRUARY 14TH</u> | <u>FEBRUARY 14TH</u> | <u>FEBRUARY 14TH</u> |
| DISCOTHEQUE? | LOVE-IN? | DANCE? |
| | | ORGY? |

PLEASE WATCH THE NOTICE BOARD

Christmas Dance

An enjoyable anticipation of the Festive Season last year was the Sports and Social Club Annual Dance held on 14th December in the attractively decorated Staff Canteen.

Goodwill and good fare were abundant and the "Terry Silver Quartet" worked hard to provide a programme of music to suit most people's taste. A little more music in the modern idiom, perhaps, would have been appreciated by the "younger set" who doubtless would have been joined by the "older set" as the evening wore on and the Bar supplies diminished.

The Dance was well attended by all sections of the Staff, their families and guests. It was pleasing to welcome back Dr. Smith-Rose still maintaining a keen interest in R.S.R.S.

Mr. Wilkins, our Deputy Director, was assured that we hoped he would keep up the tradition of returning Senior Staff and that we should be pleased to welcome his wife and himself at next year's function.

The Smith-Rose Cup was presented by its donor to Mrs. D. Bellchambers in recognition of the sporting achievements of the North Team during the past year.

The evening drew to a close with the playing of "The National Anthem". May I close on a note unfortunately omitted from this year's festivities - "Auld Lang Syne".

P. M. DRAKEFORD

LETTER TO THE OUTSTATIONS

Dear Colleagues,

A thing unmentioned last month was the burning bush episode or, more accurately, the flaming tree. It seems that an experimenter, experimenting in North Park late one night, was took aback abit by the sight of an old oak tree all aflame. This was not, I hasten to add, any part of his experiment. To say that the tree burnt and burnt and was not consumed is not strictly true, but it was still at it well into the following day, until ministered unto by the R.S.R.S. Fire fighters.

No voices came from that tree; nevertheless it seemed an appropriate herald of the changes at R.S.R.S. Work is now divided among six divisions with Mr. Lane, now S.P.S.O., the new divisional leader. In an earlier edition, congratulations and best wishes were entered in advance, so to speak, to him and to Professor Smith and Dr. Horner. May we again wish them all good fortune.

Elsewhere are tributes to Mr. Wilkins on his retirement. Perhaps as Editor, and historian of sorts, I may also say how grateful I have been for many interesting conversations. Recollections of times past in the art of radio have enabled the contributions of former days to be more readily appreciated by,

Yours sincerely,

The Editor

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Quest

Will staff please return the 'Quest' form as soon as possible. A general opinion only may be given; though, naturally, individual article assessments are preferred.