



R S R  
S

**CHRISTMAS**   
**NEWSLETTER**

No. 104

December 1969

On the threshold of 1970 we can look back over a year which has given us satisfaction in many ways. Our own research has made good progress; our collaborative work both with the Post Office and in support of Universities is proving fruitful and we are establishing an overall pattern for our programme which should provide a sound basis for further development. Doubtless the current frame of mind in Government circles is such that funds for Scientific Research are not going to be easily come by in the years immediately ahead, but I am sure we can justify a fair share of what is available by pursuing our present policies and so, once again, I confidently wish all members of Staff and their families a very happy Christmas and a prosperous New Year.

*J. A. Linton*

ON WRITING A BOOK

"Come to Stanford for three months and help me write a chapter of a book". Thus came the invitation from Owen Garriott, then a professor at the Radioscience Laboratory, Stanford University. He and I had worked together during his six months visit to Ditton Park in 1961. His invitation was backed up by an "incentive" of \$1000 per month.

It was the summer of 1963 and I was working at the (then) Central Radio Propagation Laboratory at Boulder, Colorado. So when my appointment at CRPL ran out in December 1963, I piled my belongings into my Chevy and set out for the West, little thinking that this would be the beginning of a six-year project. Fifteen hundred miles and  $2\frac{1}{2}$  days later, I arrived in the "Golden State" of California.

The master plan was to produce a large book covering various subjects of interest to the staff of the Radioscience Laboratory. Owen Garriott's job was to write an introductory chapter on the structure of the upper atmosphere, the ionosphere and geomagnetism.

Quite quickly we sketched out a plan for our chapter. It was to start with a brief account of the neutral atmosphere, to provide a setting for the subsequent discussion of the ionosphere which occupied most of the chapter. Then we dealt with geomagnetism and dynamo theory, followed by a piece on ionospheric storms. At that time there was no really good description of storms in the ionospheric literature and we hoped to provide one, but we were not really successful (This situation still exists in 1969, and the "storms" chapter in the new book does not fulfil our original hopes).

Our work at Stanford proceeded rapidly. Working full time, I drafted about two-thirds of the 38 sections of the chapter; Owen worked half time on this project and produced the remainder. Most of the diagrams were drawn at Stanford, a few coming from other sources. Within three months the first draft was complete.

Few of the other prospective contributors to the Stanford book showed much sign of progress, so as a temporary measure our manuscript was prepared for publication as a Stanford Electronics Laboratory report. It appeared in October 1964 under the inspiring designation SU-SEL-64-111, entitled (too pretentiously) "Introduction to the Ionosphere and Geomagnetism". Unfortunately we did not have the opportunity of proof-reading it and it contains a host of typing errors, even the first equation (the perfect gas law) being misprinted. Someone had the bright idea of "editing" the reference list in such a way as to make it partially unusable. Nevertheless the report, when issued, proved popular and had to be reprinted.

In 1965 I returned to England and Owen took up his present career as a scientist astronaut of NASA. He left Stanford and started his jet flying training at Phoenix, Arizona. Later that year he wrote to tell me that the Stanford book project had been abandoned. Could we publish our "chapter" as a book in its own right? With its 207 pages, it seemed substantial enough. The idea seemed opportune because no unified treatise on ionospheric physics (as distinct from special topics like radio propagation and ionogram analysis) had been published for a decade. There were books of conference proceedings and other multi-author "edited" books, but these did not really meet the need which existed for a textbook.

Mr. Ratcliffe, then Director of RSRS, encouraged us to go ahead and recommended us to contact Academic Press of New York. They immediately expressed interest, and soon informed me that they had obtained expert opinion on our Stanford Report and were prepared to publish it if it were suitably revised. I then prepared a scheme for expanding and updating that Report, and we were offered a contract by Academic Press in March 1966.

The book was far too big a job to be tackled in my spare time, so I wished it to become an RSRS official project, and armed myself with a file number and a "permission to breathe" form. It was obviously essential to have the terms of the contract approved by SRC London Office and by NASA, Owen's employers. The official approvals were eventually...

Phoenix-Washington-Phoenix, 3100 km each way, 88 days, 0.8 m/s

Slough-London-Slough, 35 km each way, 117 days, 0.7 cm/s

...eventually forthcoming. I should say that generous arrangements were made as regards royalties.

Work began slowly because of other commitments. Owen was able to take charge of several sections and to provide detailed commentaries on my writing. We decided to keep fairly closely to the original layout, with eight chapters and 45 sections. Developments in the subject since 1963 necessitated the inclusion of new sections while the existing sections were extensively revised and some dropped altogether. We settled on the title "Introduction to Ionospheric Physics".

Drafts of the new text, including many mutilated pages of the Stanford Report, were sent to Mrs. Atkinson and meticulously typed, mostly by Eileen Barnes who skilfully found her way through the patchwork of revisions and corrections. Eventually 69 figures were chosen for the new book. About half these were taken from the Stanford Report, thirty were excellently drawn by Gillian Hopson and the remainder came from various outside sources. It was

of course essential to get permission for the use of all figures that had been published elsewhere, and this meant writing to all the authors and publishers concerned. I devised standard letters for the purpose which merely had to be signed by the recipient and returned. This scheme worked well and difficulties arose with only one publisher, who imposed tiresome conditions and charged us \$5. Unfortunately it was by then too late to substitute another diagram. What with all the correspondence between myself, Owen, Academic Press and others the book file swelled rapidly, and today contains some 350 letters.

By December 1967 the draft was complete. Many people at RSRS had helped by reading and commenting on parts of the book, but we felt it important to obtain reviews of the manuscript as a whole. For this task we were fortunate enough to obtain the services of Mr. Ratcliffe, Dr. Aldo da Rosa of Stanford University and Professor Jack Gledhill of South Africa. Within two months I had detailed reports from all these gentlemen plus a new critique from Owen. The comments were mostly very apt though in places they tended to cancel one another out.

During the long process of revision I had the benefit of Simon Newman's editorial experience. Eventually all corrections were transferred to the top copy of the manuscript and a number of individual pages completely retyped. I had to compose a preface, and wrote several pages, not too seriously. Fortunately most of it was subsequently cut out by the publishers.

At last in mid-June 1968 the bundle of manuscript was ready to go Upstairs for blessing. It came back two days later with the official imprimatur. And so we went to press.

(To be continued)

Henry Rishbeth

---

#### AN AERIAL EVASION

In flying home from Holland recently, three members of staff, Paul Dickinson, Tony Hall and Peter Reader were in an aircraft which was involved in what the press headlined as 'Another Near-miss Air Drama'. As their jet was on its final approach, at an altitude of some thirty feet, a small private 'plane was seen to be trundling along the runway. Only prompt evasive action by the airliner's pilot prevented what might have been a major disaster.

STATION NEWS

The Director, who has been elected to the Presidency of the Radi Society of Great Britain for the year 1970, will take up this office in January.

From January 20th to February 7th next year the Director will be attending the C.C.I.R. Plenary Assembly in New Delhi.

Messrs. Golton, Champion and Eggett, of Mr. Lane's division, have recently attended the Paris exhibition of the French Physics Exhibition where they displayed a single channel model of the Microwave refractometer.

STAFF NEWS

Congratulations to:

Martin Lawton and Elizabeth Stevens on their marriage at Evesham,  
on the 13th December

Bill White and Sheridan Jackson on their marriage at Manchester,  
on the 15th December

Welcome to:

D. John	S.A. (perm.)
R. M. Garside	A.E.O. (perm.)
P. Allies	Craftsman II

Resignations:

Mrs. E. Knight	C.O. (perm.) Resigned
K. B. Lai	Technical Officer, Singapore resigned

Other Changes:

D. L. Groom	P.S.O. (perm.) granted L.W.O.P. for 1 year
A. L. Hardie	A.E.O. Moved from Group 3 to Group 4 Div. 2
A. F. Smith	E.O. Arrived Singapore
J. A. Smith	Tech. III E.S.R.O. Arrived Falkland Is.
K. Seal	A.E.O. Arrived Falkland Is.
Mrs. I. J. Haigh	Canteen Asst. changed to Cleaner P.T.

---

News of former staff

Congratulations to Mr. & Mrs. Ralph Weston on the birth of their son David Gerald on August 24th.

SPORTS AND SOCIAL CLUB

Wine Circle

Now that the Season of Festivities is nearly upon us, the Circle hopes that all readers will enjoy many excellent bottles of their own selected brews.

Any empty bottles would be greatly appreciated - particularly large cider jars and the deposits paid on these will be refunded.

If members are interested it may be possible to place an order with a wine firm in the New Year. Interested members should contact me.

A very Merry Christmas to everyone.

F. BENNETT

Table-Tennis

A table-tennis team representing the Station has been entered in the local Slough and District Table-Tennis League. Placed in the Fourth Division (the lowest), the team lies in second place having won four matches and lost one. This includes a defeat of the Division Leaders by 6 sets to 4. The most successful player so far is John Dudeney who has lost only 3 sets out of a total of 15 singles played.

Play takes place on the table in the Social Club in the Old Building. Practice always goes on before matches, on match nights both home and away and anyone who would like to be considered for the team is invited to contact the team secretary.

P. MUZZLISH  
(Secretary)

---

INSTANT MAK-A-PHRASE

---

integrated  
total  
systematised  
parallel  
functional  
responsive  
optimal  
synchronised  
compatible  
balanced

management  
organisational  
monitored  
reciprocal  
digital  
logistical  
transitional  
incremental  
third-generation  
policy

option  
flexibility  
capability  
mobility  
programming  
concept  
time-phase  
projection  
hardware  
contingency

To use, take one word from each column. Instantly you are provided with an up-to-the-minute expert phrase composed of three modern, desirable words, without needing to bother about the meaning. Instant success is guaranteed.

R.S.R.S. CHART

This is a plot of information, relevant to the station's activities, which is not available in the World Data Centre. The question is "What do the points represent?" The Editor will be pleased to hear your suggestions and confirm any correct diagnosis.



LETTER TO THE OUTSTATIONS

Dear Colleagues,

There was a sound of revelry by night - at Ditton Park, not Brussels, and it had nothing to do with the late computer shift, far gone in their peripherals, having a binary love-in. At least I don't think it had, though come to think of it they do possess a sort of timetable thing which is headed bookings for JEAN. I suppose it helps to make sure of a good class of client.

Anyway, like I said, (All right then, Byron said) there was this revelry thing, on Saturday evening. Philosophers and their ladies whirled from apogee to perigee in individual and at times eccentric orbits, responding to the music of the band. That piece of mutilated half-Hardy should tell you that the Christmas dance has taken place and been enjoyed by all, judging from the comments of fellow revellers.

There are only a few research days left to Christmas and once again there is no need to spend much time constructing the next sentence.

A merry Christmas and Happy New Year to you all comes readily from the pen of,

Yours sincerely,

THE EDITOR

REPRINT LIST - DECEMBER 1969

M. E. Cleverley  
J. R. Norbury

Technique for improving the frequency/temperature  
characteristics of 3 cm-band Gunn Oscillators

Elec. Letters. 1969      3      107-108.

INTERNAL MEMORANDA

NIL