

R. S. R. S.

Newsletter

No. 50

June, 1965

BIRTHDAY HONOURS

I am sure that all members of the staff were delighted to see the announcement in the recent Birthday Honours that the Director is to be made a Companion of the Most Honourable Order of the Bath.

Mr. Ratcliffe's long and distinguished career in science and education at Cambridge is well-known to us all. Since he came here as Director nearly five years ago we have all become familiar with his great energy and drive and these, together with his high scholarship, have played an essential part in raising the Station to its present high standing in the world of radio physics.

On behalf of all of us I offer Mr. Ratcliffe our heartiest congratulations on the high honour which is to be conferred on him.

A. F. WILKINS

Library and Information Services

Although R.S.R.S. library is small both in structure and in holdings, its facilities are extremely broad.

Information can be obtained, not only on the subjects with which this Station is concerned, but on any subject whatsoever, by contacting Aslib. This was founded in 1924 and was known then as the Association of Special Libraries and Information Bureaux - the word "special" being the term used for libraries generally specialising in one subject. In 1949 a new organization was formed when the Association combined with the British Society for International Bibliography and became known as Aslib. The importance of Aslib's work was recognized by the government in the form of a grant from the Department of Scientific and Industrial Research after Aslib had helped to overcome the scarcity of scientific periodicals during the war by means of a microfilming service, and made a location index to European journals in this country. This grant, together with an extensive development programme for new services and activities has led to rapid growth and national and international acknowledgement of Aslib's authority on information work.

Aslib's service is usually only available to members of the Association (R.S.R.S. is a member) and, although not an authority on any one subject, it can either give the required information itself or indicate from whom it can be obtained. Some typical enquiries Aslib has received, quoted from one of their Year Books, are the following:-

- "References on the anaerobic bacterial corrosion of iron and steel.
- A list of fashion journals published throughout the world.
- Names of manufacturers of machines for making paper clips.
- Details of the Portuguese standard method for the determination of sapcnification tables."

The Association claims that, including the information its members can give, it covers virtually the whole field of human knowledge.

Most of the R.S.R.S. staff know of the National Lending Library for Science and Technology which is used regularly for the loan of journals and books which we ourselves do not hold. The N.L.L. came into existence at the recommendation of the Advisory Council on Scientific Policy because of the demand for material from the Science Museum Library and the lack of space to expand there. Under D.S.I.R. administration, the use of the new buildings at Boston Spa, Yorkshire, began in July 1962 and by April 1963 the N.L.L. was dealing with 4,000 loan requests each week.

The library covers the whole field of science and technology and contains 500,000 volumes, all being readily accessible. They may be consulted in the reading room, borrowed, or photocopied by means of appropriate forms which are issued free of charge to government departments and to the Science Research Council. Apart from books and journals, the N.L.L. holds reports issued by the Office of Technical Services in the U.S.A., and a reasonable collection of English translations of Russian Journals.

The National Central Library is not as familiar to special library users as the N.L.L., but it nevertheless plays an important part in special library services. It is housed at Malet Place, W.C.1, and was granted a Royal Charter in 1931, the year after it had been founded. Two of the functions of the Library stated in its charter are:-

(1) To supply on loan to libraries, or in exceptional cases to individuals, books for study which cannot conveniently be borrowed in any other way.

(2) To act as an exchange or clearing house for mutual loans of such books between other libraries.

The N.C.L. cooperates closely with, and maintains a union catalogue of the Regional Library Systems which cover England, Scotland and Wales. Our headquarters has direct access to the N.C.L. by the use of particular forms and it is used by them only if required material cannot be acquired locally from the N.L.L., or from organizations specialising in the subject. The N.C.L. then gives assistance by (a) using its vast catalogues which give locations for publications in this country and abroad and (b) applying to a located source for that publication.

Aslib, the N.L.L. and the N.C.L. are the chief organizations of the British library service but there are numerous subsidiary organizations including the National Central Libraries of Scotland and Wales, SINTO (the Sheffield Interchange Organisation) which is the cooperation of Sheffield public libraries with Sheffield firms for the interchange of books and technical journals, CICRIS (Cooperative, Industrial and Commercial Reference and Information Service) which operates in West London and LADSIRLAC (Liverpool and District Scientific, Industrial and Research Library Advisory Council). These and the cooperation of National Central Libraries with those of other countries serve for the infinite availability of literature and information.

S. Legg

The Wonder of the Age

The recent capture of a wanted man was brought about by the televising of information via the Early Bird satellite. Years before, in 1910, the arrest of Dr. Crippen was achieved by means of wireless signals to the S.S. Montrose in mid-Atlantic. Both these events served to bring to the public notice, even if only briefly, the progress of communications at the time.

One hundred and twenty years ago the general attention was similarly and perhaps more profoundly captured by the use to uphold law and order of the latest invention in communication. The Electric Telegraph at Slough had caught a murderer.

At the outset of Victoria's reign the idea of electric signalling was far from new. As far back as 1753 an anonymous author, writing in the Scots' Magazine had outlined a method using static electricity for the purpose and throughout the latter half of the eighteenth century, many attempts were made to produce a workable system.

The word 'telegraph' does not appear before about 1794 when it was applied to the work of Claude Chappe who, after considering methods of electric communication, decided in effect that the idea was sound, but that the technology of the day was not up to it. He produced instead an efficient semaphore system which lasted until well into the next century and may be said to have its last descendant in the railway signal.

By the 1830's then, some eighty years had seen a variety of electric telegraphs proposed. Some were workable and ingenious, such as Ronalds' electrostatic telegraph which was tried out in Hammersmith in 1816. This, like Chappe's electric method, required only one wire and employed the basic concept of synchronised letter heads, as does a modern teleprinter. Others, requiring a multitude of wires, were more in the nature of a laboratory exercise than a practicable form of signalling.

In spite of the discovery of current electricity from the Voltaic cell of 1799 there was little real progress in the telegraph. A lack of understanding of Ohm's law (first published in the 1820's and by no means as self-evident as we might mistakenly think) a lack of good insulating materials and until the establishment of railways on a large scale, a lack of real need for such a system, all conspired to prevent the various ideas from taking root outside the laboratory and its environs, where, among others, such eminent men as Gauss and Weber had produced telegraphs.

William Fothergill Cooke and Charles Wheatstone developed a working electric telegraph in this country about the same time as did Morse in the United States. Cooke based his ideas on apparatus made by Schilling which he had seen when in Europe. He speaks of this in 1836 as 'one of the common applications of electricity to telegraphic experiments, which had been repeated without practical result for half a century.' Clearly he had no illusions about the originality of the idea of electric signalling. However, after many experiments and advice from Wheatstone, a workable system was produced using five galvanometer needles and as many electric circuits. In 1837 this was installed between Chalk Farm and Camden Town. The letters were indicated by using any pair of needles such that the required letter lay at the intersect of lines produced along the direction they had been caused to take up.

Cooke managed to interest Brunel and the directors of the Great Western Railway in his project and by 1839 the telegraph linked Paddington with West Drayton for an extended trial. Shortly afterwards the line was carried as far as Slough. Experiments with underground wires, even in pressurised tubes, had not met with much success. (It was not until 1848 that Faraday recommended gutta-percha as a suitable material for cable insulation) and Cooke, consciously or unconsciously, followed the example of Morse and produced his own system of 'aerial suspension' of wires. It was realised that by suitable coding it would be possible to signal with a reduced number of needles, and, more important, electrical circuits; further, the application of the earth return principle was now beginning to be generally known. Thus an /improved

improved installation was produced by the partners. Wheatstone continually sought to refine the apparatus, though, according to some, this brilliant man had a regrettable tendency to omit Cooke's name whenever he spoke of their invention.

The Slough telegraph, by 1845, consisted of an instrument using two needles and an earth return which signalled by an ingenious if rather complex code of deflexions. The apparatus was installed at 'Telegraph Cottage', Slough, a site 'on a little hill to the north of the North Star Inn'. It was removed in 1881 when a new railway station was built and would seem to have been about where the William Street railway bridge now stands.

According to one contemporary account it was not only used for railway work, but was 'looked upon as a toy'. A leaflet of the time inviting the public to see and use 'The Wonder of the Age' for a charge of one shilling seems to support this statement. However in 1844 the 'notorious pickpocket Fiddler Dick' was arrested with the aid of telegraphed information and in January 1845 a more dramatic use of the machine occurred.

John Tawell, a man of about 60, had earlier in life served a term of transportation for forgery, but had so far made good as to become a respected man of business in the City. He possessed many of the acquisitions of a man in his position in that overtly respectable time. A charming wife - his second - a family by both marriages; a substantial fortune and a fine house in Regent's Park.

He also had a mistress, his former housekeeper Sarah Hart, now installed by him at "Bath Place, Salthill near Bothams (the Windmill) Hotel", Slough. As so often with others before and since, the time came when he wished to discard this lady and he solved the problems attendant upon such a move by the drastic method of administering prussic acid.

Tawell bungled the matter, the wretched girl lived sufficiently long to attract the neighbours by her screams and he was seen hurrying away from her home. By the time the true state of affairs was realised, though, the murderer was on a train bound for Paddington, dressed in the rather noticeable clothes of a Quaker.

A description of Tawell was soon telegraphed from Slough. There was some trouble with the Quaker part, there being no Q in Wheatstone's code. This was overcome by spelling the word Kwaker. According to some accounts this was instantly understood by the receiving telegraphist, but others say, and it seems more likely, that it took about four attempts. Every time KW appeared Paddington broke in with comments about garbled signals. In the end all was made known before the train arrived; when it did, the quarry was discreetly followed to his home and arrested when the police had made sure of their case.

That then was an outline of the famous Slough murder and the electric telegraph. It certainly helped to publicise the invention, at least for a time. After a year or two, however, the novelty had worn off. In 1849 the Slough telegraph was removed but by this time other railways had telegraphs of their own.

Prior to this incident descriptions of the device had appeared in illustrated papers and shortly afterwards, in April 1845 a game of chess was played between London and Portsmouth on the South Western Railway's telegraph. This may have been an example of smart business men cashing in on the G.W.R. publicity, though in both cases Cooke and Wheatstone instruments appear to have been used.

The middle years of the last century saw a rapid extension of the telegraph, indeed only twenty-one years from the time of Cooke's original test line from Chalk Farm to Camden Town the first fitful transatlantic signals had been exchanged and by 1867 transatlantic traffic on two cables was being conducted.

One can imagine some Victorian of 1865 commenting on the early telegraph at Slough in ponderous words, but applicable still. The apprehension of a miscreant through the agency of the electric telegraph now excites small remark. The wonder of the age has but little effect upon a public appetite sated with the marvels of an age of wonders.

G. W. Gardiner

It is hoped to display some illustrations concerning the Slough telegraph.

Electronic Communion

I love to sit upon my stool,
And watch with joy unbounded
The signals satellites send back
About the topside sounded
For is it not a pleasant thing,
That we on earth remaining
Can signals from above receive,
So many things explaining?
Imagine, if it's possible,
How you would feel up there,
All on your own, without a friend,
And nobody to care.
Then suddenly a signal comes
To see if you're around,
And if you are, a note is made,
And sent down to the ground.
Would you not feel a little glad
That somebody is caring,
Just whereabouts up there you are,
What spot of space you're sharing?
And so, when I am processing
It warms me to the heart,
That in this friendly enterprise
I've done my little part.
For I have aided in my way
And helped in some small measure
To stop electrons' loneliness
And give them all great pleasure.

B. Kaiser

STAFF NEWS

Congratulations to:-

Kathy Rice and John Reed who were married at the Parish Church, Cotmanhay, Ilkerston, on 5th June.

Promotions

Dr. D. M. Willis	S.O.	to S.S.O.
Mr. A. J. Rogers	E.O.	to S.S.O.
Mr. R. W. W. Mason	E.O.	to S.E.O.
Mr. J. A. McGivney	E.O.	to S.E.O.
Mr. C. Medhurst	E.O.	to S.E.O.
Mr. A. J. G. Mocrat	E.O.	to S.E.O.
Mr. D. E. Mortimer	E.O.	to S.E.O.
Mr. G. L. Hawkins	A.E.O.	to E.O.
Mr. D. G. Carter	T/A.E.O.	to T/E.O.

Welcome to:-

New Staff

Dr. H. Rishbeth	S.S.O.
Mrs. M. V. Oliphant	T/S.O.
Dr. R. B. Bent	T/S.S.O.
Mr. R. A. Aney	S.A. transferred from G.P.O.

Resignations

Mr. S. L. Harrison	T/S.A.
Mrs. I. A. Hatch	Part-time C.A.

Other changes

Mr. W. A. Hussey	T/A.E.O. transferred to Inland Revenue
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R.S.R.S. SPORTS AND SOCIAL CLUB

Section Representatives

Radio Society	Mr. D. Thorpe
Badminton	Miss M. Peart
Billiards	Miss K. Slater
Bridge	Mrs. J. Fooks
Cricket	Mr. T. Bevan
Table Tennis	Miss M. Powell
Tennis	Miss M. Peart
Smith-Rose Cup	Mr. A. Lowe
Camera Club	Dr. H. Rishbeth
Chess	Mrs. P. Drakeford
Concert outings arranged by Mr. Venables	
Windsor Theatre outings arranged by Miss Lovell	
Sales of confectionery	Miss A. Jones

J. Juleff

/Camera Club

Camera Club

The officers for 1965/6 are Mr. W. S. Newman, President; Henry Rishbeth, Secretary; Paul Dickinson, Treasurer. The successful 1962 visit to B.O.A.C. at London Airport is being repeated on 22nd June. Hopefully, this will yield a good crop of prints for display.

H. Rishbeth.

LETTER TO THE OUTSTATIONS

Dear Colleagues,

For once there is little difficulty in finding a theme for this letter, congratulations and welcomes are in evidence over and above those given in the Staff News. You will have seen the announcement that Mr. Ratcliffe is to be made a Companion of the Order of the Bath, and be glad to join with Mr. Wilkins in the congratulations he has offered on behalf of us all.

Particular greetings to Dr. Henry Rishbeth who, having completed his wanderjahre in various parts of the world, has now joined us once more, doubtless to commence his meisterjahre. Another welcome traveller returned is Tony Hall, who has just spent some time in Australia in connection with R.S.R.S. rocket-borne experiments; and I am sure you will be pleased to know that Enid Cottenham is now back with us again. She returned looking very fit after having to spend some weeks firstly in hospital and then convalescent at Osborne House in the Isle of Wight. All these matters have brought a pleasurable note of reunion to the sayings and doings of the past month.

In the minutes of a recent meeting I see that the Chairman thanked the representatives from the Radio and Spare Research Station. We are rendered redundant by a misprint - at least I hope it was a misprint for the sake of us all, not least

Yours sincerely,
the Editor

TENNIS SECTION

The tennis season is now in full swing, and for those who are new to the station (and to remind those who are not) here are some details of the R.S.R.S. S.S.C. T.S.

Membership of the tennis section of the R.S.R.S. S.S.C. is open to all members and associate members of the club, and the subscription is £2 per season. A fee of 2s. per evening is payable by casual visitors - to be collected and paid to the treasurer (M. Peart) by the member who introduces the visitor. (Members of R.S.R.S. are limited to 3 'casual visits' per season).

Club evening is Wednesday and Monday is reserved for match practice for the stronger players. Members may book the court on other evenings and week-ends using the booking sheet on the main corridor notice board. There are as yet no restrictions on booking, but these may be introduced if necessary. The length of the booking should be clearly indicated.

Tennis balls are provided on club and match practice evenings, and old ones are available in the ladies changing room in the old building for use on other evenings.

Mens doubles matches have been arranged with the Old Windsorians Rugby Club on June 26th and July 24th, and mixed doubles matches are being arranged with the Road Research Laboratory. It is also hoped to arrange a singles tournament later in the season.

Please contact P. A. Smith for further details, and send subscriptions, with the counterfoil and receipt forms below to M. Peart (Spur D).

M. Peart

Counterfoil

£2 paid by on.....for membership of the tennis
section from 1. 4. 65 to 1. 4. 66 signed.....

Received from..... the sum of £2 for membership of the
R.S.R.S. S.S.C. Tennis Section from 1. 4. 65 to 1. 4. 66

Signed..... Date