



NEWSLETTER

No. 128

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A GLIMPSE INTO THE PAST

Our Station has long had links with the world of the radio amateur, indeed the office of President of the Radio Society of Great Britain has twice been held by Directors of R.S.R.S. and there are members of staff both scientific and administrative who hold transmitting licences.

Among the very first organisations to pursue radio as a hobby with practical applications was the Scout Movement. Les Mitchell has kindly supplied this account by the Leader of the 1st Arundel Scouts of their operations sixty years ago. It serves as a reminder of the ingenuity and enterprise of those early workers who obviously thought that, for a good cause, the end justified the means.

The operation of amateur radio stations at various scout events calls to mind the use of radio by a troop of Scouts a good many years before the advent of broadcasting and widespread amateur activity. In 1911 the 1st Arundel (Earl of Arundel's Own) were the possessors of an experimental licence which permitted the troop "to install and work a wireless station for the instruction of Boy Scouts".

The owners of a modern radio would smile at the idea of such a box of tricks as the receiver producing results. It consisted of a pickle jar with a piece of ribbed calico glued around it, round which was wound bare copper wire. A sliding contact was fixed up to touch any of the turns and a frame of one-inch floorboard was constructed to hold the coil in position. The crystal detector consisted of sundry pieces of wood, copper and brass held together by gutter bolts, and the whole thing was tuned by a variable condenser consisting of post-cards and tinfoil from cigarette packets.

A nearby brewery chimney provided a convenient mast for the 300 foot long aerial which sloped down and entered the headquarters through the necks of broken bottles.

It was a never-to-be forgotten thrill to hear morse signals from Eiffel Tower and ships at sea for the first time; a thrill one cannot enjoy nowadays with the certainty and efficiency of commercial receivers.

The transmitter was a little more workmanlike than the pickle jar receiver. It consisted of twin ignition coils from a motor boat; spark gaps made from the zincs of Leclanche cells; and two excellent morse keys made by a Patrol Leader.

Two four volt accumulators supplied the 'juice' and good signals were received up to five miles away.

The station was operated at a camp at Ifold, Sussex in 1913. Naturally it was a novelty, and, at a camp concert, to which the local people were invited it was announced that the equipment was working in a tent close by and that signals from the Continent could be heard. A charge of threepence, in aid of the Troop funds, was made for the privilege of listening, and quite a brisk trade was done. After several people had been duly impressed a party of some half a dozen lads from the village arrived with the question, "How much gwain to charge we?" A reduction was made for quantity, a shilling changed hands, the headphones were handed over and the showman went off to hear part of the concert leaving the lads to amuse themselves. On his return he found them still listening but rather disappointed. As they put it, they could hear "a lot of rap-tapping about, but didn't know naun tall bout it. Couldn't you hear nobody talking like?"

That was a poser - wireless telephony was in its cradle and had not gone beyond the experimental stage. However, it was not too late to make amends. Various adjustments were made as unobtrusively as possible. The 'phones were connected to earth and to a nearby wire fence and another pair of 'phones connected likewise fifty yards away making a simple telephone circuit. A one-sided conversation was carried on for a few minutes and then another visit was paid to the "wireless station", where the audience was found in high glee. "Did we hear anything?" they said in reply to an enquiry as to what was happening. "Should jest think we did - kep' on saying 'Hullo Aldershot' five or six times. Then he says he wouldn't be home 'fore ten o'clock, then he says 'I'm closing down, goodnight.' Wonderful clear 'twas, jest as plain as anything - and loudish too." They went away highly delighted with their shillingsworth. The operator's conscience troubled him for playing the trick on them, but he felt it was up to him to please them by other means and he certainly succeeded.

Things went merrily on until the Great War caused all experimental stations to be closed down. The collection of treasures was carefully locked in a box, an important looking seal affixed, a receipt given, and they were held by the Government until 1919. With the rapid advance of the valve the equipment was by then quite out of date. The troop effort was never again revived, but some of the Old Scouts even now think back wistfully to those days and the fun they had under the callsign XBZ.

R. Swaffield G3JM

(The writer is indebted to the 1st Arundel's pre-war magazine "Forward" for the information contained in this account.)

STATION NEWS

International Computers Ltd. will be holding a press conference, at the Station, on February 22nd. The subject will be 'Scientific Applications of the 1904A Computer', with particular emphasis on the Ariel 4 and UK5 projects.

Staff News

Congratulations to:

Dr. B. Martin now S.P.S.O.

Welcome to:

Miss A. M. Robertson Typist I. Working at ARU, Culham (on secondment from UKAEA).

Mrs. H. F. P. Ross C.O.

Resignations

Mrs. E. G. Gomez Sec/Clerk (Singapore)

D. Maskell Sandwich Course Student

Han Sen Fong Labourer (Singapore)

Other Changes

C. R. Carter S.S.O. (Act.) Left Singapore for UK on closure of station.

News of Former Staff

Heather Rix and family have now returned to live in Rhodesia their address is c/o Department of English
University of Rhodesia
P.O. Box MP167
Mount Pleasant
Salisbury

Mrs. Nicholson of the Council of Social Services wishes to convey to all those who gave toys, food or clothing to the Christmas collection many, many thanks on behalf of all those who will benefit from your generosity.

Sports and Social Club News

Motor Club

Oil stocks have been replenished and 20W/50 grade is available in 1 pt, 1 gallon, and 5 gallon cans. Yet another increase in price has occurred but we have been able to keep this down to 2p. per gallon on a 5 gallon drum, which now costs £3.30.

P. Muzlish

Table Tennis

The 'B' team continues with almost monotonous regularity the unbeaten run in the 4th Division.

The 'A' team suffered a not unexpected 9-1 defeat in the 2nd. division against Windsor Cons. 'C' whose league position varies between 1st and 2nd. After beating I.C.P. 'A' in the Dilger knock-out Cup, R.S.R.S. 'A' were drawn against Centre "Centurion", a 1st division team and present holders of the Cup. This was received with a certain amount of gloomy resignation. However, much to our delight and their dismay "Centurions" were beaten 5-4, after a protracted and nerve racking match. This result occasioned a headline in the Slough Express. I.C.I. 'A' who are at present division leaders turned up with all three players for the second league match against R.S.R.S. 'A' obviously determined not to lose by default. This was of no avail as they were beaten fairly and squarely, 6-4. A very satisfying result.

P. Muzlish

Bridge Club

On 16th December we entertained the Road Research Laboratory and won the match comfortably by 33 IMPS.

The monthly club evenings have continued to be well attended, with 14 to 16 players taking part in the three most recent get togethers.

M. Johnson

P	A	R	A	L	L	E	L	O	G	R	A	M		
A			S			N				E		I		
P	R	O	S	P	E	C	T			I	C	O	N	
Y			E			Y		E		E		I		
R			T	A	L	C	U	M		I	S	M		
U	S	E		N	I	L		P		V				
S			M	E	T	E	O	R	I	T	E		P	
			E			L		P	A	R		S	E	A
F	A	R		E	N	A	M	E	L					L
E		S		R		E				A				A
T	R	I	M			A	D	D	I	C	T	E	D	
C		O				I				E				I
H	E	N	D	E	C	A	H	E	D	R	O	N		

Across:

- 1 PARALLELOGRAM 6 PROSPECT 7 ICON 9 TALCUM 12 ISM
 13 USE 16 METEORITE 19 PAR 20 SEA 21 FAR 22 ENAMEL
 24 TRIM 25 ADDICTED 26 HENDECAHEDRON

DOWN:

- 1 POPYRUS 2 ASSET 3 ENCYCLOPAEDIA 4 RECEIVES 5 MINIM
 6 EMPIRE 10 ANTLER 11 LIE 14 EMERSON 17 RAM
 18 PALADIN 23 LACED

Hints. Across 1 PARA-LL-EL-O GRAM, 6 ANAG. 7 I-CON 8 Hidden
 12 IS-M 13 US-E 16 METE-O-RITE 19 PAR(R) 20 A(E)S rev.
 21 RAN rev. 22 E(NAME)L 24 - 25 Anag 26 -
 Down 1 PA- Anag 2 AS-SET 3 Anag 4 Anag 5 Palindrome
 8 EM-P-IRE 10 Anag 11 L-IE 14 Anag 17 Anag
 18 PAL-A-DIN 23 DE(C)AL rev.

Magic Squares

Answers

1. A solution is

8	3	4
1	5	9
6	7	2

2. $2 \times 2 \times 2 = 8$ ways (Reflection vertically, horizontally, diagonally)

3. A solution is

68	80	79	78	15	13	11	9	16
70	56	65	63	23	25	27	28	12
72	18	48	53	35	33	36	64	10
74	20	50	44	39	40	32	62	8
7	21	31	37	41	45	51	61	75
6	60	30	42	43	38	52	22	76
5	58	46	29	47	49	34	24	77
1	54	17	19	59	57	55	26	81
66	2	3	4	67	69	71	73	14

4. 8 symmetrics of 3 x 3 inner square (which is magic)
 x 8 " " 5 x 5 ring
 x 8 " " 7 x 7 "
 x 8 " " 9 x 9 "

x 6 x 6 rearrangements of 5 x 5 ring sides, keeping opposites together
 e.g 53, 35, 33 may be in any order provided that
 29, 47, 49 are moved in sympathy.

- x 120 x 120 rearrangements of 7 x 7 ring sides
 x 5040 x 5040 rearrangements of 9 x 9 ring sides
 x 24 rearrangement of diagonals with associated convolutions of the
 entire square in sympathy

which makes $1,294,485,694,709,760,000 \doteq 1.3 \times 10^{18}$ magic squares.

All these solutions have 41 at the centre! maybe there are more.

5. Here are $81!$ ways to fill 9×9 , i.e. 5.797×10^{120} , so if the computer ran at 1 try per microsecond the odds are 1 in 10^{79} against finding any solution during the lifetime of the earth!
6. I think not, nor any even numbered square I suggest, but I can't think of a neat proof.

Paul Dickinson

LETTER TO THE OUTSTATIONS

Dear Colleagues,

Staff news this month contains, among other items, a departure from Singapore; indeed, by the time you read this, the member of staff in question will have resumed his duties here. Such announcements have been routine enough but this particular one should certainly not go unremarked, for it signifies the end of an era. This was the return home of the last man from R.S.R.S. Singapore, and that Station is now no more. First established in nineteen forty-eight, its duration for almost a quarter of a century may seem no great thing when measured against the span of empires. It is long enough though to evoke nostalgia among those who have worked there in times past and, with this in mind, some part of a future Newsletter may be devoted to such matters.

'A basis of semantic conformity is a prerequisite for linguistic communication' someone left that statement lying about in my ears a few days ago and I have wanted to get it off my chest ever since (metaphors mixed while you wait at this shop).

There's something in what the man says though. Behold a signal received the other day: 'MR JONES FOUND ENCLOSED IN AN ENVELOPE'. The mind ran riot with possible meanings. Dark deeds? Attempts at an off-beat world record? Cheaper travel? Or a new way to supplement one's income by going on the halls? Here's an example of gain by loss; the definite article disappears and lo, the case is altered. A routine message becomes at once shorter, stimulating, suggestive, and suitable fodder for,

Yours sincerely

The Editor

JANUARY 1972

List of Reprints

- P. L. George The Global morphology of the quantity $\int Nv \cdot dh$.
in the D- and E-regions of the ionosphere
J.A.T.P. 1971 33, 1893-1906
- D. M. Willis Structure of the Magnetopause
Review of Geophysics and Space Physics 1971 9, 953-985
- H. Rishbeth Thermospheric winds and the F-region: A review.
J.A.T.P. 1972, 34, 1-47.
- R. H. Slater Metrology and radio performances of reflector of
Chilbolton aerial
Proc. I.E.E. 1971. 118, 1691-1697

Internal Memoranda

NIL