STARLITE

The Award Winning Newsletter for Members and Friends of

G6OI
1938

Stourbridge and District Amateur Radio Society

G6SRS
1938

incorporating

Old Swinford Hospital School Radio Club

G4CVK

1969

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STARLITE

MEETINGS

Visitors always welcome
The Society holds its full meetings on the
1st and 3rd Monday of each month at

Old Swinford Hospital School
Heath Lane
Stourbridge
(8.00pm – 10.00pm)

Additionally the shack is open during the same times on the intermediate Mondays

Telephone Enquiries to :-
Hon Secretary
John Clarke M1EJG
(01562) 700513

Or by e-mail to :-

honsec@g6oi.org.uk

All correspondence/enquiries should be addressed to the Hon. Secretary :-
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21 Mill Lane
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Kidderminster
DY10 3ND

STARS Web Site URL :-

www.g6oi.org.uk

MESSAGE FROM THE PRESIDENT

The first meeting of the month saw a visit from Giles G0NXA RSGB representative for our area. This was an unofficial visit. Several topics were discussed including DBS requirements and offering amateur radio to the school. He has offered to come on an official visit in April along with Graham Coomber, the RSGB General Manager. They are open to questions, but would appreciate the questions in advance so they can find out the answers / carry out research, If you could let Hon Sec John know any questions for these two visitors. I know I would be interested in their vision of the future of Amateur radio and also the RSGB. Giles also mentioned about looking at a pooling resources of speakers who would be able to give talks to local societies. If you are interested in giving talks to other local clubs then please let Hon Sec John know.

The foundation exam took place, unfortunately not a very high success rate this time. Two of the non-passers only just failed. We are in the process of arranging a re-take but must seek permission from the school first. The exam location is the registered location for the exam to take place therefore it is difficult to hold the exam at another location. Many thanks to those who provided the various talks, practical aspects and also to Nick for hosting several of the sessions at his shop. New members Ross and Darryl both passed and look forward to hearing them on the air with their new callsigns in the very near future. Call signs are - Ross M6RLZ and Darryl M6FXJ.

The Annual surplus sale was well attended and some nice items went up for action, I think the star buy was the pair of vintage Sony headphones. £62 was raised towards club funds so a very

worthwhile evening.

Dec 7th sees the annual StARS Christmas gathering at the traditional location of the Carvery on South Road. I suggest 7:15 for 7:30 - if whoever arrives first can claim the large tables at the far end of the bar as usual. Purchase whatever you desire in the usual way.

As previously mentioned I will not be standing for president again next year, also Adrian G0NLA wishes to hand over the newsletter to new fresh blood!

Now we have a coach driver in the club it has been again suggested that next year (summer 2016) we arrange a trip to Bletchly Park. Please let John - Hon Sec know if you are interested

Thanks again and until Jan 2016

James

EARLY RADIO PIONEERS

Edward Victor Appleton

Introduction

Photograph courtesy of Wikipedia

Abnormal Radio conditions are events that make the hobby of ham radio especially enjoyable on both the HF and VHF bands and out of all the contacts made most hams can recall these best. We owe our understanding of these conditions to scientists such as Edward Victor Appleton.

Early Years

Edward Appleton was born in Bradford to parents who were of modest means. At the age of 18 Appleton's academic talents were recognised and he was awarded a scholarship to Cambridge University. In 1913 Appleton graduated with a first class honours degree in Natural Science with Physics. Soon and inevitably Appleton was swept up by the events of the First World War and found himself in the Royal Engineers where he was given training in the relatively new science of wireless or radio as it is better known today. The science of radio was yet to be fully understood and it was only at the turn of the century that Marconi had made the first trans-Atlantic transmission.

Appleton emerged from the first world war and joined the Cambridge based Cavendish Laboratory where he studied under Joseph John Thompson who was famous for his discovery of the electron.

Historical Backdrop

Back as far as 1839 Carl Gauss speculated that the daily variations in geomagnetic electrical field may have been affected or caused by atmospheric electrical currents. After this date leading scientists made similar speculations and although the theories were credible the understanding of what was happening lacked scientific and mathematical grounding in fact and tended to remain at the hypothesis stage. Pronouncements remained at the level where a scientist observed a particular phenomenon which helped to add to the sum total of human knowledge but there was no unifying and

Radio Luxembourg

Those of you who have 'played' with a general coverage receiver during night time hours will be familiar with some radio stations which fade periodically over a reasonably short time scale on for example the medium wave band. This fading is more apparent on stations which transmit from outside the UK. Those of more advanced years in the club can remember Radio Luxembourg which was a commercial radio station and operated on 208 Metres (1.44 MHz) with a not inconsiderable 1.8 Megawatt transmitter. The fading signal often caused the listener considerable frustration and the radio station needed careful tuning. It was possible to buy radio receivers with a band-spread facility which gave fine tuning just in the 208 Metre part of the medium wave. Transmission started at 7:00pm European time which was 8:00 pm UK time.

agreed explanation. Marconi had demonstrated his transatlantic transmission in 1901, so the science of radio was being utilised, but not necessarily understood. Between 1903 and 1906 scientists Taylor and Fleming speculated that the layers in the upper atmosphere were being ionised by ultra violet radiation from the sun. Later in 1910 Pierce stated that ground waves were being affected by signals bouncing off the ionosphere and these were attenuating or amplifying signals. In 1921 ham radio operators in France and the USA were enjoying two-way morse contacts and enjoying some of the first ham radio HF DX! At this date bending of ground wave signals had long since been observed and utilised.

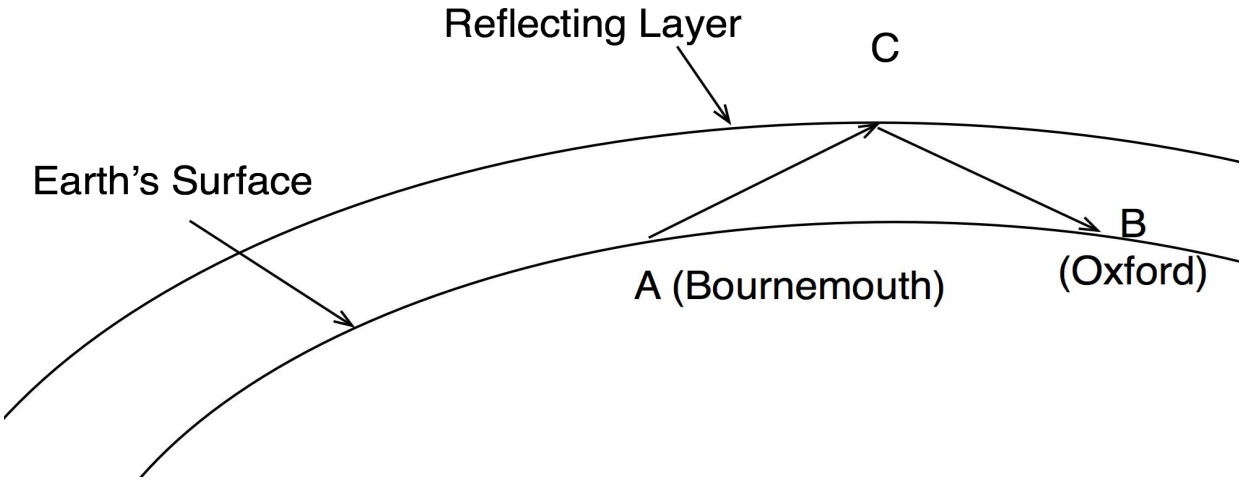
It was at this stage in the understanding of radio that Appleton started work. He believed that the phenomenon of medium wave (535 kHz to 1705 kHz) signals fading around sunset were due to two signals interfering. The additional path was thought to be caused by an atmospheric layer suggested by scientists Heavyside and Kennelly back in 1902. As part of his experiments Appleton was able to make use of the BBC Bournemouth transmitter (call sign 2BM) after evening broadcasting had finished.

The plan was to test the assumption that signals were being received by two paths, The signal that was bounced off the ionosphere (the skywave) had travelled a greater distance than the ground wave. If the difference between the distances travelled were divided by the wavelength was an integer number of wavelengths (i.e. 1,2,3,4 etc.) then the skywave and the ground wave were arriving at the receiver in phase, then a louder signal would be heard. Conversely if the signals arriving at the receiver were out of phase a weaker signal would be heard.

The angle of elevation of the skywave was measured. Knowing the angle CAB and the distance from Bournemouth to Oxford it was possible to calculate the distance from Bournemouth to the reflecting layer and back down to Oxford.

Another technique was also used which was to vary the wavelength of the transmitted signal from Bournemouth and to observe changes in signal strength maximum and minimum. There were practical difficulties in that one has to allow for the possibility of signals being reflected from hills or buildings for example. Appleton calculated the height of the reflecting layer to be around 90Km.

We now know that there are four reflecting layers , the D, E and F1 and F2 layers. It is not really



reflection that takes place but rather a bending or refraction of the signal path, so in practice the path of the skywave is closer to parabolic in shape.

Refraction takes place as a signal encounters different levels of ionisation.The "bending" of the

skywave starts to take place as the radio wave enters the lower altitude ionised layers and continues to bend as more ionised atmosphere is encountered. Appleton also played a major role in the development RADAR (Radio Ranging and Detection).

Conclusion

Appleton's experiments added to the understanding of radio signal propagation, but also served to demonstrate the complex nature of the subject. Appleton devoted a large part of his life to the study of the ionosphere and became a Fellow of the Royal Society in 1927. In 1947 he was awarded the Nobel prize for physics. Two years later Appleton moved to the University of Edinburgh to take up the post of Principal and Vice-chancellor, a position he held for the rest of his life. Edward Victor Appleton died on 21 April 1965.

The cause of the fading signal on Radio Luxembourg was attributed to variations in the level of ionisation. Signal reception started to improve soon after dusk and improved as the night went on.

ADVERTISMENT - ITEMS FOR SALE

Drake TR7A Transceiver with matching P.S.U. And speaker - £350 o.n.o

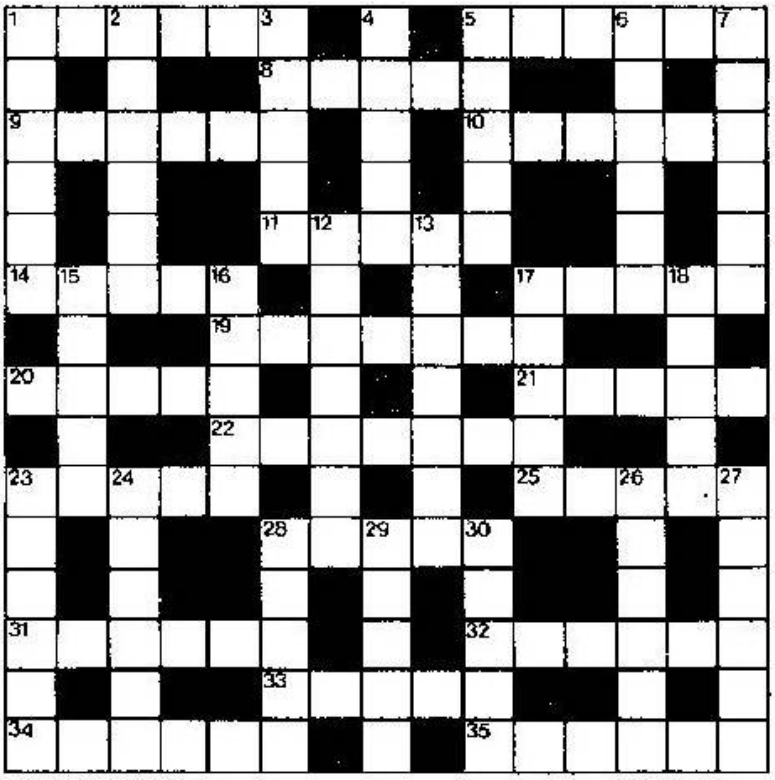
AL-811 Amplifier £500 o.n.o. (Ameritron 600 Watt Linear Amplifier)

Both in perfect working order

Please Contact – John Raybould (G4PQI) on 01384 566341

Googling "images Drake TR7A" provides hundreds of pictures of this iconic radio which clearly has a large following amongst the ham radio community. One can find large numbers of articles for suggested improvements, product reviews, mods and troubleshooting information on the net. (Editor)

THE DREADED CHRISTMAS CROSSWORD



Clues Across	Clues Down
(1) Big dipper for the Americans (6) (5) Humanity to others. Possibly the only Bantu Nguni word you didn't know you knew (6) (8) Last woman in the UK to be hanged (5) (9) Cup supporter reportedly saw Sir? (6)(C) (10) Aka The Beeb (6) (11) 9Q country (5) (14) Musically slow and dignified (5) (17) Once the Black Country maker of all scales (5) (19) German wife meets guest house tea initially and gets anxious (7)(C) (20) Art in charge gives us a bendy lorry (5)(C) (21) Inedible thin slice of silicon substrate (5) (22) Potential wife for Prince Hamlet (7) (23) This spins around after it has been burnt (1,1,1,1,1) (25) The mad hatter asked why one of these is like a writing desk (5) (28) Freddie or Ringo. It makes no difference (5) (31) What the mixed up singer did and gives up (6)(Anag.) (32) Curt to the point of rudeness (6) (33) Other side of the coin is A-list production (5) (Anag) (34) Sort out reason for this woman (6)(Anag.) (35) Minor earthquake (6)	(1) SI unit of pressure (6) (2) Valour turns egg shaped (Anag.) (3) Car hire company but it sounds painful (5) (4) Latin speakers say elsewhere and with this you can prove it (5) (5) Custom and practice found in U.S. Agent (5)(C) (6) Edible weed (6) (7) Youth less "P" and in abundance (6)(C) (12) A troublemaker with poor choice in headgear (1,3,3) (C) (13) A person who can order the usual (7) (15) Made public ones views (5) (16) Part of command for airwaves regulator (5) (c) (17) Where countries end up with serious disagreements (2,3) (18) The sheriff in days gone by (5) (23) Country that sounds like a tree (6) (24) Justification for an event (7) (26) They say nature abhors this (6) (27) Alternative trance and food for bees (6)(C) (28) No Christmas crossword is complete without this chap (5) (29) Early form of sonar (6) (30) Cook with dry heat or verbally dress down (5)

Note C= cryptic Anag.=Anagram

STARLITE

YOUR COMMITTEE

Hon. President	JAMES	G7HEZ	
Vice President	NICK	G6DQN	
Hon. Secretary	JOHN	M1EJG	(01562) 700513
Hon. Treasurer	JOHN	G8UAE	
Committee Members	MARK	G7EDZ	
	KEITH	M0HPY	
	SEAN	M3XMJ	
	TIM	G7TAC	
	MALCOLM	G8BOP	
	WAYNE	M5LLT	
Starlite Editor	ADRIAN	G0NLA	

CALENDAR OF EVENTS

It should be noted that the Shack will be open every Monday evening unless shown otherwise in the Calendar

December	Mon 7th	December Christmas Gathering
2016		
January	Mon 18th	Tim 4x4 Response
February	Mon 15th	Constructors Competition and Quiz by Peter
March	Mon 21st	AGM
April	Mon 18th	To be arranged

Please note in future :-

There will be £2 admission charge to non-members for attending main meeting talks / events. This is refundable against joining the society.