STARLITE

THE NEWSLETTER FOR THE STOURBRIDGE AND DISTRICT A.R.S.

G6OI

G6SRS

G4CVK

ISSUE: JUNE 2020

STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY

INCORPORATING

OLD SWINFORD HOSPITAL SCHOOL RADIO CLUB

MEETINGS HELD AT

OLDSWINFORD HOSPITAL SCHOOL
HEATH LANE
STOURBRIDGE
[8:00 TO 10:00 PM]

VISITORS ALWAYS WELCOME

THE SOCIETY HOLDS ITS MEETINGS
EVERY MONDAY (EXCLUDING BANK HOLIDAYS)

RSGB AFFILIATED SOCIETY

The views expressed in STARLITE may not be those of the Committee – Stourbridge and District Amateur Radio Society

STARLITE

Telephone Enquiries to:-

Hon. Secretary
John Clarke M1EJG
[01562] 700513

Or by Email to:-
honsec@g6oi.org.uk

All correspondence/enquiries should be addressed to the Hon Secretary at:-

StARS
c/o The Mill House
21 Mill Lane
Blakedown
Kidderminster
DY10 3ND

StARS Website URLs:-
www.g6oi.org.uk
http://g6oi.ross-lewis.co.uk

StARS Facebook Page:-
https://www.facebook.com/groups/stourbridge.ars/

Forthcoming Meetings

June 1st	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
June 8th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
June 15th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
June 22nd	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
June 29th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
July 6th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST.
July 13th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
July 20th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
July 27th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
August 3rd	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
August 10th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
August 17th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
August 24th	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST
August 31st	Club Net on 145.325MHz FM & Zoom Video @ 20:00 BST

Editor's Comment

This month's main featured article was sent by John G8UAE and is an item about the history of StARS, which was compiled by G3CAQ for a book concerning amateur radio clubs in the Midlands. The article contained a number of glaring mistakes, which I could not ignore and HAD to rectify them.

The second feature is the second part of "*Simple Theory: Basic Magnetism*" by Geoff G0KVK. As you enjoyed the first part, I'm sure you will find this interesting, too.

The third item is "*The Multi-match Antenna System*". Perhaps an ideas article for a 'lock-down' project?

Just prior to publication, I decided to include a fourth item, "*A Wire MOXON for 40 metres*", to follow on from item 3.

I recently watched a couple of episodes of *Ham Nation*, one of which made mention of some new Q codes introduced since the appearance of Covid-19:

QLD	We're locked down
QTP?	Have you got enough toilet paper?
-QHG	No hugs for you at the moment
QBO	When Club meetings begin again, don't sit next to that person!

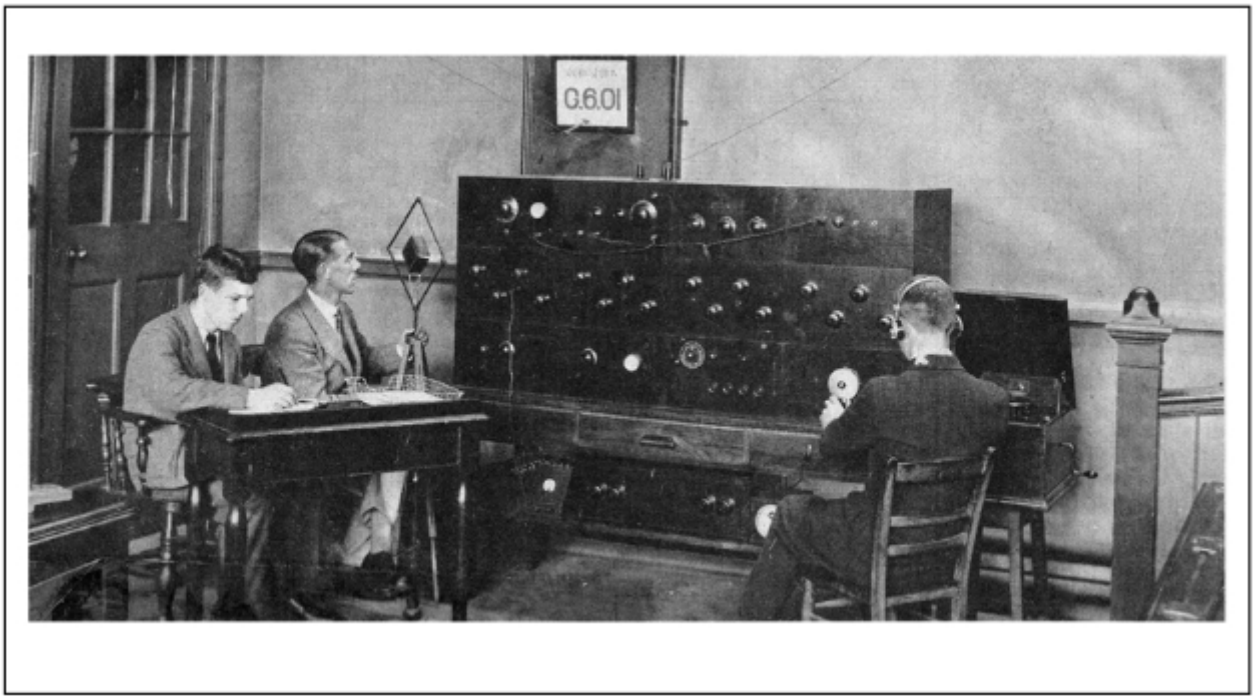
Of course, these were introduced on April 1st edition of the programme!

Finally, I received an email from Jim G4WAO, who sent a newsletter from the VK2MB (thanks Jim) and I will probably 'lift' a couple of club articles for Starlite. You will be pleased to know that Jim and family are all well and, due to restrictions being eased in Oz, are allowed to go on holiday. I guess it will be some time before we are allowed this luxury!

Like me, I bet some of you can identify with this guy on the right.

The STOURBRIDGE & DISTRICT AMATEUR RADIO SOCIETY

In setting out to edit and publish the History of the Society I am indebted to the many members who have preserved Pictures - Records and Press Cuttings over the years and particularly Alec Higgins G8GF, who assembled what must be the definitive record, entitled aptly, "FOR THE RECORD", which was presented to the Society at the Annual General Meeting, Tuesday March 4th 1968, the 30th anniversary of the founding meeting. It has been interesting to the writer compiling the lists of All Time Members and Officers, to note that several members at the time, were members of both Stourbridge and the Wolverhampton Club. I note Arnold Devey G2AU. Howard Littley G2NV. SDARS



The Station G6OI at King Edward VI School, copied from a newspaper report 1938. John Timbrell at the microphone

The Society was founded by Alec Higgins G8GF, Donald Rock G8PR and John Timbrell G6OI in 1938. The original meeting place was the Toc "H" Club room off Lower High Street, Stourbridge, at the time just about opposite the King Edward V1 School. Meetings here continued until the advent of WW2 in 1939.

The first post war General Meeting of the Society took place on the 19th of February 1946, the 16 enthusiasts present included :- Alec Higgins G8GF, John Timbrell G6OI, C.V. Whittacker G3UK, Stan Hemmings G8SR, John Hogg G2OG, A.D. Rock G8PR, N.T. Harper G4MI, S. Walker 2HAS, BRS 4606,. G6OI informed the meeting that the Bank balance was £4.1.0d, remaining from pre war. Following the meeting letters and Minutes were sent by G8PR, acting as Secretary/Treasurer to -: H Littley G2NV of Stourton, S. Whitehouse G8SZ, of Lower Gornal, H. Thompson G8UU of Dudley, Arthur Davies G4JY of Stourbridge, G. Woolridge G3UN of Stourbridge, J. P. Jay G3SC of Claverley, R. Westwood of Lye, C.E.D. McLean 2CLS, of Amblecoat, Mr Vann of Vanns Garages, Oldwinsford, H. Walker G3DV of Dudley, and Cpl Howett who at the time was stationed at Yatesbury. In early 1946 after one meeting at the old Toc "H" room, meetings were transferred to the Science Block of the King Edward V1 School., taking place the first Tuesday of each month. Also as an alternative in the 1951 period, informal meetings were held on the third Friday of each month at the Corn Exchange Vaults. During October 1957, due to increased room charges, the main meetings were transferred to the Brotherhood Hall, Scotts Road, Stourbridge. Then in March 1961, due to accomodation difficulties at the Brotherhood Hall, meetings were transferred to the Foley College of Further Education, Hagley Road, Stourbridge. In November 1965, notice was given to terminate the tenancy at the College and meetings then moved to the Longlands School, Brook Street, Stourbridge, also several Committee meetings were held in the Bell Inn, Market St. During 1969 a room became available at the Scouts Headquarters in South Road, Stourbridge

Here equipment was installed at what was to be a Club Room, however due to poor support this was abandoned in 1972 and all meetings were then held at the Longlands School. A move took place to the Garibaldi Public house for a short time, and in the

1980's meetings transferred to the Robin Woods Centre, leaving there about 1999 for the Old Swinford Hospital/School, the present meeting place. Membership has varied over the years as did attendance at meetings. In the pre WW2 period membership details are not available, however in 1946, and the early post war period it was approximately 55. Traditionally membership has been drawn from enthusiasts of Stourbridge, Brierley Hill, Dudley, Halesowen, Kidderminster and Kinver area's. The Society has been honoured to receive many important visitors during its lifetime :- Arthur Milne G2MI, RSGB Council member and long time RSGB QSL Manager addressed the members in 1949.
John Clarricoats G6CL, RSGB General Secretary addressed a meeting June 1950.
Ald. P. Drew, Mayor of Stourbridge attended in 1955.
Ald J. Guest, Deputy Mayor of Stourbridge addressed members at the Annual Dinner in October 1961.
Fred Parker G3FUR, RSGB Council Member (Zonal) attended at the October 1961 Annual Dinner.
The Society since its inception, has been involved with Field Day and Contest activities and it was fitting to accept the Call Sign G6OI, when John Trimbrell relinquished it due to ill health in August 1962.

Alec Higgins G8GF

The Society has been a supporter of the National Society the Radio Society of Great Britain since its affiliation of April 14th 1947, and the following have served as Officers and Representatives.
John Timbrell G6OI County Representative for Worcester until 1957. Alec Higgins G8GF Town Representative for Stourbridge, County Representative for Staffs. and Regional Representative 1957-1965
Alec Higgins G8GF Town Representative for Stourbridge, County Representative for Staffs. and Regional Representative 1957-1965
Dai Barlow G3HGI. County Representative for Staffordshire.

Neville Heathcock BRS. County Representative for Worcestershire
Brian Kennedy G3ZUL Regional Representative 1973-
Frank Bills G3CLG, Ken Davies G8AAW and
John Bills G3KZG, have all served as Town or Affiliated Societies Representatives Stanford Jacobs G3AAQ was once nominated for the RSGB Council. Field Day.

Planning the next move! SDARS

Mike Bristow. G3CLG G3IVQ G8AAL

Amateur Radio Contests & National Field Day activities.
The Society has been at the forefront of Midland Amateur Radio Societies in this respect. The first NFD was in 1947 when two stations were established, one on the Clent Hills, the other at Kidderminster. This degree of activity continued until 1963. Thereafter one station has been mounted except in 1967 when a second Stourbridge "B" station was entered. The Society won the NFD of 1961 & 1962

STARS, has been supported by the individual efforts of several fine C/W operators, Harry Nicholas G3BQB was an early exponent of "Break in" and had many successes in the 1946 era. In the 1950's Tom Cashmore G3BMY was the most successful of the Society contest operators, such as the low power category on 3.5 mc/s and several fine wins on Top Band commencing in 1957. Alec Higgins G8GF won both Top Band Contests in 1956. Bill Wells G3HVX was the joint winner with G3BMY of a Top Band Contest. Joe Brooke G3GHC, later GW3GHC, won a low power 3.5 mc/s Field Day. Bob Ashman G3HXI, Ivan Eamus G3KLT and John Bills have all done well in C/W contests. after being in the Top Ten for several years. In the RSGB Affiliated Clubs Contest the Society has won 5 times, the most successful year for contests was in 1962.
From 1967 onwards members turned their interests to VHF, and it was decided to enter these events. In 1969 a station was operated off Walton Hill, Clent. In 1970 & 1971 a station was operated from Penny-Gwelli, obtaining results in the competition of 31st and 24th.

Individual DX achievements of members.
In 1961 both Tom G3BMY and Alec G8GF, worked the USA and Canada on 1.8 mc/s CW

A parade of Trophy's
Dr A. Parks G2OG G3KLF G3CLG G8DSC G8AAL
G3IVQ G3XKM G8GF G3BMY

STARS Exhibition Station

Field Day 1960'S, at Compton Park Farm, Kinver

A Technical meeting in the 1960's

G3KLT. I. Eamus. Field Day operation.

STARS. All Time Roster of Members.

G2AU	Arnold Devey of Wolverhampton SK
G2NV	Howard Littley of Stourton SK
G2OG	John Hogg
G3DV	H. Walker.
G3LN	Phillip H. Rock of Stourbridge.
G3SC	J.P. Jay
G3UN	G. Woolridge
G4JY	A. Davies
G6OI	John Timbrell SK
G6WF	Bernard Whitehouse of Wombourn SK
G8FU	George Hunt of Birmingham.
G8GF	Alec Higgins
G8PR	A.D. Rock of Old Hill.
G8SR	Stan Hemmings SK
G8SZ	S. Whitehouse
G8UU	H Thompson
G3BMY	Thomas Cashmore
G3BQB	Harry Nicholas
G3CLG	Frank Bills
G3COD	E. Morgan
G3GHC	J. Brook
G3HGC	Joe Brooke
G3HGI	Dia Barlow
G3IIV	A. Davies of Sedgley.
G3IVQ	E. Brickstock
G3HVX	Bill Wells of Handsworth
G3HXI	Bob Ashman of Dudley Wood.
G3IYK	James E Parkes of Stourbridge
G3JKL	Ivan Eamus
G3KZG	John Bills
G3KBL	Claude Field of Quinton. SK 1956
G3NIJ	K. Keeling of Kingswinford.
G3PLE	David Barlow
G3RWC	J. Harris
G3SNY	J. Pearson.
G3VDM	M. Clift
G3VHA	M. Skelding
G3XKM	R. MacIntosh
G3XOV	D. Wright
G3XRH	N.B. Simmonds SK
G3ZVL	Brian Kennedy
G3ZVK	B. Simmonds
G4CLX	A. Dewsbury
G4DIA	B. Powell
G4DFN	S. Widdett
G4FYQ	D. Robbins
G4MI	N. Harper of Wordsley.
G8AAL	P. Hamlett
G8AAW	A.K. Davis
G8BOP	M. Palmer
G8DSC	G. Wolfenden
G8HUQ	B. Powell
G8IZL	M.D. Robbins
BRS 19666E.	Meredith
R. Westwood	
C.E.D. McLean	
Mr. Vann	
Cpl. Howett	

Presidents

1939	H. Littley G2NV
1946 pt./ 1948-9	J. Timbrell G6OI
1946 pt./1947	H. Littley G2NV
1952-1956	J. Trimbell G6OI
1959-1969	F.A. Bills G3CLG
1966-1967	W.A. Higgins G8GF
1968-1969	C .D. Barlow G3HGI
1969-1971	E.J. Brickstock G3IVQ

1971-1972	C.D. Barlow G3HGI
1972-1975	Dr G.P. Sugden G8DZQ
1975-1976	B. Kennedy BSc G3ZUL
1976-1977	J. Bills G3KZG
1977-1978	D. Robins G4FYQ
1992	FrankCollins G1GTW
1993-1994	F. Collins G0RXO
1994-1995	S. Turley G7JYZ
1996	F. Collins G0RXO
1995	S. Turley G7JYZ
1998	Dr R. Derricott G4VPE
1999-2000	Eric Hickman G7JWJ
2001	J. Clark M1EJG
2002	Wayne Mocroft G7LLT

Vice President

1952	C. Barlow G3HGI
1964-1966	C. Barlow G3HGI
1968	Thomas Cashmore G3BMY
2000	Wayne Mocroft G7LLT
2002	Wayne Mocroft G7LLT

Chairman

1938/39 & 1946	W.A. Higgins G8GF
1946	C. McLean
1947/48	J. Timbrell G6OI
1949/50	H. Littley G2NV
1951	N. Harper G4MI
1956/7/8	F.A. Bills G3CLG

Office then disbanded.

Hon Secretarys

1938/39 & 1946	A.D. Rock G8PR
1947/51	W.A. Higgins G8GF
1952/54	E. Meredith BRS
19666 1955/62	A.K. Davis G8AAW
1963/67	R. MacIntosh G3XKM
1968/69	I. Eamus G3KLT
1969/71	B. Kennedy G8CVK/G3ZUL
1971/72	M.D. Robbins BRS 31446 G8IZL/G4FYQ
1972/74	B. Powell G8HUQ
1974	J.G. Simons G3ZLK
1975	A. Dewsbury G4CLX
1977	A. Dewsbury G4CLX
1992 1994	James French G7HEZ
1995-1966	Gordon Bryant G0TZV
1999	Gordon Bryant G0TZV
2000	T. Edwards M1ESN
2002	J. Clark M1EJG

Hon Treasurer

1952	J. Hogg G2OG
1964/67	J. Hogg G2OG
1969-1972	R. Wright G4JBV
1993-1999	John Scott G8UAE
2002	John Scott G8UAE

Editor

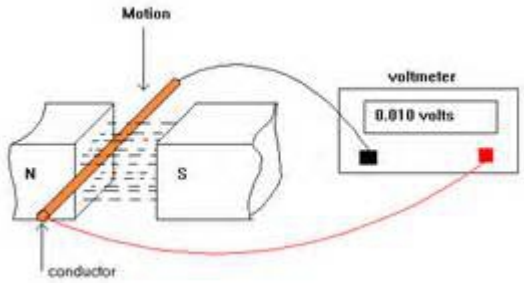
1992 – 1996	Bob Egan G4XOM
1999 - 2001	James French G7HEZ

Simple Theory by Geoff Cooper G0KVK

Basic Magnetism

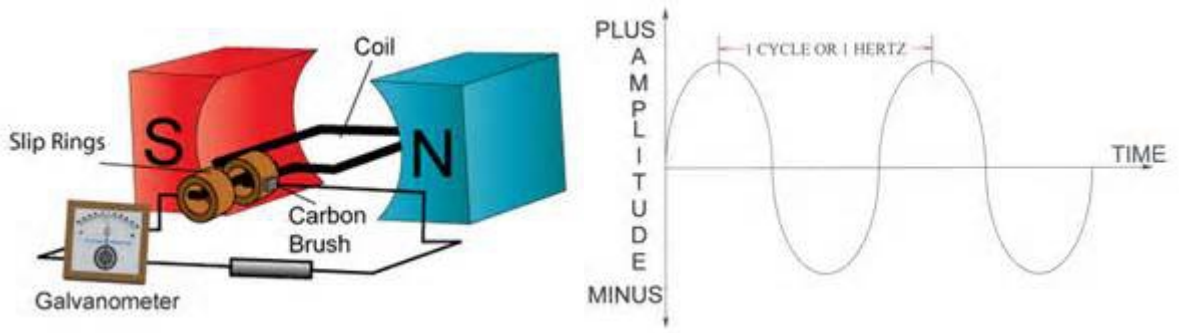
Part two

Movement of conductor in a magnetic field



simple generator

Consider a single rigid conductor placed in a magnetic field. Whenever the conductor is moved so that the conductor cut through the lines of flux the meter will give a small indication of current flow. If both the conductor and the magnetic field remain still no current will flow and the meter will read zero. This is an example of electromagnetic induction when an e. m. f. appears between the ends of any conductor which is made to move relative to the flux lines of a magnetic field



The following results may be confirmed.

A. The polarity of the induced e. m. f. Reverses if either the direction of motion or the direction of the field is reversed.
B. The induced e. m. f. Is greatest when the conductor moves at right angles to the magnetic field and is zero if the conductor moves horizontally.
C. The magnitude of the induced e. m. f. (E) is proportional to the velocity (V) of the conductor , to the flux density (B) and to the length of the conductor in the field.

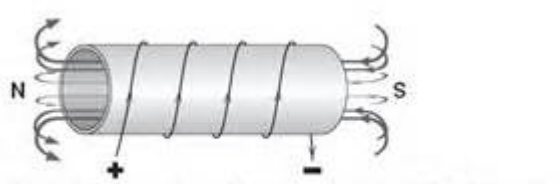
Simple Alternator

The principle of an A.C. generator or alternator is shown above. Here a loop consisting of two conductors A and B is made to rotate continuously in a magnetic field.

With the loop in a vertical position there will be zero E.M.F. as neither conductor is cut the lines of magnetic flux. If the loop is rotated through 90 degrees, the E.M.F. will increase as the conductors cut through the lines of flux reaching a maximum when conductor A is adjacent to the S pole of the magnet here the conductors will be cutting the flux at right angles. The output E.M.F.is the sum of the individual E.M.F.s in the two conductors since when they are cutting the flux the force on one conductor will be upwards whilst it is downwards on the other. As the conductors continue to rotate through a further 90 degrees the E.M.F. generated decreases reaching zero when conductor A reaches the bottom, and conductor B reaches the top. As the loop rotates through a further 90 degrees the E.M.F. increases once again but this time the polarity is reversed as the positions of the conductors will have interchanged (conductor is now adjacent to the N pole of the magnet). As before the E.M.F. is at a maximum when the conductors cut the flux at right angles. Finally as the loop rotates through a further 90 degrees the E.M.F. diminishes and falls to zero when the conductors are vertical. It will be seen that the polarity of the generated E.M.F. changes ever half revolution giving a alternating voltage output (sine wave). In order to make contact with the loop and an external circuit, slip rings and carbon brushes are used.

Inductance and the transformer principle

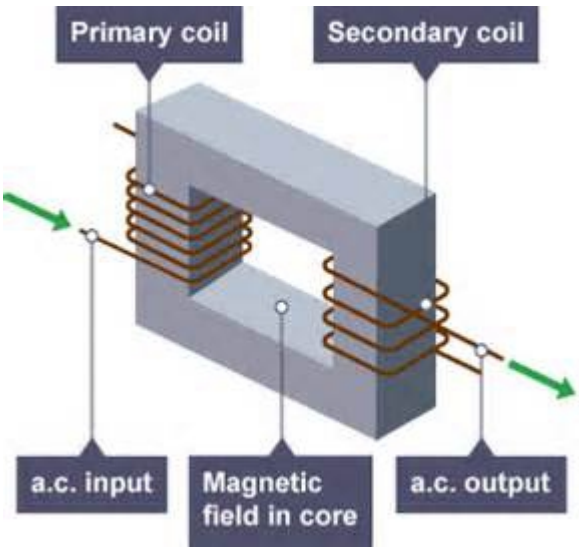
It was seen that an E.M.F. was induced in a conductor when it cut a magnetic field. It is not essential for the conductor to move and an e. m. f. will be induced if the field moves relative to the conductor.



Field produced by a coil wound in the form of a solenoid. This field would appear similar to the field around a bar magnet when completely drawn.

magnetic field in a coil.

If a coil is considered as above the magnetic field due to the current will be as shown. If the current is decreased the lines of flux become smaller and smaller and finally collapse into the centre of the conductor. When this happens the lines of flux cut the turns of the coil, thus inducing an E.M.F. in them. Therefore whenever the current in a coil increases or decreases, changes in flux occur and a E.M.F. is induced. No E.M.F. is induced if the current is constant, this property of a coil is known as its self inductance and the unit of inductance is known as the henry (H). For a coil of a given size and number of turns the inductance may be increased by using a magnetic core. Inductors found in power and audio frequency applications often use laminated cores. Inductors used for radio frequency applications may have iron dust cores or ferrite cores.



Basic transformer

If two coils are placed side by side as above so that some of the flux set up by the current in the primary coil cuts or links the turns of the secondary coil any changes in the primary coil will not only induce a E.M.F in the primary coil but also in the secondary coil. This is known as mutual inductance. The magnitude of the voltage induced into the secondary coil will depend on:

A the number of turns on the secondary

B the fraction of flux passing between the primary and secondary depending on how close the coils are together. This property is used in the transformer. It should be noted that the E.M.F. is proportional to the rate of change of current and does not depend on the value of the current itself. Thus if a steady D.C. current is passed through the primary coil no E.M.F. is produced in this coil so no E.M.F. is produced in the secondary coil. In most cases the primary and secondary coils are wound on a magnetic core of iron. The use of a magnetic core has two effects:

A Firstly it increases the inductance of the primary winding and thus reduces the current flow

B It concentrates the magnetic flux so that most of it links with the secondary winding. When an A C supply of voltage V1 is applied to the primary a current will flow. Since this current is A C the flux in the magnetic core will change inducing a voltage V2 into the secondary winding. By varying the ratio of the primary to secondary turns a secondary voltage can be the same or more or less than the input voltage. If the voltage on the secondary goes higher than the primary the current in it goes down, likewise if the voltage goes down then the current goes up.

The Multi-match Antenna System

For a long time, hams have been searching for a single antenna that could be fed efficiently with a low-impedance transmission line on several bands. At last a simple but ingenious design by W3DZZ provides a solution. He has applied some well-known but neglected principles to both wire and parasitic-beam antennas.

Unique design providing essentially constant impedance over several bands.

Radio transmitters and receivers have en-joyed rapid development in flexibility to the point where changing bands is a matter of only spinning a dial or two and flipping a couple of switches. In contrast, the operation of a single antenna on several bands is usually done only at the expense of high standing waves on the feed line, because of the wide variation in antenna feed-point impedance from band to band.

Some work done by the author several years ago in connection with a dual-band parasitic array**(1)** has led to the development of a simple wire antenna covering five bands, from 80 to 10 meters. This antenna can be fed with a low-impedance transmission line without incurring excessive s.w.r. on any of these bands.

Basic design

The fundamental principle of the system can be explained with the aid of Fig. 1. In Fig. 1A, sections h1 constitute a half-wave dipole for some frequency f1. This dipole is terminated in lumped-constant trap circuits resonant at f1. Additional wire sections, h2, extend beyond the traps. If the system is excited at frequency f1, the traps serve to isolate the dipole much as though insulators were inserted at these points.**(2)**

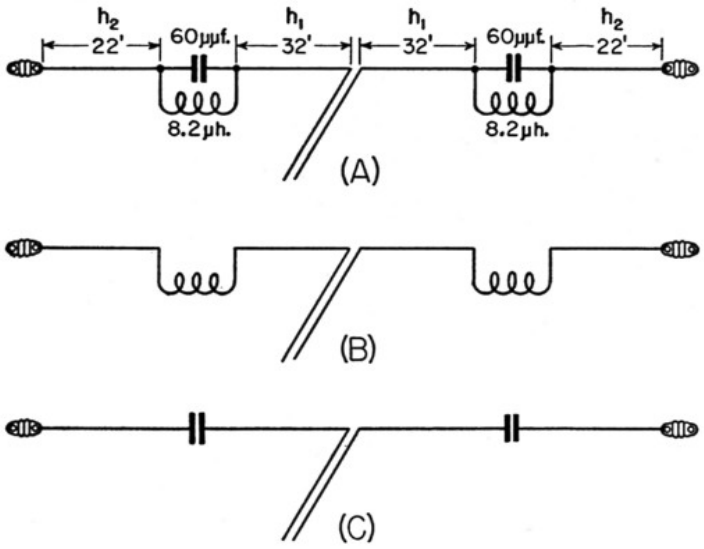


Fig. 1. Sketch illustrating the three fundamental modes of the multi-match antenna.

At frequencies much lower than f1, the traps no longer isolate the dipole, but act simply as loading inductances in a second dipole whose electrical length is made up of 14, h2 and the inductive reactance of the traps, as in Fig. 1B.

At frequencies much higher than f1, the traps again cease to isolate the sections, the traps now acting as series capacitances, as in Fig. 1C.

Another important consideration in this multiband system is that low impedance at the center feed point of the antenna occurs not only at its fundamental resonance but also at any odd harmonic of the fundamental.

By applying these principles, and by proper selection of the values of L and C in the traps, and choice of lengths for hl and h2, it has been possible to arrive at a design where the system operates as follows:

1.Sections h1 form a half-wave dipole resonant in the 40-meter band. The traps, resonant at the same frequency, isolate this dipole from the outer sections.
2.The inductive reactance of the traps is such that the entire system, including sections h2, resonates as a loaded half-wave dipole for the 80-meter band.
3.The capacitive reactance of the traps at higher frequencies is such that the entire system resonates as a 3/2 wavelength antenna on 20, 5/2 wavelength on 15, and 7/2 wavelength on 10 meters.

The antenna is fed with 75-ohm Twin-Lead, and Fig. 2 shows the results of s.w.r. measuremente made across each band. Proper dimensions are given in Fig. 1A.

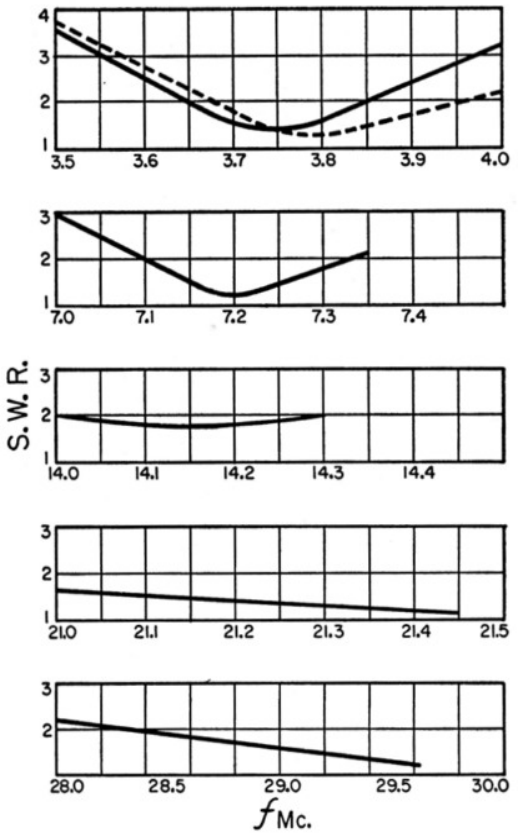


Fig. 2. S.W.R. measurements made on the antenna of Fig. 1A. The dashed lines show measurements made on a 122-foot dipole in the same location for comparison.

Trap construction

The values of C and L used in the traps are quite critical. The capacitance should first be adjusted accurately to 60 pF, then the inductance should be trimmed until the trap resonates at 7200 kc. This should be done before the traps are inserted in the antenna. The inductance will be approximately 8.2 μH. The traps made by the author are 6 inches long and weigh only 6 ounces and the Q is well over 100. They will withstand the voltage

developed by a 1-kw. transmitter. Samples are shown in the photograph. The wire-antenna capacitor is made up of concentric lengths of 1-inch and 3%-inch aluminum tubing separated by polystyrene tubing with -inch walls, molded around the inner conductor. The polystyrene is also flowed into a series of holes in one end of the outer conductor so that the strain of the antenna will not pull the assembly apart. The inductor is wound with No. 14 wire and is concentric with the capacitor. The inductor is weatherproofed by molding it in insulating material. Other construction might be used, of course. As an example, a conventional inductor and capacitor could be enclosed in a plastic box, suspended across an insulator. This would, however, add to the weight.

A three-band parasitic beam

The principle of isolating sections of an antenna with resonant traps has been applied to a parasitic beam antenna that operates on 10, 15 and 20 meters. This array with dimensions is sketched in Fig. 3. The array is a five-element job on 10 meters, with two reflectors spaced approximately 0.15 wavelength, and two directors spaced approximately 0.2 wavelength. On the other two bands, three elements are active. On 15 meters, spacings are approximately 0.22 wavelength for the reflector and 0.29 for the director. On 20 meters, the approximate spacings are 0.14 and 0.2, respectively.

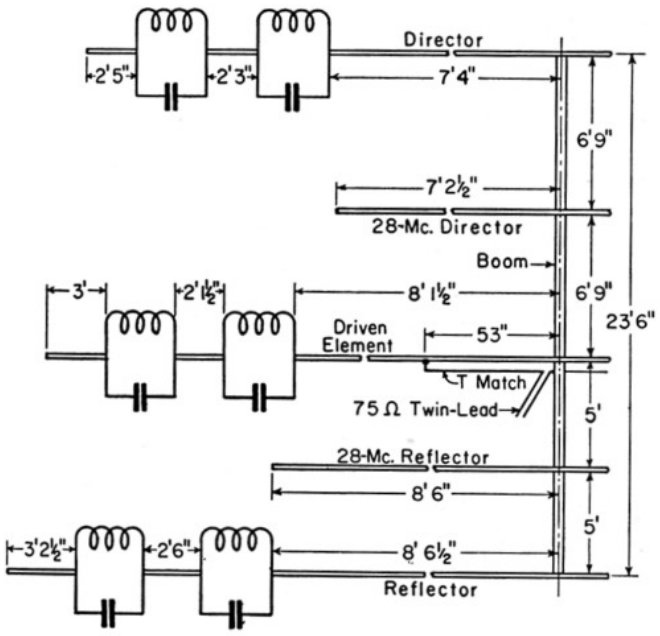
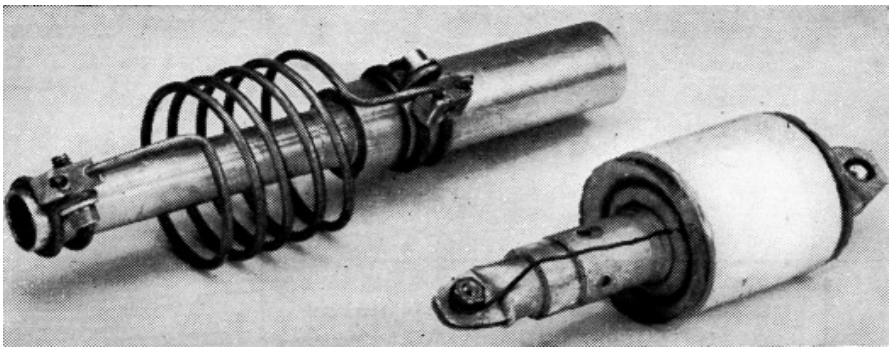


Fig. 3. Dimensions of the 3-band parasitic beam found optimum at W3DZZ. Dimensions are, of course, duplicated on the opposite side of the boom.



Lightweight weatherproof traps made by the author. To the left is the type inserted in beam elements, while the other one is suitable for wire antennas.

Fig. 4 shows a breakdown of a suggested method of construction of the three main elements. Each element starts out with a 12-foot center section to which various sections are added at each end. Provision is made for adjusting the length from the center of the element to the first (28 Mc.) trap, the length between traps, and the section on the outside of the second (21-Mc.) trap. The photograph shows an example of the array traps used by the author. Here, again, the capacitor is made up of concentric aluminum or durai tubing separated with polystyrene, and the coil is concentric. In each capacitor, the polystyrene insert (Fig. 4) should provide a tight fit to both sections of tubing, and the insert should be driven into the outer conductor to the shoulder. The inner conductor should be driven into the insert for a distance of 2¾ inches (thus protruding 2 inches inside the outer conductor). This gives a capacitance of approximately 25 pF. The trap inductors are wound with No. 8 wire. The 10-meter inductors have 5 turns 2½ inches in diameter, with the turns spiced approximately ½ inch. The 21 Mc. inductors are similar, but have 7 turns. As with the wire-antenna traps, the inductors should be adjusted for resonance near the center of each band before they are installed. The ends of the inductors are wound around the element sections and fastened with clamps. The array is fed with a T match to 75-ohm Twin Lead.

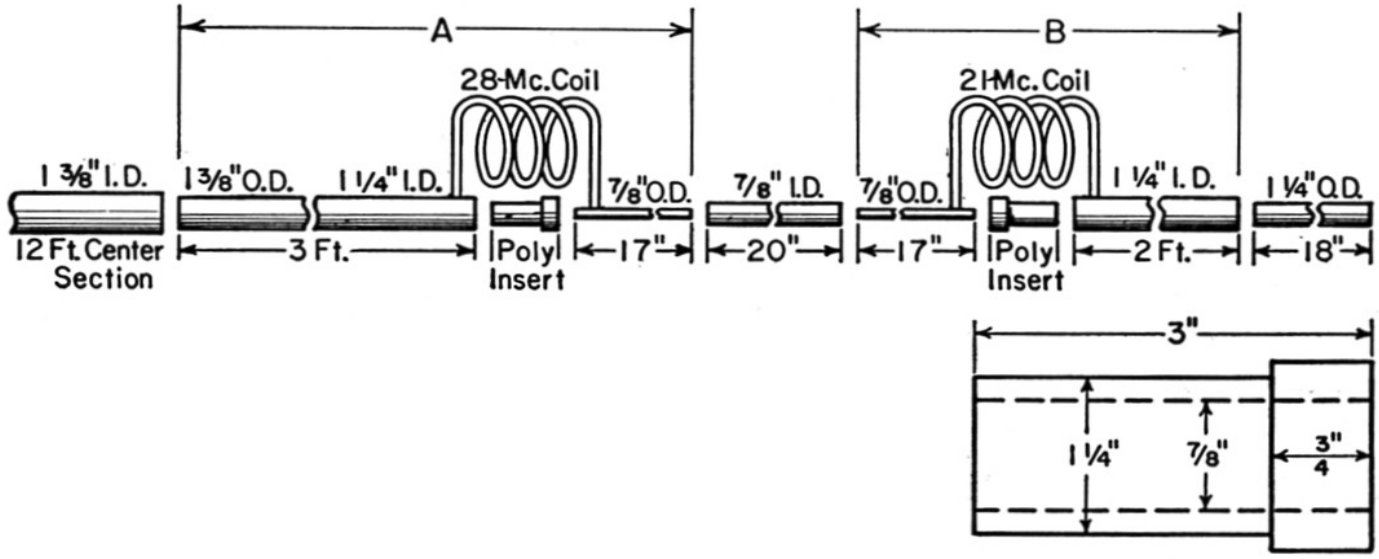


Fig. 4. Breakdown of the element assembly. Sections A and B are assembled permanently. Other sections may be telescoping for adjustment. Detail of the polystyrene inserts is at the right. The 7/8 inch o.d. sections should be inserted to a depth of 2¾ inches.

Fig. 3 shows the element dimensions used by the author. Antennas of this type, in both wire and beam forms, have been installed by many amateurs, using traps constructed by the author. Without exception, all have been enthusiastic about the performance.

Notes

1. Buchanan, "Duo-band ham antenna," Radio & Television News, December, 1950.
2. Morgan, "A multi-frequency tuned antenna system," Electronics, August, 1940.

Chester L. Buchanan, W3DZZ.

A Wire MOXON for 40 metres

Martin Hedman , SM0DTK

During the summer, I stay in my summer house on Gotland Island (IOTA EU-020) to the east of Sweden in the Baltic Sea. A wonderful place not only for recreation but also for working amateur radio. No man-made QRM makes it easy to copy weak DX on the higher bands, but on lower bands there are some problems with strong signals from Europe.

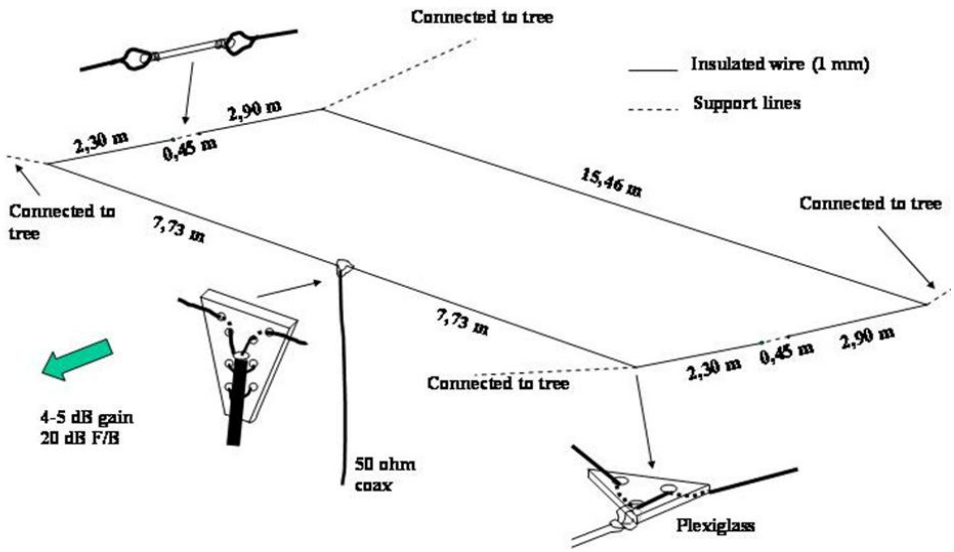
In morning hours, we have pretty good conditions on 40 metres to the Caribbean Sea in a western di-rection but as mentioned some problems with QRM from strong east European stations.

On my lot, I have some pretty high trees (15 metres) which can carry wire antennas. So what antenna to hang up to get some gain to the west and to reduce signals from the east? My choice was to try a Mox-on wire antenna made with very thin wire to reduce weight. I started up the Moxon Rectangle Generator (www.moxonantennaproject.com/design.html or https://ac6la.com/moxgen1.html) and calculated the dimensions for the antenna. Then I cut the wire according to the result from the generator and made some supports for the corners and for the feeding point using plexiglass.

Now comes the tricky part of the installation. How to get the supporting lines up in the trees? I used an aluminium tube joined with a glass fibre rod and was able to get the bearing points up about 14 me-tres in four suitable trees for my project. I spent some time to get the right shape of the rectangle by adjusting the length of the four supporting lines.

Now it was time to connect the coax to the transceiver and measure the SWR. Sometimes fate is overwhelming, so in this case SWR was perfect and I could use my 100 watts directly without any tuner. I used a long-wire antenna (60 m) and a full size GP for 40 metres to compare signal strengths with my new antenna. My expectations on my Moxon came true. I got my gain to the west and the QRM from the east was much lower. I easily worked DX in the Caribbean using 100 watts and I even thought that the morning sun was shining brighter.

More antennas can be found at my website at http://www.sm0dtk.se. There is a version for Apple PCs on this web site.



YOUR COMMITTEE

PRESIDENT	Tim Childe	G7TAC
VICE PRESIDENT	Nick Moss	G6DQN
SECRETARY	John Clarke	M1EJG
TREASURER	John Scott	G8UAE
COMMITTEE MEMBERS		
	Wayne Mocroft	M5LLT
	Geoff Cooper	G0KVK
	Mark Cadman	M0TCG
	Keith Dixon	M0HPY
	Ross Lewis	2E0RLX

STARLITE EDITOR	Bob Egan	G4XOM
	Email:	g4xom@g6oi.org.uk