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#### AWA Committee:

- \* President—Renato ZS6REN
- \* Acting VicePresident—John ZS1WJ
- \* Technical Advisor—Rad ZS6RAD
- \* Secretary/PRO—Andy ZS6ADY
- \* KZN—Don ZS5DR
- \* WC—John ZS1WJ
- \* Historian—Oliver ZS6OG

# Newsletter

The Antique Wireless Association of Southern Africa

# 164

March 2020

## Reflections:

I have seen many people come and go in the amateur radio fraternity over my nearly 40 years as a ham, but one of the more disappointing days for me was when Barrie ZS6AJY, decided it was time to give up his radio career.

On Friday 28th Feb 2020 Barry told us he would be signing off and this would be his last transmission.

I have been communicating with Barrie on CW for nearly as long as I have been a radio ham and have enjoyed his style and enthusiasm for CW over many years. As a young CW op, I did not really know them all and it was only later on in 2005 when we started the AWA CW net that Barrie was there to support us and I came to know more about the man behind the key.

Barrie was an absolute stalwart in the CW groups having been part of the QRP

group that met for many years every morning on 80m. Then for running the Cookie net at 2pm every day for as many years.

Whether the bands were good or not, Barrie would be there every day, waiting and calling on CW to see who else would be there.

Now, in the early days, it wasn't a problem as there were a group of stalwarts who were always there and they enjoyed communicating in CW. The nets usually lasted at least an hour sometimes more. 15 to 20wpm was the speed, depending on who was the slowest fist.

I never managed to work the QRP group, I have this thing about getting up out of bed at 05:00 to play radio. In fact it would have had to be earlier because I would still need to get washed and ironed for work before then.

However, I did manage to work the Cookie net on many occasions and it was only over this last sunspot cycle that the net really dwindled because of poor conditions. But through it all, Barrie would be there every day.

So, what is the moral behind this? I think firstly that we have lost a real legend again, but also it goes to prove to me that you never know what the band is going to deliver to you if you don't get out there and call.

I have been surprised so many times while calling CQ with these poor band conditions that I have to say this over and over again.

Enjoy your second retirement Barrie and we look forward to hearing from you every now and then. It will always be a pleasure to chat with you.

Best 73

DE Andy ZS6ADY

## Wikipedia

### Radio Propagation:

Skywave propagation, also referred to as skip, is any of the modes that rely on reflection and refraction of radio waves from the ionosphere. The ionosphere is a region of the atmosphere from about 60 to 500 km (37 to 311 mi) that contains layers of charged particles (ions) which can refract a radio wave back toward the Earth. A radio wave directed at an angle into the sky can be reflected back to Earth beyond the horizon by these layers, allowing long distance radio transmission. The F2 layer is the most important ionospheric layer for long-distance, multiple-hop HF propagation, though F1, E, and D-layers also play significant roles. The D-layer, when present during sunlight periods, causes significant amount of signal loss, as does the E-layer whose maximum usable frequency can rise to 4 MHz and above and thus block higher frequency signals from reaching the F2-layer. The layers, or more appropriately "regions", are directly affected by the sun on a daily diurnal cycle, a seasonal cycle and the 11-year sunspot cycle and determine the utility of these modes. During solar maxima, or sunspot highs and peaks, the whole HF range up to 30 MHz can be used usually around the clock and F2 propagation up to 50 MHz is observed frequently depending upon daily solar flux 10.7cm radiation values. During solar minima, or minimum sunspot counts down to zero, propagation of frequencies above 15 MHz is generally unavailable. Although the claim is commonly made that two-way HF propagation along a given path is reciprocal, that is, if the signal from location A reaches location B at a good strength, the signal from location B will be similar at station A because the same path is traversed in both directions. However, the ionosphere is far too complex and constantly changing to support the reciprocity theorem. The path is never exactly the same in both directions. In brief, conditions at the two termini of a path generally cause dissimilar polarization shifts, dissimilar splits into ordinary rays and extraordinary or *Pedersen rays* which have difference propagation characteristics due to differences in ionization density, shifting zenith angles, effects of the Earth's magnetic dipole contours, antenna radiation patterns, ground conditions and other variables. Forecasting of skywave modes is of considerable interest to amateur radio operators and commercial marine and aircraft communications, and also to shortwave broadcasters. Real-time propagation can be assessed by listening for transmissions from specific beacon transmitters.

## HF Happenings

### Four CW Contacts Per Day Certificates

The ZS-CW group have started a new initiative to get more people active on CW on all bands, this will get you a certificate at the end of the year. Make four CW contacts per day and qualify for the following certificates: 200 to 250 days - Bronze certificate, 250 to 300 days - Silver Certificate and 300 plus days - Gold Certificate. Send proof of your contacts by Excel log submission to Andy, ZS6ADY at andyzs6ady@vodamail.co.za or Mike, ZS6MSW at zs6msw@gmail.com.

### South African Radio League YL Sprint

This is a fun activity to celebrate International Women's Day between radio amateurs in South Africa. Call "YL Sprint." The Sprint takes place from 12:00 to 14:00 UTC on Sunday 8 March 2020 (International Women's Day is celebrated on 8 March each year.)

It is a CW and phone sprint on the 40 metre band with 7 100 to 7 130 kHz contest free. The exchange is a RS(T) report and YL (Young Lady) or YM (Young Man). QSOs between YL stations are worth 5 points, QSOs between YL and YM stations are worth 3 points and QSOs between YM stations are worth 1 point.

Logs in ADIF, Cabrillo or MS Excel spreadsheet with a summary sheet labelled "your call sign YL Sprint," must be submitted by 23:59 CAT on Sunday 15 March 2020 by e-mail to zs4bfn@mweb.co.za.

### Bouvet Island DXpedition, 3Y0I

The following was reported on the Rebel DX Group FaceBook page [edited], "Rebel team update. We are on track with 3Y0I Bouvet project. Still missing some budget but we are getting closer and closer. Second attempt will take place in December 2020. Before December, Rebels are moving to Pacific to activate Banaba Island (call sign secured T33T). This activity will start in first half of 2020. After Banaba we will sail to T2 Tuvalu (working on call sign T22T). During April we will also be active from 2 IOTAs: OC-156 and OC-121 Stay tuned."

### DXCC'S Most Wanted (ClubLog)

The "DXCC Most Wanted" entities list has been updated on ClubLog as of 27 February. The list contains 340 entities. The complete "DXCC Most Wanted" entities list (340) is available at <https://secure.clublog.org/mostwanted.php>. The following are the top 26 entities:

1. P5 DPRK (North Korea)
2. 3Y/B Bouvet Island
3. FT5/W Crozet Island
4. BS7H Scarborough Reef
5. CE0X San Felix Islands
6. BV9P Pratas Island
7. KH7K Kure Island
8. KH3 Johnston Island
9. 3Y/P Peter 1 Island
10. FT5/X Kerguelen Island
11. FT/G Glorioso Island
12. VK0M Macquarie Island
13. YV0 Aves Island
14. KH4 Midway Island

### Calendar:

#### March

5 to 8 – Hobby-X and ZS95SARL  
 7 - CTARC Flea market  
 7 and 8 - ARRL DX Phone  
 8 - International Women's Day; SARL YL Sprint  
 Friday 12A - Paraskevidekatriaphobia or Friggatriskaidekaphobia  
 14 and 15 - SARL VHF/UHF Analogue contest; RSGB Commonwealth contest  
 17 - St Patrick's Day; Highway ARC meeting; the first 1820 Settlers arrive in Cape Town  
 18 – the SARL Wednesday 80 m Club Sprint  
 20 – International Day of Happiness; Autumn Equinox (05:50); Schools close  
 20 to 29 – Secunda ARC Field Day with ZS95SARL  
 21 - Human Right's Day; World Down Syndrome Day; International Day of Forests  
 21 and 22 - BARTG HF RTTY  
 22 - World Water Day  
 23 - World Meteorological Day  
 28 - CTARC Meeting  
 28 and 29 - CQ WPX SSB  
 31 - Schools open

15. ZS8 Prince Edward and Marion Islands
16. VP8O South Orkney Islands
17. PY0S Saint Peter and Paul Rocks
18. PY0T Trindade and Martim Vaz Islands
19. KP5 Desecheo Island
20. SV/A Mount Athos
21. VP8S South Sandwich Islands
22. EZ Turkmenistan
23. KH5 Palmyra and Jarvis Islands
24. JD/M Minami Torishima
25. YK Syria
26. ZL9 New Zealand Sub Antarctic Islands

### African DX

*Contacts with stations on the African continent count towards the SARL's All Africa Award ([www.sarl.org.za/public/awards/awards.asp](http://www.sarl.org.za/public/awards/awards.asp))*

Djibouti, J2. The Sigi, DL7DF, Team that was expected to be active from Djibouti between 4 and 16 March, has cancelled their operation. From their Web page, it states: "We regret to have to cancel our expedition to Djibouti. When planning, there were too many uncertainty factors for us in the negotiations with the licensing authority, the national security authority and customs. We are now looking for an alternative DXpedition target." For more details and updates, see <http://www.dl7df.com/j2>

South Sudan, Z8. Sigfrido, Z81S, a new operator, was heard active from South Sudan this past Friday on 20 metres SSB between 16:30 - 17:30 UTC. He is a member of the United Nations Mission in South Sudan (UNMISS). QSL via IT9YVO direct only.

Burkina Faso, XT2. Max, DK1MAX, will once again be active as XT2MAX from Ouagadougou, Burkina Faso, sometime this year (soon). Activity is usually holiday style on all bands using mostly CW and FT8. QSL via EA5GL, LoTW, eQSL, (no Bureau or SWL reports) and ClubLog. NO PAPER QSLs. Look for more details to be forthcoming.

Uganda, 5X. Shabu, M0KRI, will once again be active as 5X1RI from Uganda during two weeks between the end of July and mid-August. He states, "Going back to Uganda (second home) after 15 years." Activity will be on various HF bands. QSL via M0KRI, direct or by the Bureau. Look for more details and schedule to be forthcoming.

Malawi, 7Q. Pista, HA5AO will be active as 7Q7AO (requested call sign) from Malawi during the second half of September/early October. He plans to operate CW, RTTY, FT8 and some SSB on 80 - 10 metres. Log search and OQRS will be available at <https://www.ha5ao.com/>.

9J2LA Zambia DXpedition news. Just a reminder that the 9J2LA team will be active from Zambia between 5 and 15 March. Activity will be on 160 to 6 metres using CW, SSB, RTTY and FT8. QSOs will be uploaded to ClubLog if internet access is available. QSL via M0OXO QSL service. The 9J2LA Web page is available at: <https://9j2la.com> Facebook and Twitter will be used for "Breaking News" the weeks before departure and during the Expedition.

### African Islands

IOTA Frequencies

CW: 28 040 24 920 21 040 18 098 14 040 10 114 7 030 3 530 kHz

SSB: 28 560 28 460 24 950 21 260 18 128 14 260 7 055 3 760 kHz

Rodrigues Island, 3B9. David, F8AAN, will be active as 3B9AN from Rodrigues Island (AF-017) between 9 and 18 March. Activity will be on 80, 40, 30, 20 and 17 metres CW. QSL via his home callsign, direct or ClubLog's OQRS.

Mauritius, 3B8. Olof, G0CKV, will lead a team of operators (TBD) to activate 3B8M from Mauritius (AF-049) in the next CQ WW DX CW Contest (28 and 29 November) as a Multi-? entry. QSL via LoTW or M0OXO. No other details were provided.

## A Glimpse Of The Past

The first radio in the SAP

By Colonel CL Scott ZS6CL

Submitted by Colonel JB Fletcher ZS1ZR

It was in the year 1936 while I was stationed in Woodstock. My hobby was amateur radio and I could speak to people throughout the world.

A certain amateur in London was associated with Scotland Yard. We had a lot in common to talk about. He mentioned that the police in the UK were using radio's in their vehicles.

Our district commissioner of the SAP was a Major Perry. He liked to listen to the BBC and at that time King George was sick and Major Perry liked to keep up to date with the latest worldwide news.

On old years eve 31.12.1936 he asked me to come and look at his shortwave radio as he was unable to listen to the news. I quickly repaired his radio. He offered me a cup of tea and I took a chance and mentioned that the American and British Police were using radio's for easy communication. Why couldn't we in the SAP do the same? "My boy" he said," its not for me but for the commissioner a Colonel JP de Villiers, to decide about something like that."

The new year 1937 was but a few days old when I was summoned to the office of Major Perry. "I have mentioned your remarks about radio in the SAP to the commissioner, Colonel de Villiers, and he wants you to give him a demonstration within five days. You better pull finger. You may use an official vehicle for this purpose. I don't care whether you beg borrow or steal as long as you can demonstrate this radio story of yours within five days"....

Panic stations. For the first time I realised what I had let myself in for as the only radio equipment I had was my 40 meter amateur receiver and transmitter.

I did not want to use my amateur radio equipment as I was scared of losing my amateur licence if I used this equipment for other purposes.

The other problem I faced was how on earth could I mount 33 foot of copper wire on a car. Major Perry had really put me on a spot. I decided to give it a go.

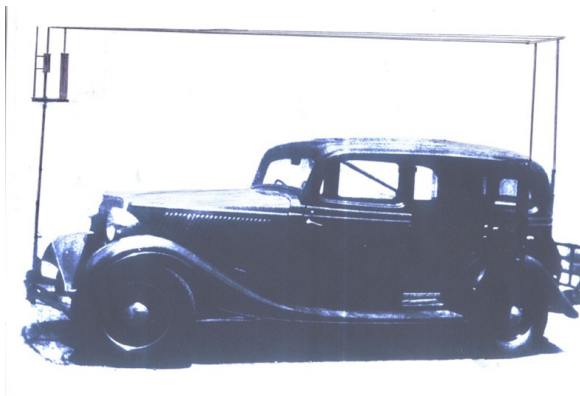
Another problem was that my equipment was operating on 220 volt AC and of course there wasn't 220 in the vehicle. My first problem I tackled was the antenna. The only way I could do it was to mount bamboo poled with cross sections to the front and rear bumpers. The antenna resembled a washing line.

The receiver I wanted to use I could fortunately hire. It was a battery driven receiver which could receive on the 40 meter band. Once again I ran into a problem. The transmitter I wanted to use needed 700 volt DC to operate. The time was passing rather quickly and zero hour was upon me.

Some or other amateur mentioned something about a "gene motor" for the high voltage but I had never seen such an item. The post office technical section came to my rescue and a certain Henry Rieder lent me a "gene motor" The demonstration in front of the Commissioner was a success and I was given 100 pounds with which I was to equip a police car with a working radio. It was to operate at 2 MHz

Henry Rieder was seconded from the post office to help out with this project. He had access to a well equipped radio workshop.

An exceptional piece of equipment in his workshop was a special saw with which we could saw quartz and with which we had to manufacture a crystal. It then had to be filed down to operate on the desired frequency.



The first squad car in the SAP to be fitted with a radio. Look at the copper wire on the roof.



# The Development of Automobile Radios

By

Jim Cook, W0OXX



Developing a radio receiver that would work reliably in a moving automobile proved to be a greater challenge than most people anticipated. Home radios were often carried in cars to provide entertainment at fixed locations, such as picnics. For these applications, an antenna wire could be thrown over the branches of trees.

But how could an antenna be installed on an automobile that would be effective? One early installation was illustrated on the cover of a Popular Radio magazine published in June of 1923.

This may have been useful for radio listening at a fixed location with the engine off, but providing a suitable antenna was not the only change that was necessary for mobile operation.

One of the greatest challenges to the development of the car radio was overcoming the radio noise produced by the car itself. There was always the problem of ignition noise. But noise from the generator and voltage regulator could be equally difficult. Static electricity generated by the tires and inner tubes could also be distracting, especially in cold, dry weather. To achieve satisfactory radio reception, a car radio had to be more sensitive, more selective, and have a more powerful

audio amplifier with a better speaker than most of the radios used in the home in 1930. Car radios typically had an extra stage of tuned RF amplification to allow operation without a long outdoor antenna and ground connection, and to effectively increase the signal-to-noise ratio between the desired radio signal and the broad-band radio noise generated by the car. Extensive shielding was also used in automobile radio designs. To overcome the interior noise level of a car in motion, a powerful audio system and better speaker were needed. In addition, the radio had to be more rugged to provide reliable service in an automobile.

Early car radios used expensive dry batteries of the same type that were used in home radios. A more desirable solution was to develop power supplies that would allow the car radio to operate from the car's six-volt battery. To provide a plate power supply, some early car radios used self-contained motor generators, commonly known as dynamotors.

But these were expensive, heavy, and unreliable. A better solution was to use an electromechanical vibrator to produce an alternating current to a transformer that could be rectified by a vacuum tube. Some vibrators used an extra set of contacts to provide synchronous rectification, but most car radios used a vacuum tube such as the 84/6Z4 tube that was specifically designed for use in automobile radios.

Most vibrators, including those shown here, plugged into sockets so that they could be easily replaced.

Although car radios were expensive accessories for cars in the 1930s, the demand was strong and major developments occurred between 1930 and 1940. Many of the manufacturers of home radios also manufactured radios for automobiles. In an age that had Victrola phonographs and RCA Radiola radios, it was only natural for the Galvin Manufacturing Corporation to use Motorola as their new corporate name after they achieved success in selling radios for automobiles. Philco, Zenith, and General Electric were also actively involved in the car radio market.

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From now on watch Hallicrafters — the name that's remembered by the veteran, preferred by the radio amateur. See your distributor for demonstration of the SX-42 and for colorful literature describing this great set in complete technical detail.



Because of the precise and thorough engineering that must be done on the SX-42 and because the parts supply has not been continuous, top production peaks have not yet been reached. In the immediate future deliveries will necessarily run behind the demand, but the SX-42 is definitely worth waiting for.



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Initially, car radios were not designed to fit specific automobiles.

The large, heavy radio was usually mounted on the firewall of the car. A control head, mounted in the dash or on the steering column, was linked to the radio with flexible cables similar to speedometer cables to provide tuning and volume control. If the speaker was not part of the radio, it was sometimes mounted under the dash as a separate unit. Sometimes the control heads were customized to fit attractively in the dashes of certain car brands. The ad included with this article for a General Electric car radio appeared on the back cover of the July 1936 issue of Radio-Craft magazine. It shows car radio packaging that was typical for that time. In later years, automobile manufacturers worked with radio manufacturers to design radios that were custom built for their automobiles.

Generic radio designs faced an additional challenge. Most automobiles from the 1930s to the mid-1950s used six-volt electrical systems, but some cars grounded the positive terminal of the battery and others grounded the negative terminal. For example, Chevrolet used negative-ground systems, but Ford used positive-ground designs. It is unclear why this situation developed, but car radio manufacturers had to incorporate flexible designs to accommodate both polarities.

By the 1940s, car radio design had progressed from being only adequate to providing performance that was superior to many home radio receivers. This was especially true of the radios designed for Buicks and Oldsmobiles in the late 1940s. They had amazing audio quality. One radio collector built an AC power supply for an old Buick car radio just because he enjoyed the sound. In the 21st century, the collector's market for vintage automobile radios is often linked to the needs of antique car collectors. Many owners of old cars want an original car radio in working condition to make their automobile restorations complete. I recently repaired a car radio for the owner of a 1948 Oldsmobile. The radio was completely dead. I discovered that the power supply vibrator was defective, a common occurrence. I installed a new solid-state vibrator replacement which brought the radio to life. This old radio had the excellent audio quality I remembered from the mid-1950s. Unfortunately, solid-state vibrators lack the expected vibrator hum that many people associate with old car radios. By 1955, most automobiles standardized on 12-volt negative-ground electrical systems. But the days of vibrator power supplies were coming to an end. By 1957, car radios began using hybrid designs with a combination of low-voltage vacuum tubes and transistors. By the 1960s, nearly all car radios were completely solid state and much more reliable than the vacuum tube radios of earlier decades.

JIM COOK, the son of a radio technician, became a licensed amateur radio operator at 15 and obtained commercial radiotelephone licenses before he was 20. He worked as a transmitter operator for two radio stations while studying electrical engineering at the University of Kansas. After graduation he became an electronic circuit designer.



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**Antique Wireless Association  
of Southern Africa**

**Mission Statement**

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yester-days radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website.

**Notices:****Net Times and Frequencies (SAST):**

Saturday 06:00 (04:00 UTC) —AM Net—3615

Saturday 07:00 (05:00 UTC) —Western Cape SSB Net— 3640

Saturday 08:30 (06:30 UTC)— National SSB Net— 7140; Sandton repeater 145.700

Echolink—ZS0AWA-L; ZS6STN-R

Relay on 3615 for those having difficulty with local skip conditions.

Saturday 14:00 (12:00 UTC)— CW Net—7020; (3550 after 15 min if band conditions not good on 40)

Wednesday 19:00 (17:00 UTC) — AM Net—3615, band conditions permitting.

**High value equipment available for disposal from Daryl ZS6DLL estate**

Kenwood TRC80 transceiver (txvr)	R3500
Kenwood TS450S txvr	R6000
Kenwood SP100 speaker	R500
QJE model QJ-PS30II PSU with speaker	R1000
ICOM 706 MkIIIE txvr	R7500
Icom IC-PS15 Power supply	R350
Hantek DS05102B 2 channel Digital Storage Scope (100MHz/1 GB/s)	R2500
Yaesu FRG7 Receiver	R900
Yaesu FT-897 txvr	R10000
ICOM IC-706 MkIIG txvr	R7500
XYTRON SP1500B Multifunction Counter	R550



Hallicrafters S-40A receiver	R550
Kenwood R1000 receiver	R900
Green Energy regulated power supply 30-10	R500
LODESTAR Signal Generator (100kHz – 150MHz)	R250
ICOM PS80 power supply	R450
XYTRON DC power supply model TX-1225 (13.8V/25A)	R800

Contact Dave ZS6AZP on 082 805 6922

### For Disposal:

Hammarlund HQ129X. I have two of these.  
 Eddystone 659  
 Hallicrafters SX-28 (replaced smoothing cap)  
 Hallicrafters S-38. (two of these, one is cosmetically a bit rough).  
 Hallicrafters S-40A.  
 Hallicrafters SX-42. (The audio is distorted, I have not investigated the cause).  
 National NC-44  
 National NC-57  
 National NC-270 (ham bands only)  
 GEC BRT400 (set been in regular use for last 20 years).

Also have (as-is):

National NC-240D wreck for spares.  
 T1154 Navy version,  
 R1155A looks original condition  
 R1155N -has been modified, no Jones sockets.  
 National HRO  
 National VHF set about 1938, same dial as HRO.

Sets still to be checked:

RCA AR-88 (two sets)  
 Hallicrafters SX-62  
 Another SX-28

Looking for reasonable offers.

Contact Tony Stiff 081 808 1252 ( he is situated in Edenvale)

