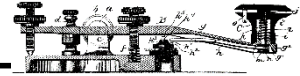




# Bexar Wire

San Antonio Radio Club  
W5SC



2020, No. 4

April 2020

## Yagi antenna, History and Design (Program by Tom O'Brien, AB5XZ)

The Yagi-Uda antenna was invented in 1926 by [Shintaro Uda](#) of [Tohoku Imperial University](#),<sup>[5]</sup> Sendai, Japan, with the collaboration of [Hidetsugu Yagi](#), also of Tohoku Imperial University.<sup>[6]</sup> Uda was Yagi's supervisor. Yagi and Uda published their first report on the wave projector directional antenna. Yagi demonstrated a [proof of concept](#), but the engineering problems proved to be more onerous than conventional systems.<sup>[14]</sup> Yagi published the first English-language reference on the antenna in a 1928 survey article on short wave research in Japan and it came to be associated with his name. However, Yagi always acknowledged Uda's principal contribution to the design, and the proper name for the antenna is the Yagi-Uda antenna (or array). (from Wikipedia). In 1926 Yagi submitted a patent application in the United States and received a patent in 1932.

Wartime use. Allies used the invention in radar. The Yagi was first widely used during [World War II](#) for airborne [radar](#) sets, because of its simplicity and directionality. Germany used it to a lesser extent. Japan made some use of the Yagi in airborne radar late in WWII. A Japanese historian said the Battle of Midway was an "ambush" partly due to the long-range radar enabled by the Yagi antenna.

**There will be an on-line meeting April 9 at 7PM via Zoom vice the usual meeting place due to Covid 19 social distance restrictions. Check E-mail for instructions for joining the meeting sent from President Rosendo Gusman, N5YBG.**

Despite being invented in Japan, many Japanese radar engineers were unaware of the design until very late in the war, partly due to rivalry between the Army and Navy. The Japanese military authorities first became aware of this technology after the [Battle of Singapore](#) in 1942 when they captured the notes of a British radar technician named Newman that mentioned "Yagi antenna". Japanese intelligence officers did not even recognize that Yagi was a Japanese name in this context. When questioned, the technician said it was an antenna named after a Japanese professor. The interrogators did not understand the translation in the tech manual nor the diagrams.

In 1977 there was a study on Yagi antennas by National Bureau of Standards, NBS (now National Institute of Standards and Technology or NIST). The study examined effects of different structural characteristics on gain and radiation patterns. They examined square element vs round, reflector and director spacing, element diameter, size of boom, stacking arrays, length of antenna vs radiation pattern.

The Yagi is an array antenna, an array of elements. The size and position of the array elements affect the shape of the radiation pattern. It is a "Parasitic Array." One driven element, usually a dipole or folded dipole, one or more parasitic elements usually shaped like dipoles. The common elements in addition to the driven element are reflectors and directors. Those are not electrically connected to the driven element.

(Continued on page 6)

SAN ANTONIO RADIO CLUB

UB

# PRESIDENT'S RADIOGRAM

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
4	R		N5YBG		San Antonio, TX		April
TO							

To W5SC

Hello fellow Amateur Radio Operators.

I hope everyone is doing well and in good health. Given the recommendations about gatherings, I am cancelling our April monthly meeting scheduled for 4/09/20. We face important decisions regarding conducting activities during the coronavirus (COVID-19) pandemic. We are waiting to get guidance from the State and City before cancelling the May meeting. I am not optimistic about the current restrictions supposed to end on April 30 due to the escalating situation nationally, but we shall see before we make that decision.

Due to the restrictions imposed by the city and county and closure of the Great Northwest Library (where our exams are held), and concerns over the Corona Virus, we have postponed this month's VE test session indefinitely. We'll post updates when we can resume sessions.


So, please be safe and practice social distancing

Good DX

Rosendo Guzman – N5YBG

**Bexar Wire**

Published monthly by:



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The due date for articles is the **Monday** before the first **Thursday** of the month.

Minutes, San Antonio Radio Club Meeting

7:00 p. m., March 12, 2020
Blanco BBQ, 13259 Blanco Rd., San Antonio, TX 78216

Vice President Lloyd Swartz KF5ZHW called meeting to Order At 7:05 pm

Introductions by attendees

Minutes of the last meeting approved by unanimous consent

Presentation by Tom O'Brian AB5XZ on Yagi Antennas

Officer Reports:

President – Rosendo Guzman N5YBG absent. No report.

Vice President Lloyd Swartz KF5ZHW

- Future Program: Edison Fong WB6IQN on Aspects of Antenna Selection
Raffle tickets for the Robert (Bob) Rodriguez Educational Fund (scholarship fund) now available. Several valuable prizes (radios). \$25 each. Only 400 available. Drawing for winners June 11 at regular monthly club meeting. Need not be present to win.
o Aubrey Mason WA6DMI asked members to let him know of any contacts they may have for amateur radio-related products so that he might be able to obtain donations to be used to raise money for the scholarship fund.

Secretary – Jack Bannin N5JLB Minutes posted on website.

Treasurer – Jeff Boyes, ND8B. Absent. No Report

Newsletter Editor

- Jimmie Neff reported The March 2020 Bexar Wire newsletter was sent out on March 10, 2020.
The deadline for each issue is the Monday before the first Thursday of the month.

Webmaster

- Bill Craft, KD2HIQ, Website – Created SK Page, Bob Rod Fundraiser page
Groups.IO updated membership, Mail chimp – Meeting notice, Twitter: Meeting notice
Facebook Statistics Pages From 2-6 to 3-4 Views 105 33% decrease
Website Statistics - Sessions 665 -Down 58% vs. Previous 30 days. Page Views 1479 Down 57% vs Previous 30 days. New vs. Returning visitors – New 56% Returning 44% Device Breakdown Desktop 67%, Tablet 2%, and Mobile 31%

Membership – Bill Craft, KD2HIQ as February 29, 2020 88 Paid members, 15 Free, 10 Family Members, 68 ARRL Members, a total of 113 members.

Chairman of the Board Report – Harold Fleischer, AE5AS No Report

Education and Training – David Finell N7LRY, No Report

Emergency Communications – Joe Bruno, W5AUQ No Report

Field Day – Joe Bruno, W5AUQ, No Report

Finance and Review – Paul Guido N5IUT No Report

JOTA – John Douglas, W5NZK No Report

Silent Key Committee – No Report

Radio Fiesta – No Report

VE Team

- Pat Knight AD5BR - This is the March 2020 Bexar Wire report for the VE team.
- Our February VE session at the Great Northwest Library resulted in three new Technicians, one new General, and three Extra upgrades. Congratulations! Thank you to all the Volunteer Examiners who helped.
- Our next regular VE session will be April 25 at 10 AM at the Great Northwest Library, 9050 Wellwood. The Extra exam questions will change July 1, 2020, so go ahead and study to upgrade before then Contact the VE team at [hamtest@gmail.com](mailto:hamtest@gmail.com) to pre-register for testing or with any questions.

Logo Committee – Pat Knight AD5BR No Report

Centennial Commemoration (Temporary) - Tom O'Brien, AB5XZ – No Report

Scholarship Committee – Tom O'Brien AB5XZ - No Report

Old Business (Motions carried over from previous meetings) – None

New Business (Must be presented as a motion)

- Bill Craft KD2HIQ made a motion to assess interest in a soldering workshop
- Motion seconded; discussion ensued
- Motion passed by majority vote of membership

Announcements for The Good of Amateur Radio

- Aubrey Mason WA6DMI announced resources for kits that can be used for soldering workshop or personal projects:
  - Intertex Electronics near I-10 and W. Hildebrand Ave.
  - Ali Express for online ordering

Meeting Adjournment @ 8:17 PM



# Volunteer Examiners at Work

## April VE Team Report

This is the April 2020 Bexar Wire report for the VE team, REVISED to reflect today’s new social distancing guidelines extension by President Trump.

**Our next regular VE session WILL NOT BE be April 25.** We hope to have our next regular session June 27 at 10 AM at the Great Northwest Library, 9050 Wellwood.

The library is closed due to COVID-19, and while we could have a very small group meet somewhere, we do not intend to have a test session until the current social distancing guidelines have been lifted.

If you want to test June 27, please pre-register so we know how to contact you. We will let you know when we know if our test location will be available.

Pre-register at hamtest@gmail.com

The Extra exam questions will change July 1, 2020, so go ahead and study to hopefully upgrade before then.

73,

Pat Knight AD5BR

210-273-5927 iPhone

## Silent Key Web Site Page

From web master, Bill Craft, KD2HIQ

The web site now has a silent key page [ <https://w5sc.org/silent-key/> ] that provides information about thinking ahead and providing forms to document what you have.

SARC does not directly buy any SK equipment, we provide a service to help loved ones dispose of equipment. The service consists of information, consulting and possibly disposal of equipment by donation.

We encourage you to plan ahead and make those hard decisions ahead of time so those who are left don’t end up dumping your equipment in the trash. Not everyone plans ahead, most us try to ignore the fact that at some point our health may fail or we may be called to meet our maker.

The goal is to help fellow hams and their families deal with this in their time of need. They do not have to be members of SARC for us to help. We offer our services to the ham community to benefit other hams and their families.

The committee can be reached by emailing [SilentKey@w5sc.org](mailto:SilentKey@w5sc.org)

### Yagi antenna, History and Design (Continued from Page 1)

They manipulate the shape of the array's radiation pattern; as will any conductor inserted in the near field of an antenna.

The reflector is about 5% longer than the driven element, spaced about 1/8 wavelength behind it. More reflectors may be placed around the driven element in a cylindrical arrangement.

The first director is about 5% shorter than the driven element and is placed about 1/8 wavelength in front of the driven element. Often there are more than one director. Each director is about 5% shorter than the previous one and is also placed 1/8 wavelength in front of the director before it.

Elements can be in different shapes. One popular variant is the quad antenna used at HF frequencies. The quad was developed by a shortwave broadcaster at a high altitude mountain site where the thin air led to

high corona discharges at the end of the Yagi elements. The 4-sided loops did not lead to corona discharge. Yagi-like antennas may use other shaped elements, rings squares or triangles. Elements may be round or square tubing, solid or hollow, but must be rigid and mounted on a boom sufficient to support the elements in alignment.

After WWII, the advent of television broadcasting led to development of Yagi receiving antennas for TV reception where the directional nature improved reception from what was often a distant transmitter. Now you can see Yagi antennas used in many different ways: navigation aids like beacons or markers; communication links; Patch antennas for GPS. Smaller, hand-held Yagi antennas may be used to locate sources of interference and for the ham sport of fox hunting also known as hidden transmitter hunts. Yagi antennas are used wherever directional transmission or reception is desired.

**Editor's Note: You can see slides from Tom's Radio Fiesta Yagi antenna presentation on the club web site under "Presentations," <https://w5sc.org/wp-content/uploads/2020/01/Yagi-Antenna-Talk-for-Fiesta-2019.pdf>.**

## Groups.io

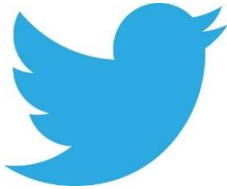


SARC has had a Groups.io. Its name is saradioclub.

The saradioclub Group.io is being used to publicize SARC business meetings. It can be used for other things like promotion of VEC testing and classes. Members of the saradioclub Group.io can and have asked each other technical questions or sought assistance.

The saradioclub Group.io is a closed group. To become a member, go to [saradioclub.groups.io](https://saradioclub.groups.io). (You may need to have a Groups.io account.) You will then need to select *Apply for membership in this group*. This generates a message. SARC members can expect approval to join the saradioclub Group.io in probably less than 24 hours.

## SARC Tweets



Reminder: there are two active Twitter accounts for the San Antonio Radio Club. They are @SARadioClub and @ARadioFiesta.

The @SARadioClub is being used to publicize SARC meetings. It can be used for other things like promotion of VEC testing and classes.

When work again commences the @ARadioFiesta will be used for the January, 2021 Radio Fiesta.

SARC members are encouraged to follow both Twitter accounts.

## SARC Facebook



There is a San Antonio Radio Club – SARC (@saradioclub) Facebook Page.

The newsletter editor is making posts about SARC meetings and other activities. Any Officer, Committee Chairperson, or member who believes that they have information that should be posted to this page should contact the newsletter editor using the contact information for the newsletter editor on page 2 of this newsletter.

SARC members are encouraged to follow this Facebook Page

## SARC SLACK



There is a San Antonio Radio Club Slack team – w5sc.slack.com.

Slack teams are meant to foster communication between team members. Paul Guido, N5IUT, has established the w5sc.slack.com team for SARC. He has also established some channels. Think of the channels as topical areas.

To join send an email to Paul Guido, N5IUT, at [radioteacher@gmail.com](mailto:radioteacher@gmail.com). In actuality, any team member already a part of the w5sc.slack.com can invite

**SARC has a website:**

w5sc.org

Webmaster: Bill Craft KD2HIQ  
Billc851@gmail.com  
210-233-8863

**Amateur Radio License Classes**

Multiple classes planned for 2019.

For more information, contact:  
David Finell, N7LRY  
Instructor

you, but Paul is known to be on it.

### SARC Meeting Dates for 2020

January 9, 2020  
 February 13, 2020  
 March 12, 2020  
 April 9, 2020 **Cancelled, Zoom meeting on line instead at 7 PM. Check E-mail**  
 May 14, 2020 **To Be Announced**  
 June 11, 2020  
 July 9, 2020  
 August 13, 2020  
 September 10, 2020  
 October 8, 2020  
 November 12, 2020  
 December – No meeting

Meetings are held at Blanco BBQ, 13259 Blanco Rd, San Antonio, TX 78216 at 7:00 p. m. Room is available at 6:00 p. m. for supper.

Come early and eat with other members

### License Testing Dates for 2020

February 22, 2020  
 April 25, 2020 **Cancelled**  
 June 27, 2020  
 August 22, 2020  
 October 24, 2020

Times and locations along with required document information can be found on SARC's website.

SARC does all of its licensing testing as a part of ARRL Volunteer Examiner Coordinator (VEC) organization so all of the Volunteer Examiners in SARC are duly authorized Volunteer Examiners of ARRL's VEC.

### Radio Fiesta 2021

January , 2021  
 To be announced

See website [w5sc.org](http://w5sc.org) for more information

### JOTA

Boy Scout Jamboree On The Air

This year's date is Oct 16-18, 2020.

More information will be available as the date draws closer.

### Emergency Communications

If you are interested in emergency communications, contact:  
 JC Smith N5RXS

### Field Day 2020

Setup: Friday, June 26, 2020  
 Operations: Saturday, June 27, 2020 & Sunday, June 28, 2020

*Where SARC proves they are an eating group with a radio problem.*

More information to follow, but hold these dates.