



MTARA NEWS



| JUNE 2021 | [Mountain Top Amateur Radio Association](#) |

President: Vic Marquez, KK6WKI

Secretary: Dave Esquer, K6WDE

Ed/Membership: Tracy Lenocker, WM6T

The Rim of the World ARES group is an ARRL affiliated organization and part of the Mountain Top Amateur Radio Association.

Vice President: Gary Johnson, AA6GJ

Treasurer: Patty Szychowski, KK6LWH

Past President: John Snedden, KT7P

President Vic's Message

Greetings from your President, Vic, KK6WKI.

DON'T FORGET - ARRL FIELD DAY June 26-27, 2021!

Please read my message in the May 2021 Newsletter for all the details about this fun and exciting radio event and food-fest! See you at the Masonic Lodge!

A Simple View of Resonance

Last month Greg, AJ6FN and I went out to the same spot where we had our MTARA, POTA and WWFF event. We wanted to check out our equipment and I also wanted to trim the wire on my home-brew End Fed Half Wave antenna so it would be resonant on 40 meters. It required several cuts to make it resonant in the middle of the 40 meter band. I shared this on our last MTARA Zoom meeting and I would like to share it with those who might not have joined our Zoom meeting. As I mentioned on the Zoom meeting, I don't remember where I found this article but I think you will find it helpful.

A key concept for antennas is the concept of resonance. Here is one

simple way of thinking about resonance in antennas using an analogy with which you are sure to have experienced, a swing.

Think of pushing someone on a swing, where you can time your pushes so that the swing continues to go back and forth with only a slight reinforcing shove for each back-and-forth cycle.

The oscillating period of the swing and your timed pushes are in resonance with one another and you can keep the swing going very efficiently with very little effort. Your little pushes are an applied frequency that is perfectly timed to the swing's period of oscillation.

Think of what happens when you try to push the swing out of resonance with its natural back-and-forth cycle. Rather than reinforce the swing's motion, you may disrupt it altogether, or you may need to exert a lot more force to make it swing in agreement with your less-than-coordinated timing of pushes.

Let's extend this concept to feeding antennas. The oscillating period of the swing is determined by the length of the rope or chain by which it hangs. A long rope produces a long period of back-and-forth motion, while a short rope results in

a quick back-and-forth motion.

With an antenna, the period of oscillation for electric charges running back-and-forth is determined largely by the antenna's physical length. With a longer antenna the charges need a longer time to travel the full extent of the antenna's length, just as a longer swing requires a longer time to move back and forth.

With a shorter antenna the end-to-end travel time for charges is reduced, just as a shortened swing requires a more brief time for each back-and-forth oscillation.

The timing of the pushes that the antenna gets is determined by the radio frequency fed into it by the transmitter. The transmitted frequency is the applied frequency, just as your equally timed shoves are applied to the swing.

If the applied frequency from the transmitter is well matched to the length of the antenna, giving a properly timed back-and-forth voltage "shove" each cycle, the electric charges in the antenna will have just the right amount of time to travel the length of the antenna and back as the applied voltage pushes in one direction and then reverses.

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The antenna is resonant with the applied frequency, and the result is an optimization of the charge surging back and forth with very efficient reinforcement from the transmitter.

If the applied frequency from the transmitter is much different from the natural oscillating frequency required to reinforce charges moving end-to-end in the antenna, efficiency of energy transfer suffers.

The antenna should be trimmed to the proper resonant length for the frequency it is intended to radiate in order for it to radiate efficiently and not waste your transmitter's energy!

Lower frequency bands where wavelengths are long will need a longer antenna. High frequencies with short wavelengths resonate with shorter antennas. You can change the resonant frequency of an antenna by lengthening or shortening its conductive element.

All for now. Stay radio-active and as always, **if you see something, say something!**

73, Vic

Monthly Club Meetings

 ur monthly meetings are on the first Tuesday of each month. **June 1 is our next Zoom meeting.**

The virtual meetings begin at 7:00 p.m. and last until about 8:00 p.m. Our meetings are open to everyone, licensed amateur radio operators or

just interested parties. Our purpose is to provide educational opportunities, mentoring, radio communication training and radio communications for community events.

For our virtual meetings, interested parties, NOT members of the club, will need to email tracy@lenocker.com with their name and callsign. The credentials for the meeting will then be emailed to that person.

See and hear you soon!

Treasurer's Report - KK6LWH

 ur opening April 6 balance was \$10,6111.92 with \$280.00 in deposits and no expenses for the month. The total funds on deposit in our account is now \$10,891.92 as of April 28.

73, Patty

Online Zoom tech meetings

 ur Zoom meetings are on THURSDAYS at 2:00 p.m. Check out the MTARA Website home page for a listing of what each of the presentations will be about. If you need help setting up Zoom on your laptop or smart phone please contact Tracy, WM6T, who will help you get set up and running.

From the Editor - K6WDE

 ue to the overwhelming responses I received, you are STUCK with me as your newsletter editor until my term expires this December.

As with all things in life, change is good and a talented editor is lurking in the MTARA membership. I have committed to the board to finish the newsletters through 2021.

Sandy and I will be traveling during most of June and early July. We are 'unplugging' and will have very limited internet access. Therefore, the next issue, will be a combined July-August covering all the highlights of June's Field Day. I expect lots of stories and photos, so club members - get your pens and cameras ready!

The next secretary of the club, taking office in January 2022, will now be responsible for the newsletter as part of their job description.

I am a Mac person, using Pages, but any word processing tool will do the trick, even one based on Microsoft products! I know someone will step up and take the reins starting January 2022!

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Surface Mount Device replaced - AJ6FN

Many of us see surface mount devices in our equipment and think, "There's no way I can work on this rig!" While that is usually a prudent thought, it is possible to replace surface mount devices with modest tools and lots of patience.



Figure 1: The Chip to be replaced is located just to the right of the 27.000MHz crystal

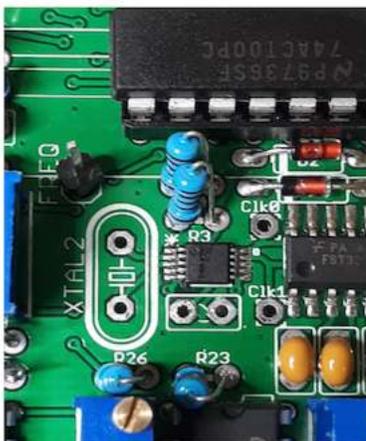


Figure 2: First some surrounding components were removed to give better access to the IC.

Amazon.com. I used my regular soldering iron which has a relatively small tip (1mm round), thin solder (0.020" diameter), Removal Alloy for SMD Rework, liquid solder flux (Kester 186), solder wick, a

I recently found myself in the position of having to either repair or discard a transceiver in my QRP arsenal. Since this particular version of the radio is no longer sold, I decided to try the repair. I figured that if I was unsuccessful, I would keep the board for parts and move on.

This particular repair required the replacement of a tiny surface mount device (SMD). This device can be seen in Figure 1 just to the right of the 27.000MHz crystal. This ten-pin integrated circuit failed due to over-voltage when the voltage regulator failed.

To begin, I watched a [YouTube video](#) on how to replace SMD devices. It looked simple enough so I ordered the things I needed from

Amazon.com. I used my regular soldering iron which has a relatively small tip (1mm round), thin solder (0.020" diameter), Removal Alloy for SMD Rework, liquid solder flux (Kester 186), solder wick, a



Figure 3: melt a blob of SMD Removal Alloy to cover all of the IC pins.



Figure 4: Reheat the Alloy (it stays molten for several seconds) and remove IC with tweezers.

jeweler's loupe, 91% isopropyl alcohol, lighted magnifying lamp, and a digital USB computer microscope (optional).

I will outline the basic steps for SMD replacement in the average shop but youtube videos actually demonstrate this process. The Removal Alloy for SMD Rework is an interesting solder that stays molten for several seconds after the soldering iron has been removed.

1. Place a drop of solder flux over all the pins on each side of the IC.

2. Melt the removal alloy onto all the pins on each side of the IC as a single blob (Figure 3).

3. Reheat the alloy on both sides of the IC and pluck the IC from the board using tweezers (Figure 4).

4. Place flux on solder wick and use the wick to remove the removal alloy from the board (Figure 5).

5. Use a Q-Tip and 91% isopropyl alcohol to clean the solder flux from the circuit board.

6. Carefully align the new IC with the pads on the circuit board and hold in place with tweezers.

7. Solder the new IC by placing a very tiny amount of solder (an almost imperceptible amount) onto the tip of the soldering iron. Then carefully touch the iron

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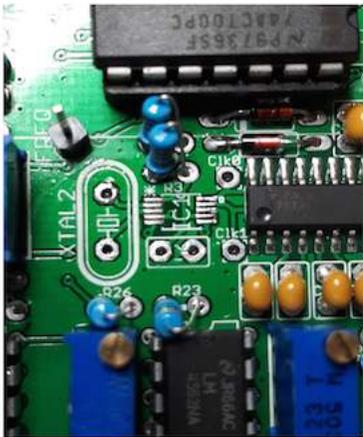


Figure 5: Clean the Removal Alloy from the board using fluxed solder wick.

tip to the IC lead/pad junction and slightly wipe the iron away from the IC while holding the IC in place with a pair of tweezers.

8. Check for solder bridges using the jeweler's loupe and remove using fluxed solder wick.

A surface mount practice soldering kit is available for under \$10 from Amazon.com by

searching "SMD practice kit." Such a kit would be fun to practice with even if you don't wish to tackle an SMD repair on a real piece of equipment.



Figure 6: Carefully align the new IC and solder in place with very tiny amount of solder. Verify all pins are soldered with no solder bridges. A jeweler's Loupe comes in very handy

There are more professional methods and equipment for replacing SMD devices and I would leave a major radio repair up to the professionals. However, in this case, the radio was inexpensive and options for professional repair do not really exist. If you have a small SMD project that isn't worth spending money on an SMD rework station, you may consider approaching it yourself.

Good luck and good soldering!

-73, Greg

Member Spotlight, Carol Higgenbotham - KJ6FQP

Carol, WA6UVQ, is unique in her talents, which are richly diverse, artistic, and interesting. There is hardly anything, old or new, in the world of crafts that she has not tried, including certification in floral arrangement! I had been told that Carol is an icon in our Club. I have since learned that she is also considered a legend.

Her grandfather was born in 1870 in Glasgow, Scotland, which influenced some of her interests. Carol admits she is no cook but does express her Scottish heritage by making traditional Highland Scottish shortbread, which I hear some of you have



had the pleasure of enjoying! But did you know that she participated in monthly classes of the Royal Scottish Country Dance

Society in South Pasadena!? With them, she danced monthly at the Miles Playhouse in Santa Monica, and travelled with them for six weeks to Europe. Carol mastered this lovely traditional cultural dance of the 1700s, overcoming her shy nature, and obtaining a preliminary teaching certificate from the Society. But due to a broken foot, she had to quit this endeavor in 1974.

Although her grandmother did, Carol does not crochet. From a young woman, she could not make those hand movements without pain. After high school, however, she became interested in stitchery. It's a simple pain-free movement of pushing a needle down through cloth, and then simply up out of the cloth from the

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other side. By age 25 she could just look at any picture and stitch it; she has always loved doing it, and it became a huge part of her life. Carol taught all kinds of needlework for fifty years. By 1971 she joined the Embroiderers' Guild of America (EGA) and The American Needlepoint Guild (ANG), and travelled twice to Japan, training under well-known embroiderers such as Master Saito and others. By 1979 Carol was teaching locally and using her library vacations to teach at 26 regional and national seminars, as well as teach in museums, tradeshow, and guilds, touring much of the USA as a bonus. Carol's work had quickly transcended from mere hobby, to become her unique business.



As an EGA certified teacher in Blackwork embroidery (originated 1450-1550 during the time of Henry VIII), in 1968 Carol developed her own style of it; she “changed the value of the thread and the density of the pattern in a 20th Century English version called Shading”, and this became her unique

specialty. She is also the only ‘Approved’ Japanese embroidery instructor in Southern California! Her designs, honored with ribbons and awards, became exceedingly popular and have been commissioned by the likes of the Nixon Presidential Library, the LA County Museum of Art, and more. She has been published in *Better Homes and Gardens*, among others. At her last EGA National, in Phoenix 2014, she was among only six designers honored to be declared ‘legends’ in their work. Her extensive resume on needlepoint alone is nothing short of amazing; I know I have NOT done it justice here due to limited space!



Carol has cruised to Alaska, the Caribbean and toured Europe. How Carol met the man, whose radio call sign she adopted after he passed away, must be shared. Carol had worked for the Alhambra public library from age 20 in 1964 as a library assistant. She has helped to move that library four times! When computers arrived, she was promoted to library computer technician. Meanwhile, after Vietnam, Jim had been doing computer repairs for his company, flying all over the continent as Western regional service manager. After that company was sold to Xerox and his position eliminated, he came to work in communications for the City of Alhambra. He was doing installs and maintenance on all the radios and phone systems for the City.

In the early '90s, when all the library phones had to be moved for a whole-building carpet replacement, Carol was designated the carpet project liaison. In walked Jim, the City's designated phone-moving guy. He was a really nice, very good-looking man with whom Carol got to collaborate on that project. No longer shy, she had some passes to the movies, so she wrote Jim a note inviting him to go out with her to see *Sister Act*! When he “finally said yes,” they had their first date, where she met his mother and his cat. On the second date a couple of weeks later, she met many more of his family and a best friend. They continued dating and soon were engaged. After she returned from a business trip to London, they were married in June 1993 when he

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was 48 and she 50, a late-life first marriage for both. They did so many wonderful things together, including involvement in ham radio. Carol got her Novice/ Technician ticket in 1994, and KF6DEU was able to talk on the air with Jim. They supported each other in all their interests. They joked that, between them, there wasn't anything they could not do. They never had a single fight during their joy-filled marriage which lasted almost 21 years.

The two had each retired from their careers in 2001 and, despite medical challenges, they had a true passion to serve their community as public safety volunteers for 13 more years. They were deeply involved in the San Bernardino County Fire, Office of Emergency Services, Emergency Communications



Services (ECS), which led to Carol advancing her ham radio license, though she was only interested in ham radio for emergency purposes. She got her General, followed by her Extra, and VE certificate to help ECS, in 2013. It took her five attempts before she could pass Extra, and they all applauded for her! Carol says there are two things she will never let lapse: her ham radio license and her passport. Carol helped with class check-ins while Jim and Tracy (WM6T) were teaching classes. During the 2007 fire evacuations Carol took ECS and other rosters, driving by each of the homes providing vital information.

For the California Highway Patrol program, she and Jim

enjoyed driving a vehicle for the CHP, to “show the star” helping to keep roads safe. They next volunteered for the Sheriff in their Citizens On Patrol program (COP), where they did looter patrol, obtained a concealed carry permit and cleaned rifles and shotguns monthly. They did fire-lookout on Strawberry and Keller peaks for as long as she was able, having been unable to walk without assistance for 15 years. They worked together at the American Legion thrift store, as long as he was able. Jim lost a two-year battle with Leukemia in January 2014. Later that year, Carol was among a handful of folks who gathered at the Lenockers’ house for a meeting to discuss formation of the Mountain Top Amateur Radio Association. She was MTARA’s founding treasurer, and still helps read required radio scripts every 30 minutes for MTARA and ECS events, from home.

In difficult times, such as her arthritis flares, or her grief, Carol attributes the source of her courage and strength to the Lord, who has been an important part of her life since she was a child. Carol is taking life day to day because most of the items she might have had on a bucket-list are no longer possible. But! Carol has drawn a scale model of her anticipated three-room quarters at Brookdale, having planned where everything will be positioned, so that she can finish several projects that were in progress before she fell. Once her scanner is reconnected to her computer again, she looks forward in hopes that her joy-filled needlepoint crafting will most certainly resume. Oh, and she has already told Brookdale that she would be their emergency communications officer! That, ladies and gentlemen, is Carol, our MTARA club icon, and a legend in her own time!

MTARA would like to know YOU better, whether YL or OM! Feel free to contact the Newsletter with the name of a nominee for the following months’ newsletter. We will take it from there! Interviews should ideally be scheduled to happen before the 10th of any month.

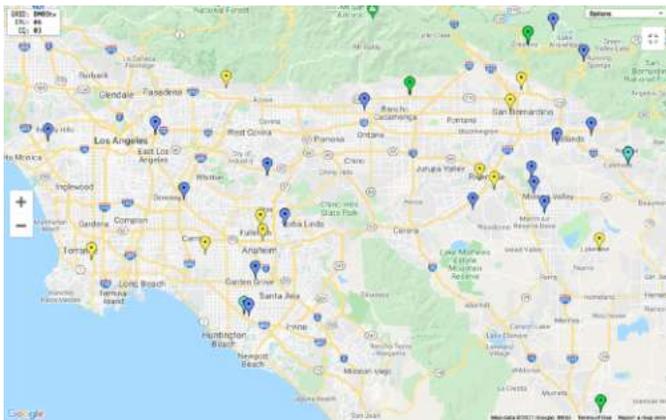
73, Assunta Maria Vickers

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MTARA WWFF KFF-4490 and POTA K-4436 **SUCCESS!**

Thursday, May 13 was a great success. The TWICE postponed activation of the San Bernardino NF took place downslope of the Heap's Peak Transfer Station in perfect weather. We had Assunta, Jo and Matt, John, Nancy, Gail, Gene, Lorna and Reed as ham radio operators on the 40, 20, 15 and 2 meter bands. Thanks to Chef Gene, we had delicious, piping hot pizza for lunch, thanks!



We utilized 3 HF stations, and a VHF station with 70 SSB contacts (40, 20, 15 and 2 meters) in total. Thank you to all the chasers, we have some new addicted

POTA HF radio operators! For all the details including the contact logs, [click here for Dave's Zoom presentation on May 20th](#). Check and make sure your QSO with the team was logged!

Thanks again for your support, it makes ham radio FUN! Greg, AJ6FN, Vic, KK6WKI and Dave, K6WDE

Local Weekly Nets

	Repeater	Time	Activity	Purpose
Monday	MTARA-2	7:00 p.m.	Weekly Check-in	MTARA news
Monday	144.330 Mhz	8:00 p.m	'Gordo' net	Simplex readiness
Tuesday	MTARA-5	7:00 p.m.	Weekly Check-in	Tech discussions
Wednesday	HF	7:30 p.m. first monthly Wednesday	7.223 Mhz	Band(s) status
Friday	MTARA-5	5:00 p.m.	XYL Happy Hour!	It's Friday!
Daily	CBARC	7:00 a.m.	Technet	Elmer sessions

Membership Info

Membership in the Mountain Top Amateur Radio Association© is open to any person interested in learning more about Amateur Radio.

Members do not have to be a licensed Amateur Radio Operator to be a member but licensure is recommended. Members must be active in club activities which includes trainings, events, club meetings and Field Day. Membership is on an annual basis and is from January 1 to December 31 of each year. There are no prorated memberships. The annual membership is \$20 for a single member or \$30 for an entire family.

Current members do not need to fill out the renewal

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application form for 2021. You can just mail your check to MTARA, PO Box 2441, Lake Arrowhead, CA 92352-2441. We already know who you are. Those who joined in November or December of this year are already paid for 2021. The membership form can be downloaded by [clicking here](#).

The NEW YL Corner! - WB6LVC

Last month I shared the history of one of the first female ham operators. This month, I will introduce you to 3 more ladies that made a name for themselves in radio communications and/or the hobby.

Graynella Parker

At 22, Graynella became the youngest woman to become a wireless operator on an ocean-going

steamship. She shared her experiences with friends and family, and although she was not technically an amateur, her passion began as a hobby and led the way into securing her this position-working on the open seas.



Olive Carroll

Olive was born in Canada; she had a desire to travel and explore the world while she was growing up in the 1930s and '40s. Radio was her doorway to that desire. She began her radio hobby in high school. Eventually she attended the Sprott Shaw School of Radio and

earned her second class radio certificate. Olive went on to work for the Canadian Department of Transport as an interceptor operator. Later, she worked on the passenger freighter M/S Siranger. At this point in her life, she had never traveled more than 500 miles from her home! In 1944, she wrote a book about her experiences entitled Deep Sea 'Sparks": A Canadian Girl in the Norwegian Merchant Navy. The San Francisco Maritime Museum has a re-creation of the ship's radio room, depicting it with all the equipment Olive Carroll would have used during her time onboard.

Clara Reger

Clara Reger received her call sign in 1933 at the age of 35. She had a long career as an operator and had overseen disaster communications after WWII. Reger was known for her exceptional Morse code skills. She spent much of her life teaching others how to become operators. She even taught a 14-year-old boy how to send code with his feet after he had lost his hands!! For this, she received the Edison Award.

As I researched these ladies, I marveled at all they had accomplished. Last month's article about Gladys Parkin, and the ladies mentioned here, show us all they had to overcome to be included in any position using wireless communications. Fortunately, they had family and friends who supported them. And there were others who realized their capabilities and knew how much the ladies would improve the work and the hobby. I say "Thank You" to them all for their perseverance and the real-life experiences they shared with us through their writing and others who captured their journeys through the years.

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Upcoming Calendar of Events

Activities that MTARA will be participating in or supporting during the upcoming months:

- ▶ MTARA monthly meeting - June 1 at 7:00 p.m.
- ▶ MTARA monthly meeting - July 6 at 7:00 p.m.
- ▶ June 26 - MTARA Field Day at the Masonic Lodge in Twin Peaks
- ▶ July 4 - Communications support for the Lake Arrowhead fireworks event
- ▶ August 7 - Tour de Big Bear communications support
- ▶ August 20-21 - Kodiak 100 communications support
- ▶ September 25 - Big Bear Gran Fondo communications support
- ▶ December 4 - Blue Jay Christmas Parade communications support
- ▶ TBD - "I am Lost" Field Training
- ▶ TBD - Digital Modes Workshop

Upcoming VHF/UHF and HF Ham Radio contests or special events

A few fun events that club members can participate in and/or sharpen their communication skills with!

- ▶ [Slow Speed Con\(Test\)](#) for CW operators, **EVERY SUNDAY** (5:00 - 6:00 p.m., PDT) and **EVERY FRIDAY** (1:00 - 2:00 p.m., PDT), a great learning tool for us new operators!
- ▶ [Weekly Phone Fray](#) by NW2K. A great way to get your feet wet for 30 minutes. It is weekly on Tuesday nights from 6:30 p.m. to 7:00 p.m. PST on SSB. The rapid-fire exchange is OP name and location ('Dave CA', e.g.). Folks start on 15 meters and then migrate to 20, 40, 80 and even 160 meters, its fun to watch the bands change as seasonal propagation does!
- ▶ **Route 66 On the Air!** September 11-19, 2021. See the [Citrus Belt Amateur Radio Club](#) (CBARC) for more details.
- ▶ The 56th running of the [California QSO Party](#), October 2-3, 2021
- ▶ Ongoing, updated [Contest Calendar](#) sponsored by WA7BNM, there is something for everyone, check it out!

MTARA shirts and jackets

 We have our optional MTARA logo shirts and jackets available so that you too can look smart and cool! If interested, please contact Mary at Classic Images in Crestline. Her telephone number is 909-338-2281 from Tuesday through Friday at 23723 Rocky Dell Drive, Crestline, CA 92325.

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Welcome to “Ponder the Pool” by AA6GJ

Ponder the Pool is my column for the MTARA Newsletter. Every month I pick a point to ponder (a question) from one of the three FCC question pools and try to explain it more and review the concepts because,

“If you don’t use it, you lose it!”

This time, we will ponder a question from the Technician Class pool: Question No. T5D02 (Pg. 154 in Gordo’s Technician Book)

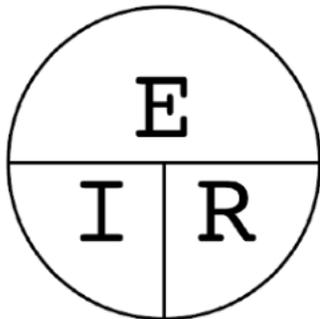
T5D02 – What formula is used to calculate voltage in a circuit?

In the last couple of articles, we’ve talked about Volta and Ampere and their fascinating lives of discovery. This time we’ll look into the life of Georg Ohm, the man who came up with his famous law, Ohm’s Law. Although he probably never met Volta or Ampere, his contribution to the scientific world of electricity would probably never had occurred without the other two men.



Georg Simon Ohm was born March 16, 1789, in Erlangen, Brandenburg-Bayreuth (then part of the Holy Roman Empire). His father was Johann Wolfgang Ohm, a locksmith. His mother was Maria Elizabeth Beck, daughter of a tailor in Erlangen. Neither of his parents were formally educated, but Ohm’s father was a respected man who was self-educated to a high level. He was able to give his sons an excellent education by teaching them himself. Johann had seven children, unfortunately only three survived to adulthood: Georg, younger brother Martin, who later became a well-known mathematician, and his sister Elizabeth. Georg’s mother died when he was ten. Johann taught Georg and Martin to a remarkably high standard in mathematics, physics, chemistry, and philosophy. From age eleven to fifteen, Georg attended Erlangen Gymnasium. In this case, the term “gymnasium” is a European secondary school that prepares students for the university. Georg’s father was concerned that he wasn’t receiving a good education in the scientific field. He sent Georg to Switzerland. During his time there, he accepted a teaching position in September of 1806 as a mathematics teacher. As a schoolteacher, Ohm began his research with the new electrochemical cell (Voltaic pile) invented

by Alessandro Volta, remember him? He used equipment of his own making and found that there is a direct proportionality between the potential difference (voltage) applied across a conductor and the resultant electric current.



This relationship is famously known as Ohm’s Law. Ohm’s Law first appeared in a book called Die galvanische Kette, mathematisch bearbeitet (The Galvanic Circuit Investigated Mathematically) (1827) in which he gave his complete theory of electricity. In this work, he stated his law for electromagnetic force (EMF)(V) acting between the extremities of any part of a circuit as the product of the strength of the current (I), and the resistance (R) of that part of the circuit.

Although Ohm’s work strongly influenced theory, at first it was not enthusiastically received. His work was eventually recognized by the Royal Society, and he was awarded the Copley Medal in 1841. He became a foreign member of the Royal Society in 1842, and in 1845 he became a full member of the Bavarian Academy of Sciences and Humanities. I don’t know what we would have done



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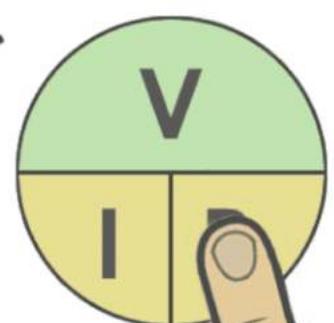
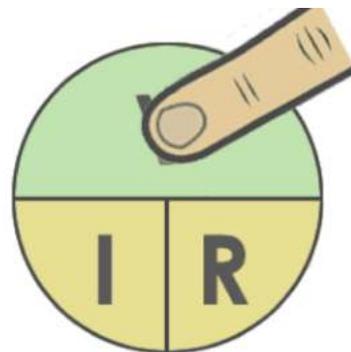
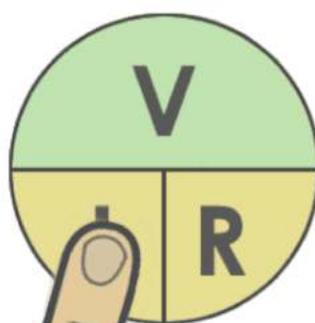
without you, Herr Ohm. Thank you for your massive contribution to all of mankind.

The same goes for Volta and Ampere. You are definitely the three musketeers of Ham radio.

The official answer to this question is: Voltage (E) equals current (I) multiplied by Resistance (Ohm's Law).

There you have it, Ponder the Pool for another month. I hope it was helpful. Stay tuned, and we'll do another one next month. 73 – Gary

If you have any questions or comments, drop me an email at AA6GJ@arri.net



Codrey Electronics