W8KEA
MARC
SPECIAL SERVICES CLUB
MIDLAND AMATEUR RADIO CLUB
PO BOX 1049, MIDLAND, MICHIGAN 48641
www.w8kea.org

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ARRL VE Liaison	Dennis Klipa N8ERF	
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	Pat Mullet KC8RTW	(989) 828-6657
Swap Committee	Pat Russell W8PMR	(989) 832-2924
	Chuck Cribley WA8LQD	(989) 488-9409
	Keith Johnson KB8SOE	(989) 488-4337
	Pat Mullet KC8RTW	(989) 828-6657

LIFE MEMBERS
Don W8WOJ, Lee KC8ITI, Dennis N8ERF, Larry N8CGP, Denny WD8BPT, John WB8RCR

Midland County Public Service Net, Thursdays at 9 PM
W8KEA Repeater — 147.000 MHz+ PL 103.5 • W8QN Repeater — 443.325 MHz+ PL 103.5
W8KEA Digipeater — 145.090 MHz

Next ARES®/RACES Meeting — Thursday, June 1, 2017, 6:00 PM
Law Enforcement Center, 2727 Rodd St.
Midland ARC Meeting — Thursday, June 1, 2017, 7:30 PM
Salvation Army Bldg, 330 Waldo Ave.
Talk-in 147.000+

June 2017

Static Discharge

John Wolters, W8QN

As I write this May is half over. The MS Walk and School balloon launches are over, both a great success and coming shortly is the Dow Run.

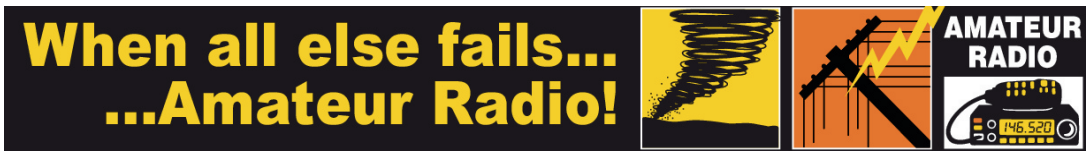
It was reported in the April meeting that the date we normally reserve for the annual swap is not available at the Salvation Army. After discussion it was decided that a future date would be researched. As of today it appears that the new date may be in late July or early August. Stay tuned for more information.

We discussed this year's Field Day effort. An offer was made by the Saginaw club to merge Field day efforts. After discussion a motion was made and approved to join Saginaw this Field day. With no other volunteers, I will work with a Saginaw rep to figure out the details. Look for more discussion at the June meeting.

The topic for the June meeting is a show and tell of the communications trailer that Dennis Caney has built. Hope to see you there.

Field Day is June 24/25. We will join the Saginaw club.

73, John, W8QN



MARC Minutes

Linda Hodges, KC8MUD

John, W8QN brought the meeting to order at 7:35 pm with 34 guests and members present. A sign-in sheet was passed around and introductions were made. If you have any corrections or additions to the minutes please bring them to the attention of the secretary, Linda, KC8MUD.

• Presentation — Al Bailey, KA9WCS — Al gave an informative power point presentation all about ARES®/RACES.

• No Treasurer's report this evening.

• MS Walk — Chris, KB8UIH — Thank-you to everybody who came out to help especially to all the help from the Saginaw club. Everything went well.

• Dow Run — A sign-up sheet was passed around. Event is on Sat. May 20th. We'll meet at the Community Center at Rodd and George at 7:00 am and help until around noon. John says he can use around 50 operators. Please come out if you can to participate in this community project.

• Balloon Launch — Dennis, N8ERF — Students and Hams meet at the N.E. Middle School on May 6th at 7:30 am to launch the weather balloon and sensors.

• Swap — Keith, KB8SOE — A long discussion about when and where the 2017 Swap will be held. Thank-you to Keith, KB8SOE for taking on this event.

• Field Day — John, KB8PGW — The date is June 24th. John has asked for over-nighters to watch over equipment. Comments include an invitation to join the Saginaw group on Kochville Rd., near Mackinaw Rd. A motion on the floor that our group joins the Saginaw group for Field Day with details to still be worked out. Seconded.

Net Control:

May 11th	Art K0ACP
May 18th	John W8QN
May 25th	Steve WA8Y

• State Parks — Wendy, KD8IWB — Michigan State Parks on the Air discussion.

• Repeater tower — John, W8QN — Repeater tower relocation discussion.

A motion on the floor to adjourn made by Dennis, N8ERF and second by Dorie, N8WTQ.

The meeting ended at 9:20 pm.

Respectfully submitted
by Linda, KC8MUD
MARC Secretary

MARC MEETINGS

Mark Murray, W8MGM, is in charge of special events and topics for the MARC monthly meetings. If you have any agenda items, or topics for the meetings, please contact Marc at (989) 513-7174, or via e-mail: mark.g.murray@icloud.com.

COMMUNICATIONS

Pat Mullet, KC8RTW, is in charge of communications and publicity for the club. If you have any questions or ideas regarding these areas, please contact Pat at kc8rtw@arrl.net.

EXAMINATION SCHEDULE

Saginaw - All future VE testing will be done on an appointment basis only.

Corunna - Contact Thomas Carpenter (517) 579-0599 ki8as@charter.net.

Bay City - All future VE testing will be done on an appointment basis only.

Isabella/Clare Counties - Contact Gus Glass, K8GUS at k8gus@arrl.net

With all examinations, your original license, a copy of that license, a second photo identification (drivers license, etc.) and a check or money order for $15.00 made out to "ARRL/VEC" are required.

The address listed below gives testing sessions scheduled for Michigan. http://www.arrl.org/arrlvec/exam-search.phtml?State=MI

SUBMISSIONS FOR NEWSLETTER

Contact Pat Mullet, KC8RTW at kc8rtw@arrl.net if you want to submit anything for the newsletter.

I need your items by the 15th of the month. Anything received after that may not make it into the newsletter for that month.

If you prefer to download the MARC newsletter from our web site, or have trouble with delivery via USPS, contact John, W8QN at w8qn@arrl.net.

MEDIA HITS!

Have you seen or heard mention of the Midland Amateur Radio Club in the news or in the paper? If so, please forward it, or mention of it to either Pat, KC8RTW (kc8rtw@arrl.net) or John (w8qn@arrl.net)

My Two Cents

Pat Mullet, KC8RTW

I haven't spent much time on the air in the last month, between poor conditions and personal matters, about all I've been able to mange are the weekly public service nets on the Midland repeater. Speaking of which, I sometimes have a rough time making it into the Midland machine, so I've been mulling over options for building a yagi in an effort to get a more reliable path. I've looked at the "Cheap Yagis" designed by Kent Britain, WA5VJB; cheap, but not necessarily durable. Several years back, there was an article in *QST* "A Five-Element, 2-Meter Yagi for $20" which converted a 6 element FM Stereo antenna to 2 meters. This is an attractive solution, especially since I have the remnants of a three element TV antenna, which, coupled with an eight foot boom purchased from a big box store would yield up a seven element yagi. Alas, the antenna mentioned in the article is no longer being manufactured.

The last option is to go full scaled homebrew. Not that big a jump from converting an existing antenna to "rolling your own," especially at the small size of a 2 meter beam, but the variations on the theme are *endless*: elements connected to the boom or insulated? If insulated, how? In searching online for antenna insulators, I've seen everything used from electric fence insulators to insulators fashioned from PVC conduit to reworked plastic blocks meant to secure the modesty screens to conference tables. That said, the most elegant insulators are actually hydraulic cable clamps manufactured by Stauff from polypropylene. They come in a wide range of sizes and are used commercially by antenna companies such as M2. Until recently, trying to locate them at a reasonable price has been next to impossible, at least for me. By accident, I came across a reference to

a seller on Ebay, SSS Solution, an antenna and tower hardware specialist located in New York. They sell insulators for ¼ in. to 2 in. in packs of 10 pairs for an affordable price.

Of course, if you *really* want to homebrew an antenna, you can find the 3D printing files for these clamps online, if you can find someone to print them for you.

Well, that's enough for this month. Hope to hear you on the air!

73, Pat, KC8RTW

MS Walk Net Report

I am very pleased to say the MS Walk was completed on Saturday April 29th without any incidents involving participants or operators. There were no health or safety incidents reported. One person was transported by the SAG, but that we preplanned.

Many hams from Midland and Saginaw combined to make this event a great success.

There were 22 operators participating in the 2017 MS Walk, 6 from Saginaw, 16 from MARC. There were two nets. The primary, directed net was run on 147.000. An undirected, admin net was run on the W8QN repeater to facilitate comms within the high school building (440 MHz). Lee, KC8ITI, coordinated this net. The net ran from 9:25 to approximately 11:50.

Hams participating from Midland were Stan Rowe, K6VWE; Kevin Barnum, KB8QWQ; Chris Rose, KB8UIH; Jim Wise, KC8HTH; Lee Hodges, KC8ITI; Wendy Russell, KD8IWB; Leesa Battershell, KD8PDE; Kevin Martin, KD8QAM; Martin Crook, KE8FIZ; Paul Tolly, KE8GEM; Larry Macklin, N8CGP; Dennis Klipa, N8ERF; Dave Wallick, N8LBF; John Wolters, W8QN; Dennis Caney, WD8BPT and Linda Hodges, KC8MUD.

Hams participating from Saginaw were Michael Elias, K8AVJ; John Kraemer, KC8WZM; Ron Huss, KC8YVF; Dave Schneider, N8ERL; Michael Linton, N8XPS and Emmett Bengry, NE8B.

Some minor housekeeping issues were noted that I need to attend to and those will be changed or corrected for future events.

This community is blessed by having this kind of participation by our Amateur Radio Community.

73, Chris, KB8UIH

ARES® / RACES

Al Bailey, KA9WCS

The spring season is upon us. Warm, pleasant weather makes outside events more fun and certainly more possible for this amateur. We will start mapping the simplex signals at our next meeting. This will involve sending people to specific locations to confirm a simplex signal will reach the station at the LEC. We will compare our results with previous mapping performed by the ARES® / RACES group.

Jenifier Boyer, John Wolters and I recently toured, tested and turned on the radio equipment at the County building, and the Homer Township Firehall. I have some Smith charts for the antennas for 2 meters taken at these locations. I will have copies of these along with some SWR graphs of these stations at our next meeting for any who would like to see them. All appears to be in great working order and I am considering how to put some of this into action at our meetings. I certainly welcome some ideas.

Finally, I have an idea on how to perform a Fox Hunt for the club and our group, I would like to discuss at our next meeting. Bring some of your ideas and thoughts along with your portable hand held radio to our next meeting, Thursday June1st, at 6:00 pm.

Amateur Radio is a Contact Sport!

Upcoming Events

6/3-4	Museum Ships Weekend
6/24-25	Field Day
7/7-8	Section Outing @ Lupton

Michigan Hamfests

6/3	Hudsonville
6/4	Chelsea
6/10	Newberry
6/18	Monroe
7/22	Shelby Township
7/22	Harrison
7/29	Lansing
8/5	Escanaba
8/13	Port Huron
8/19	Alpena
9/9	Wyoming
9/17	Adrian

Area Nets

SVARA; Mn, 147.24 MHz, 2100 ET
Gladwin; Tu, 147.18 MHz, 2000 ET
BARTS; Tu, 145.31 MHz, 2100 ET
Canadian Lks, Wed,146.8, 2100 ET
Edmore, Th, 146.8, 2000 ET
MARC; Th, 147.00 MHz, 2100 ET
District 3 ARPSC; Su, 145.31 MHz, 1830 ET
Mi VHF Trffc Net; MWF, 145.15 MHz, 0900 ET
TMMTN; Mon-Sat, 147.30 MHz, 2130 ET
MACS; Sun-Sat, 3953 kHz 1100 ET
MIARPSC; Su, 3932 kHz, 17:00 ET
UPN; Sun-Sat, 3920 KHz, 17:00 ET
MITN; Sun-Sat, 3952 kHz, 1800 ET
QMN; Sun-Fri, 3563 kHz, 1830 & 2200 ET
WSSBN, 3932 kHz, 1900 ET
UP-ARES; Fr, 3932 kHz, 1930 ET
GLETN; Sun-Sat, 3932 kHz, 2030 ET
SEMTN; Sun-Sat, 145.33, 2215 ET
MiDTN - 1900 local Tu, Th, Sat 3.583
+waterfall, Oivia 8/500

MARC MERCHANDISE

T-Shirt	S- XL	$10
	2X - 3X	$12
Long-Sleeve Tee	S- XL	$12
	2X - 3X	$15
Crew Sweatshirt	S- XL	$18
	2X - 3X	$20
Hoodie	S- XL	$24
	2X - 3X	$26
Zipper Hoodie	S- 3X	$30
Winter Coat	S- XL	$42
	2X - 3X	$45
Spring Jacket	S- XL	$32
	2X - 3X	$35
Hat		$10

All garments are royal blue with white print and embroidered name and number. Extended sizes available.

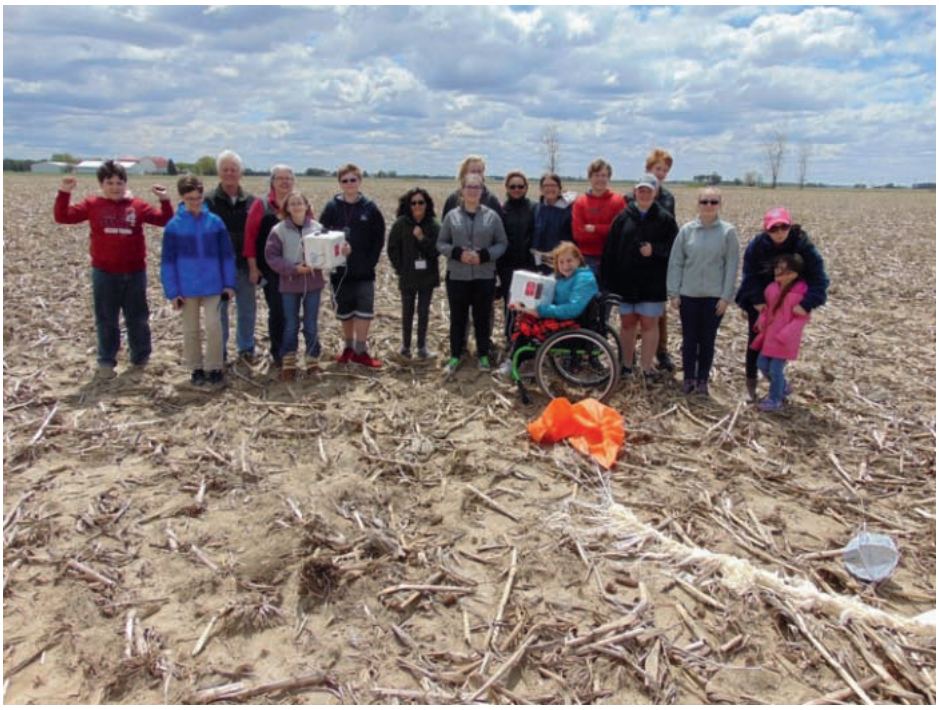
Please call Bill Lee at B&C Sportswear with questions @ (989) 839-4537.

Electronics and Wireless Communications Clubs

We have wrapped up our 4th successful year of the high school club and our second year of the Northeast Middle School club with the successful launch and recovery of two payloads beneath one High Altitude Balloon. The flight took place on May 6th after a one week weather delay. We launched from the parking lot of St. Anne Church on the north side of Edenville at 10:30 AM on a beautiful but cool and windy Saturday morning. The students and parents had their hands full keeping the balloon steady in the wind. Brian Brown did a great job leading the launch team for the first time! The flight lasted 2 hours and 10 minutes with the balloon bursting at 99,835 ft and the payload parachuted back to earth and landed just south of M-46 near Wheeler. The landing was about 4.5 miles south of the predicted landing zone, primarily due to higher than predicted winds at lower altitudes. The landing zone was within 100 ft of the predicted longitude!

The major focus this year was focusing on the Arduino microcomputer. The sensor package for the balloon flight, which was designed and built by the high school students under the direction and tutelage of Will Halphen, K8VFO, included temperature, pressure, GPS location, speed, heading and an accelerometer. A similar sensor package was included in the Middle School payload as well. The sensor packages worked very well and we got some very interesting data, which was analyzed by the students.

Unlike previous years, the APRS tracking systems worked very well for the entire flight. The failures in previous years have been shown to be due to sensitivity of the units to low temperatures. The APRS unit in the middle school payload was the ArduinoTrack, keeping with the Arduino theme, which is built and designed by Zack Clobes, W0ZC as part of Project Traveler (www.projecttraveler.org). The high school payload APRS tracker was designed, built and programmed by Will, K8VFO, which is awesome, in my opinion. The backup for the APRS was the Radio Direction Finding team,



which was positioned at three locations surrounding the predicted landing zone. Bearings were taken during the flight by the students and reported to the Event Command Center which was located at Breckenridge Elementary School sports complex, using Dennis Caney, WD8BPT's, Communications Trailer — Thank You! — where the bearings were plotted and compared to the APRS data. Had the APRS failed, the RDF tracking teams would have been in pursuit immediately. Well done!

While the high school students spent a large portion of the year on the Arduino project for the balloon payload, the middle school students learned some of the basics of electronics and Arduino programming by spending 5 or 6 meetings building simpler projects with prescribed code and then were encouraged to modify the code to get the circuits to do more interesting things. Several of the students asked their parents for Arduino kits and soldering irons for Christmas!

The middle school students had primary responsibility for preparing the payloads for launch, preparing the balloon and the rest of the launch vehicle, learning to track the balloon by APRS, and RDF techniques as well as flight prediction and photography. It was awesome to see these students take to these roles and responsibilities.

I can't express in words to you how gratify it is work with these students and see them learn and have the light bulb go on when they figure something out. The students absolutely love these clubs. When we announced the last meeting of the middle school club there was a collective Noooooooooooooooo!

I think a note from one of the parents puts it very well:

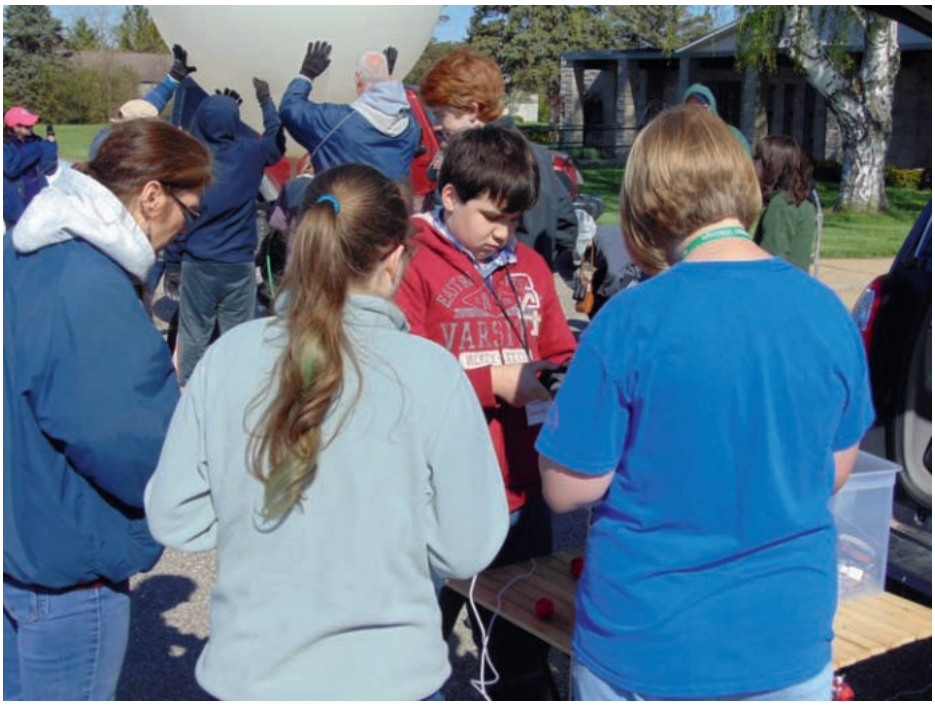
"Thank you so much for your work with Zach and all of the students who participated in the club activities and the weather balloon launch.

I'm sorry I wasn't able to attend, but Zach was so excited to tell me all about it. He can't wait for next year's club and wants to continue in similar activities throughout high school.

Please express my thanks and appreciation to everyone who had a part in this. I truly appreciate everything you have done to inspire him and help him find others with similar interests."

Nikki"

I know we are making a difference



in the lives of these students and you can't ask for more than that. But I can acknowledge all of the volunteers who give of their time, knowledge and wisdom for these students; Will Halphen (K8VFO), Carman Kessler (NE Teacher), Brian Brown (NE Teacher), Bernadette Wood (NE Teacher), Jackie Klipa (N8NNA), Chuck Cribley (WA8LQD), Dave Wallick (N8LBF), Lee Hodges (KC8ITI), Art Peters (K0ACP), Kathy Peters (KD0JHX), John Henley (AC8QF), John McDonough (WB8RCR). A special thanks goes to Andy Fawcett (KD8ULJ) for sharing his Midland High Physics classroom with us.

Best Regards,
Dennis, N8ERF

Michigan Section News May 2017

(ARRLWeb — 5/15/2017) The weather here in the most southern parts of the state is still on the cool side and we are waiting somewhat impatiently for some warmth from the sun. On the good side of things, our local weather has kept the severe weather pretty much in check thus far this spring. Take the good with the bad or the bad with the good....besides; there is nothing we can do about it.

MSPOTA

The Michigan State Parks on the Air (MSPOTA) event is off and running. The weather has an effect there and propagation, while not always horrible, seems to be tolerable. Note: read previous paragraph about things we cannot control.

Our operators in Michigan (Activators and Chasers) do have a burden to bear in that hearing each other can be very difficult because of propagation conditions. I know from personal experience that trying to hear our activators and being heard by them can sometimes be nearly impossible. Hopefully going forward conditions will improve and give us "local folks" a chance to make some MSPOTA contacts as well.

Watch our web site at www.mspota.org and our Facebook page at Michigan State Parks on the Air for current information and breaking news.

Michigan Section Family Outing

The 19th annual Michigan Section Family Outing is scheduled for July 7 & 8, 2017 at the Woodlands Campground and Conference Center near Hale, MI. This great facility is located about 20 miles from West Branch and offers the best of the North Country in a relaxed setting.

The event will kick off on Friday with activities such as a fox hunt in the woods (challenging) along with various workshops and discussions. The Woodlands has provisions for tent camping, towed campers and fifth wheels. Both primitive sites and electrical sites are available. A permanent bath house with clean showers and restrooms are present.

For those that prefer a hotel room to a tent or RV, there are good hotels located in West Branch.

Saturday will see the annual MI-ARPSC Emergency Coordinator's meeting with a full day of classes, workshops, and speakers on a variety of topics relative to emergency preparedness.

Be sure to get this event on your calendar!

Great Lakes HamCon

The largest planned ham gathering in Michigan is still in the planning process but is gathering significant steam as we move closer to the actual event. The Great Lakes HamCon will take place at Michigan International Speedway (MIS) located in the beautiful Irish Hills of Southeast Michigan on October 7 & 8, 2017. Our website is located at www.glhamcon.org and our Facebook page is GLHamCon. We are also active on Twitter....

Tickets for GLHamCon have just become available on the MIS website here: http://www.mispeedway.com/About-MIS/Special-Events/Great-Lakes-Ham-Con.aspx

Currently, there is a promotion that gives you $1 off your advance purchase of tickets. Ticket prices (w/o promo) are $17 in advance and $20 at the gate. Each ticket is good for both days, Friday and Saturday.

Children under 12 are free with a paid admission. A child's ticket must be requested when purchasing adult ticket(s). Your wristband(s) will be mailed to you prior to the beginning of the event. Wristbands MUST be worn throughout the entire event.

You will also be able to purchase your camping space and your Flea Market space(s). Camping spaces are $35

no/electric and $50 w/electric for Friday and Saturday nights.

As you know, event parking is free and plentiful. Included in your camping space price is parking space for one vehicle within your assigned camping space. If you have two vehicles (you have invited a guest to share your RV, etc), the vehicle that belongs to your guest will require an Overnight Parking Pass which can be purchased online as well ($10) and he/she will have to park in the lot adjacent to the campground.

Flea Market spaces are along Pit Road and each space will measure 12 ft wide by 20 feet deep. Be advised that the MIS website currently mistakenly states 12 x 15. We will get that error fixed.

Flea Market spaces will be organized on each side of Pit Road (paved) to form a long line of spaces separated by a 20 ft aisle between the two rows of spades. An important note is that adjacent Flea Market Spaces are available to allow larger contiguous selling space, but it is important to get your order placed early. We will be selling from the center outward on both sides, so the more delay, the farther from the center of activity you will be. You will be pleasantly surprised at the magnitude of this facility!

Located on our website at http://glhamcon.org/ is our latest flyer. Each Club is encouraged to print copies for their members and to place the flyer on your club's website to get the word out to as many Michigan hams as possible.

While you are on the website, look around a bit and if you are interested in having a GLHamCon logo vinyl window sticker for the back window of your ride, you can see how to get one delivered to your door for the cost of an SASE!

Your GLHamCon team will have a presence at the Hamvention in Xenia this coming weekend. We have a table in Building 6 (booth 6612) and we look forward to talking with both old and new friends and look forward to answering questions about this unique event and venue. We will have event flyers and some gifts for you to take home with you. Be sure to stop by and say hello.

73 until next month,
Larry Camp, WB8R
ARRL Michigan Section Manager

Technical Topics and Information

(ARRL Contest Update — April 19, 2017) Jim, K9YC, will be presenting "Finding and Killing Receive Noise" in Visalia, California on Friday, April 21, as part of the International DX Convention. Jim expects to go long: "It's a long talk, and needs far more than the 45 minutes allotted. The talk is the last one before lunch, and I've been assured that I can run over into the lunch hour. Obviously, attendees can stay for as much (or as little) as they like."

♦ *Elektor* Magazine describes recent research that has yielded a microwave laser that can be constructed on the same chip as other circuitry. A Josephson junction is used in conjunction with a microwave cavity to obtain a coherent stream of microwave photons.

♦ Square waves are composed of the fundamental frequency, and odd-integer harmonic frequencies. Here's a graphical way of visualizing how sinusoidal frequency components add to create a waveform starting from a point traced on a circle, which may be rotating on a circle, and so on. It turns out that the radii of those circles comprise the Fourier transform of the signal described by the waveform.

♦ The Four States QRP Group has introduced the new BUZZ-KILL kit for removing power-line buzz from an audio channel. The BUZZ-KILL is a comb filter - a notch at 60 Hz and every harmonic of 60 Hz. According to the website, "This is a compact, flexible design that can be used as a standalone outboard unit, or it can be easily integrated into an existing receiver (see manual for details). Its onboard audio amp is capable of driving a speaker or headphones. Gain is constant from 100 Hz to 5kHz, so it can be used with any CW, SSB or AM receiver." The circuit uses two analog delay lines to combine the signal with a time-shifted version of the signal, which creates a comb filter.(QRP-L mailing list)

♦ If you're looking for a little more selectivity, you can retrofit an existing radio with an audio DSP filter from SOTABEAMS. Their LASERBEAM-VARI modules need just a single rotary encoder to provide a variable filter bandwidth of 200Hz to 3500Hz. The module is 36mm x 36mm and requires a supply voltage of between 5 and 15 Volts.

More Technical Topics and Information

(ARRL Contest Update — May 3, 2017) Proceedings from the recently concluded forty-third annual Eastern VHF/UHF/Microwave conference are available via order from the North East Weak Signal Group website. CDs from other years are also available. In 2018, the conference will be held April 20-22 in Manchester, Connecticut. (Paul, W1GHZ)

♦ A new form of aurora may have been 'discovered.' Amateur scientists took pictures of ribbon like phenomena occurring well away from any polar regions, and posted them on social media. Professional researchers initially thought the occurrences to be proton arcs, but something didn't look quite right. Realizing that one picture coincided with a fly-through of a European Space Agency Swarm Satellite, E-field data were examined by researchers, and they noted at 300 km above the Earth's surface an elevated temperature level of 3000 degrees C, in a flow of gas moving at about 6 kilometers per second. This new type of aurora has been nick-named 'Steve' in honor of the children's movie *Over the Hedge*.

♦ Frank, W3LPL, offered up a link to IN3OTD's reviews of various transformers used for 160 meter receive

antennas: "...a nice complement to the other RF design websites familiar to top band station builders." IN3OTD also has a performance comparison of different common mode choke configurations. (Frank, W3LPL, via TopBand reflector)

♦ Jim, K9YC, found that Fair-Rite is making a new, larger sized #31 material toroid core. Each four-inch part 2631814002 weighs nearly 15 ounces, and according to Jim, "This relatively new Fair-Rite part ...offers the potential for many more turns and/or larger cables. The mechanical properties are obvious. I would expect one of these cores to be approximately equivalent to two of the 2.4-in O.D. toroids that we've been using and that I've measured. My basis for that is that their thickness dimension (the length of cable going through the core) is twice that of the smaller core. Inductance is proportional to the length of that path. Thus, three of these cores should be equivalent to six of the smaller ones." Current lead times for these parts are approximately 14 weeks. (Jim, K9YC)

♦ Maybe it could be named "Highlander?" Gallium arsenide semiconductors may be better than quantum dots for constructing Single Photon Emitters. The ability to control photons is important for all types of quantum information processing, and advances in quantum computing are thought to have general applicability in signal processing.

MARC Vital Statistics

Memberships Expiring in May

AG8B KE8CTI KE8DON WN8QGV

Memberships Expiring in June

KB8UIH NX8A WA8KJR WB8FYR WD8ODG
N8KRL W8LSS WA8Y WD8AXR

Memberships Expiring in July

KE8EOW W8ZSX WD8BDM

Members in Good Standing

AC8QF	KB8AWE	KD8IWB	KE8FIX	N8KRL	WA8KJR
AG8B	KB8PGW	KD8MMH	KE8FIY	N8LBF	WA8LQD
K6VWE	KB8SOE	KD8MRB	KE8FIZ	N8NGT	WA8Y
K8AVJ	KB8UIH	KD8QAM	KE8FJA	NX8A	WB8FYR
K8RI	KB8VSS	KD8QXK	KE8FJB	W8LSS	WB8RCR
K8VB	KC8IHB	KD8QXL	KE8FJD	W8PMR	WD8AXR
K8VFO	KC8ITI	KE8CTI	KE8GEM	W8QN	WD8BPT
KA8EZT	KC8MUD	KE8DON	N8CGP	W8WOJ	WD8ODG
KA8ORL	KC8RTW	KE8EOW	N8ERF	W8ZSX	WN8QGV
KA9WCS	KD8HID	KE8EOX	N8JBW	W8ZSX	

Current Active Club Membership 59

Birthdays Celebrated in May/June

KE8CTI 5/1	KD8MRC 5/12	WD8SDX 5/27	KD8IWG 6/23
KC8KOC 5/5	KD8MQZ 5/18	W8LSS 6/2	K8HP 6/24
KD8QAM 5/5	KD8ULA 5/18	N8LOU 6/8	N8POX 6/25
KE8DON 5/9	KC8MUD 5/19	K8RI 6/16	KC8URV 6/28
KC8YHQ 5/11	K8CCE 5/20	KB8VSS 6/21	WD8ODG 6/30
KD8FSI 5/12	WD8AXR 5/25	KB8IPU 6/23	KD8MMH 6/30

Anniversaries Celebrated in May/June

KD8OLC and Lori 5/14	N8STF and Mary 6/16	NX8A and Kristina 6/24
KB8QWQ and Kate 5/16	WA8LQD and Kathy 6/16	K8VFO and Mayumi 6/27
KD8EUR and Julie 5/17	N8POX and Kris 06/17	KB8PGV and Connie 6/27
N8CGP and N8KRL 6/5	W8LSS and WD8AXR 6/19	K8CCE and Clarice 06/28
N8KFE and Cheryl 06/12	N8UPP and KC8AVI 06/21	AA8EJ and Beverly 6/28
KB8VSU and Barbara 06/13	WB8WNF and ??? 6/22	KD8HID and ??? 6/28

Information is from data received 3/20/2017
Any corrections or questions contact Larry, N8CGP

Pat Mullet
Newsletter Editor
171 E. Orchard Ave.
Shepherd, MI 48883

If you desire to join the Midland Amateur Radio Club, the dues are $20 per year for an individual membership. A family membership is available for an additional $5 per year which covers all of the individual's family members. Family members must reside at the same address as the primary member to be eligible for the family member rate. The membership dues help to cover the operating expenses of the Club, and its radio systems. Membership includes Autopatch privileges on the W8KEA repeater (147.000+), voting privileges at MARC meetings, and a monthly newsletter. Please supply the following information:

Name:_____ Callsign:_____ License Class _____
Address_____
City _____ State _____ Zip _____
Home Phone (____) _____ Work Phone (_____)_____
E-mail address _____
Spouse:_____ Callsign:_____ License Class _____
Birthday: (mm/dd) _____ Anniversary: (mm/dd) _____
Desired newsletter format: Paper copy via USPS _____ or via e-mail_____

Are you an ARRL Member? Y/N Do you want an ARES Application? Y/N

We request this information so we can communicate with you regarding MARC business, and periodically send you newsletters and congratulatory birthday & anniversary greetings. We do not sell this information nor will we knowingly publicize private information without your permission. Information that is publicly available may be distributed to Club members for various purposes, including membership lists, without prior notification.

You may give this completed form to the MARC treasurer, or you may mail it to:

MARC, PO Box 1049, Midland, MI 48641-1049