January 2006 **Volume 1-2007**

Nacogdoches Amateur Radio Club

JANUARY MINUTES

The January meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on January 3rd. Twenty-seven members and one guest were present. **President Tom, W5TV**, opened the meeting at 7:05 p.m. in the Parish Hall of Christ Episcopal Church. Each person present introduced himself. Minutes of the previous meeting were approved as published. Treasurer's report was read.

Our newest hams and members were introduced. Please welcome Chris Byrnes – KE5LWI, Morgan Bailey – KE5LWJ, Chris Byrnes – KE5LWS, and Ronnie Kimbrough, KE5LWV. Not at the meeting, but also new hams and honorary members of the club for one year are Jeffery Abney, KE5LNM and William Kendrick, KE5LNJ. Remember that all new hams are granted a one year free membership in NARC. Please help make them feel welcome, both at meetings and on the air.

The Shuttle Columbia Special Event Station is scheduled for February 3rd at the Knights of Columbus Hall on Logansport Road. We will start with a breakfast at IHOP at 7:00, followed by antenna set up at 8:00 and we hope to begin operation by 9:00. Talk-in will be on the 146.84 and 147.32 repeaters. Tom, W5TV, has made a big pot of chili for lunch. We will have at least one Icom 756 ProIII to operate, and the new White Rover will be there for show and tell. Everyone is welcome, whether a licensed ham or not.

Motion was made to donate $100 to the NTX SM election campaign of Doug Loughmiller, W5BL. Carried.

Reminder that the ARRL VHF contest is coming up January 20 and 21. Operators are needed at K5QE. Directions to the station can be found on http://vhfsouth.org/ .

Discussion held on the new FCC rules eliminating the

Morse code requirement, and how to upgrade to General.

Meeting was adjourned at 7:38 p.m.

Show and tell included Andy – KE5EXX showing his new Orange Box for a portable VHF/UHF digital station, Robert – KD5FEE showing GB crimping pliers for PowerPoles, Bert – AC5Z showing the K5JLW RF sensor, and Army – AE5P showing the new White Rover VHF/UHF/Microwave mobile station.

PRESIDENT'S CORNER

I've worked Field Day, many hams' introduction into contesting. Working the VHF/UHF contest was different--the speed of contacts was different, not quite as fast but busy; trying to pull the contacts out of the mud; just trying to find contacts on some of the frequencies. Propagation was the pits on Saturday, Sunday seemed to be better. Morse code, well here was one place where it came into play a few times. The distant station could hear us, but we had trouble hearing them. It was fun. I worked part of Saturday and helped Marshall close out on Sunday. It was a shame I couldn't go out with Dr. Tom, but he was busy healing and I sure hope besides putting the chili together for the Columbia Special Events station, he will be able to take a turn at the mic.

Dr. Morris Jackson called me this week. He is part of the Columbia Museum and wants to get oral histories from the ham radio community. I don't have a lot of details as of this writing. I have already heard from many and had a couple of questions I will need to get some answers for. If you would like to participate and haven't contacted me, please let me know. I'm getting a list of folks together to pass to him. It would be nice if we could give them a good showing, before the memories get too fuzzy.

This weekend NASA held a remembrance for Apollo 1, will have remembrances for Challenger and Monday is to be a general day of remembrance at NASA. We will have our chance to remember the ground folks that worked so hard to help after the Columbia accident. It's been my privilege to participate with you even though I wasn't here to help. I look forward to seeing everyone there the 3rd of Feb. Breakfast will be at IHOP 7:00 A.M., antenna Party at 8:00 and hopefully we can get on the air at 9:00. We will run until 3:00 PM and tear down from there. Please take time out of your schedule to come take a turn at the mic, share your remembrances and some good fellowship.

Our next club meeting will be Feb 7. I look forward to seeing you there. Next testing will be 21 Feb and the Morse code requirement disappears 23 Feb, that Friday. The 21 will be your last opportunity to prove by test that you can do it. I

hope I'm ready. See all of you soon.

73 to all,
John Chapman
e-mail: kc5mib@arrl.net

V.P.'s ELEMENT…

Having not seen the NARC Charter, I have looked to the Dallas ARC to get an idea of what we claim our purpose is. I'm sure that ours would be somewhat similar.

The Purpose of the Dallas ARC:

To act as a unified group to furnish communication services for Civil Defense and Emergency Management, Red Cross, state, county and city law enforcement agencies or such other charitable organizations during times of emergency, distress, national disaster, or in the public interest.

We have 2 weekly radio nets to train on traffic handling. We exercise emergency preparedness by setting up at remote locations…sometimes in adverse conditions (remember Field Day 2006?). We fox hunt. We work as a team to staff different locations during exercises.

To provide for instruction in the fundamentals of electronics and its allied arts, including the International Morse Code. To provide open meetings for lectures and discussions of scientific developments in the radio communications and electronics arts. To enhance our individual and collective knowledge of radio communications and its allied arts and sciences. To enhance fellowship among radio amateurs.

We provide a time of Q&A during the monthly meetings. Some of us bug others of us who are more technically proficient (I am the bug-er, AE5P is the bug-ed). We also provide a monthly test session for new hams and upgraders. We have monthly meetings. We have the occasional breakfast. We have the lunch bunch. We also have a diverse group of interests: KD5FEE is interested in VHF APRS. KD5SHM is building a portable repeater. K5QE has built the best VHF Contest Station in the South. N5YA and K5QE are building the best HF Contest Station in the South.AE5P has just completed a World Class VHF Rover.

I would say that if our purpose is similar to that of the Dallas ARC. We have proven ourselves in these areas.

How can we develop our team to be even better? We work to make the team stronger by recognizing our individual strengths. We know that K5QE & K5JLW are excellent teachers. Let's come up with some topics and ask for some guest lectures. We know that AE5P and W5TV are great technicians. Let's ask for some technical articles or instructions that are relevant to what the club

needs. We know that KD5SHM & KD5KDE are great organizers and know who to talk to and how to get things done. Let's ask them to help increase Amateur Radio awareness/interest in our area. We know that N5YA has climbed more towers than we have dreamed about. Let's ask him to provide a class on tower climbing/safety. We all have strengths that the team can utilize. If you have a particular strength that you feel the club can utilize, please let us know…we can use all the help we can get!

73 de KE5EXX
email: ke5exx@arrl.net

VE TESTING

Our next VE testing is scheduled for Wednesday, February 21st at 7:00 p.m. in the Bailey Library of Christ Episcopal Church. Applicants should bring a picture ID, the original and a copy of their current Amateur license, the original of any CSCE's and $14 to cover the cost of the exam(s). Correct change is always very much appreciated.

With the deletion of the Morse code requirement set to become effective February 24, I am considering scheduling a special test session for Wednesday, February 28. If you are interested in this to be able to upgrade, please let me know. If we have enough interest, we will schedule the special session.

73 de AE5P

email: ae5p@arrl.net

TRAINING MATERIALS

The club has purchased several copies of the latest ARRL "Now You're Talking" books, which provides everything a person needs to be able to pass the Technician class Amateur Radio license exam. Anyone may "borrow" one of these books for a $20 deposit. When you return the book in good condition, you will get your deposit back. Interested? See **Army, AE5P**.

CLUB NETS

Remember to join us each week for the 2-meter nets sponsored by NARC. Each MONDAY is the NARC ARES/RACES net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3). Second, on THURSDAY evenings at 8:00 p.m. is the Deep East Texas Skywarn Net on the 147.32 repeater (PL 141.3). Please join us for one or both.

NEXT MEETING

The next meeting will be on Wednesday February 7th at 7:00 p.m. in the Bailey Library of Christ Episcopal Church. The Bailey Library is just to the left of the Parish Hall, which will be in use for Lenten services of the church. The church is at the corner of Starr and Mound Streets in Nacogdoches. Hope to see y'all there.

Basic Electronics
Part Eleven
By Thomas Atchison

As we mentioned last month, if you connect a capacitor to a battery, the battery moves extra electrons onto one surface or plate and reduces the number of electrons on an opposite surface or plate. The electric charge on these plates produces an electric field. The charge will increase until it is equal to the supply voltage. We can increase the charge by connecting a larger voltage or by making the plates larger.

Let's discuss the size of the plates. If we have a small plate surface area then we have a small electric charge and there is a weak electric field between the capacitor plates. When we have a larger surface area in the plates, the capacitor can hold a larger charge therefore, the electric field between these plates will be stronger. The electric field between the capacitor plates represents stored electrical energy. As we increase the surface area of the opposing plates, we realize there is a practical limit. We can increase the surface area of opposing plates by interleaving smaller plates and connecting alternate edges. Many capacitors use this stacked-plate construction, but it is sometimes difficult to see because the capacitor is encased in a protective coating.

Some electronic circuits require adjustable capacitors. This can be accomplished by using one set of plates that rotate and another set that is fixed. The rotating plates interleave with the fixed plates and changing the overlapping area varies the capacitance. When the plates completely mesh, we have maximum capacitance and when they have no overlapping area, the capacitance is minimum. A layer of air separates the rows of plates, preventing electrons from flowing between them. These are called "air variable capacitors".

Another way to reduce a capacitor's size is to make the plates from a metal foil. You can use two pieces of foil separated by a solid insulating material. This package can be rolled up and sealed with wax. Of course you would need a lead from each foil plate to extend outside the wax to connect the capacitor to a circuit. The insulating material between the plates is called a dielectric because the capacitor does not conduct direct electric current. An air dielectric capacitor uses air to insulate the capacitor plates. Others use mica, polystyrene plastic, paper, ceramic and aluminum oxide.

Another method of construction uses two plates separated by a thin ceramic insulation layer and encased in a ceramic or plastic coating. These are called ceramic disk capacitors. Again, a small wire is connected to each plate so the capacitor can be connected to a circuit.

The three main factors that determine a

capacitor's ability to store charge are plate surface area, distance between plates, and the dielectric constant of the insulating material. Increasing surface area increases the ability to store charge and decreasing spacing between plates increases the ability to store charge. The capacitance also depends on the kind of insulating material between the plates. It is smallest with air insulation. Substituting other insulating materials for air may greatly increase the capacitance. The ratio of the capacitance with a material other than air between the plates to the capacitance of the same capacitor with air insulation is called the dielectric constant (K). For example, the relative dielectric constant of mica is listed as 5.4. This means that if we construct a capacitor using mica as an insulating material and another using air, assuming the same plate spacing and surface area, the mica capacitor will have about 5.4 times more ability to store charge than the air capacitor. There are other factors that need to be considered here, however, this should be enough for our purposes at this time.

A measure of this ability to hold charge is called the capacitance of the capacitor. The basic unit of capacitance is the farad (F). This unit is generally too large for practical radio work, however. Capacitance is usually measured in microfarads (μF), nanofarads (nF), or picofarads (pF). The microfarad is one millionth of a farad ($10^{-6} F$), the nanofarad is one thousandth of a microfarad ($10^{-9} F$), and the picofarad is one millionth of a microfarad ($10^{-12} F$).

When high voltage is applied to the plates of a capacitor, considerable force is exerted on the electrons in the dielectric. If the force is great enough, the dielectric will breakdown. Failed dielectrics usually puncture and offer a low-resistance current path between the plates. If the dielectric is air, break down is evidenced by a spark or arc between the plates. Manufacturers specify a dc working voltage (dcwv) to express the maximum safe limits of dc voltage across a capacitor to prevent dielectric breakdown.

In the next few installments of Basic Electronics we will discuss capacitors and their use in electronic circuits.

Columbia Special Events Station

The forecasters said it would be cold and the day started just like that: cold. There was ice on the windshield. But it was a good start to a very good day.

We started the day at IHOP with 18 hams and eventually migrated over to the Knights of Columbus hall. Antenna set up went fairly quickly. Army brought the Butternut vertical; John Cechin brought the green monster for the 40m dipole and Andy brought the

buddipole for the VHF talk-in. We weren't quite on the air by 9:00 but we weren't far off.

Forty meters did very well; 20 only so-so. Something about the Minnesota QSO party and a couple of others hitting the airways this weekend and keeping 20 hopping. I can't quite put my finger on it.

Dr. Tom brought chili. I thought it was pretty good. I hope everyone had plenty. And if you didn't get some of those home made cookies you missed a treat.

We even made the news. The reporter got some footage (can you call if footage, since all the video and audio went straight to a memory card?) of Andrew on the mic, Robert and Barbara at the 40 meter station. I hope I didn't stray too far when he interviewed me. AND Andrew got interviewed for a few minutes. We'll see what makes the air at KTRE.

The bottom line, we had 19 contacts on 20 meters and I think 75 contacts on 40 meters. We had 25 hams sign in there were a few who didn't and at least 4 visitors. Except for fighting with the 20 meter QSO parties, I had a good time both on the radio and visiting.

Thanks everyone for coming out to the Columbia Special Events Station.