the B-VARC BULLETIN

The Monthly Publication of The Brazos Valley Amateur Radio Club

Volume 19 Issue 5 May 1996

NOTE FROM THE PRESIDENT

by Ron Grimes—WA5SCE

This month I would like to recognize the efforts of our two net control stations - Jackie Burton—KC5OHJ, of 2m net fame, and the equally notorious Sam Wilson—N5CPA, of the 75m net.

Jackie has been the "full-time" net control station for the 2m Public Service Net since last year, and has done an excellent job. The net provides a terrific resource for broadcasting weekly information on the activities of B-VARC to hams in the local community. A consistently high number of check-ins indicates a considerable interest in the net, and there are a number of lurkers out there that do not check in but still enjoy listening.

Sam has been net control on the 75m Rag Chew Net for a number of years, and has been a valuable asset to that net. 75m offers a few challenges that are not encountered on the nice, clear FM band. Atmospheric noise, skip, interference, and lightning storms all conspire to make communication a challenge on 75m. Sam provides a solid focal point, though, and the net has thrived under his tenure. Where the 2m net keeps the locals informed, the 75m net has attracted an increasing number of hams outside the immediate area, not the least of which are B-VARC members now in other states.

Providing net control services for both of these nets requires a sincere commitment on the part of both Jackie and Sam. Each week at a certain time, there is a considerable crowd of people out there anticipating a smoothly-run, on-time, and well-managed net. These two deliver with skill, patience, and consistency.

Think of the effort they put forth to make each net a success, and next time you see them, tell them thanks for being there for all of us. Then, check into the nets and enjoy the fun!

P.S. FIELD DAY IS JUNE 22-23 - TIME TO START PLANNING!! CALL ALLEN BRIER AT (713) 342-1882 TO VOLUNTEER YOUR SERVICES—FOOD, ANTENNAS, RADIOS, STRONG BACKS, OPERATING, COMPUTERS, COAX, FANS—OR ANY NUMBER OF OTHER ITEMS.

FROM THE EDITOR

by Jackie Burton—KC5OHJ

As all of you are probably aware, Peter Mendoza—KD6QZH, has moved back to California. For those of you who would like to keep in touch with Peter, his address and phone number are:

Peter Mendoza—KD6QZH
28 Mariposa Avenue
San Anselmo, CA 94960
(415) 460-0315

Certainly we will all miss that familiar voice on the repeater and his ever-present willingness to help out. All of us will miss Peter very much.

The Editor

HOUSTON HAM INFO. LINE

495-3495

The Ham Information Line is available 24 hours a day by calling the above number with a touch tone phone. Information on local clubs and test sessions is provided.

SPECIAL THANKS

All of us at B-VARC would like to extend our gratitude to the management at KHTV, Channel 39, for the use of their equipment and facilities in order for this bulletin to be published.

We would also like to thank Claude Sessions—K5HFY, and all the other B-VARC members who volunteer their services in helping to put the bulletin together. It couldn't be done without you.

B-VARC BOARD MEETING

by Jackie Burton—KC5OHJ

A quorum of the Board of Directors met at the Sugar Land Community Center on April 4, 1996. This was the fourth board meeting of the calendar year. The meeting was called to order by President, Ron Grimes—WA5SCE, at 7:30 p.m.

The following Board Members and guests were present: Ron Grimes—WA5SCE, Louis House—KD5GM, Jackie Burton—KC5OHJ, Pete Norris—KJ5SS, Jim Cahanin—KB5TBZ, Terry McCoy—KK5RL, Bud King—N5UOG, Sam Wilson—N5CPA, and Mike Hardwick—N5VCX.

Recording Secretary, Jackie Burton—KC5OHJ, presented the March minutes. The minutes were approved with a motion that passed unanimously.

Treasurer, Pete Norris—KJ5SS, presented the Treasurer's report dated March 31, 1996, showing a balance of $5,122.93. Pete stated that B-VARC currently has a total of 123 regular members. The treasurer's report was approved with a motion that passed unanimously.

Louis House—KD5GM, reported that the B-VARC Code Practice Net was going well, as were the code classes. Louis stated that the Tatanka Boy Scout Festival went off very well and everyone seemed pleased. He had some pictures from the Festival, which he passed around for everyone to see. He stated that he would like to submit 1 or 2 of these pictures to the ARRL for possible publication in *QST*. Louis stated that the BCN was reaching its 1 year anniversary, and that he was looking for some volunteers to help him out with the net.

Board Member, Terry McCoy—KK5RL, stated that he had checked with Sharpstown Center and also Bear Creek concerning a new meeting place for B-VARC. After some discussion, it was decided that he would keep looking.

Board Member, Bud King—N5UOG, passed along a message from Board Member, Claude Sessions—K5HFY, that Claude regretted not being able to attend the board meeting. Claude also wished to thank everyone for their concerns expressed regarding his father. Bud also stated that Harold Parker—ND5F, had been asked to conduct the VE exams at the Pearland hamfest on April 20, 1996.

B-VARC Rag Chew Net Manager, Sam Wilson—N5CPA, reported that the net is doing well, and that the check-ins for the month of March ranged from 15 to 19.

Public Service Net Manager, Jackie Burton—KC5OHJ, reported that the Monday night Brazos Valley Public Service Information Net was going well, with check-ins ranging from 41 to 68.

Mike Hardwick—N5VCX, stated that there were 2 upcoming events—the MS-150, which will be held April 20 and 21, 1996, and coordinated by Bret Prichard—N5VOY, and the ALA Clean Air Challenge, which will be held on May 12, 1996, and is being coordinated by Mike. Other than this, there was no report on public service events.

Corresponding Secretary, Jim Cahanin—KB5TBZ, had nothing to report other than the B-VARC web page was up and running.

Pete Norris—KJ5SS, reported that he had prepared and distributed a flyer concerning the upcoming Novice/Technician Theory Classes, which will start right after the code class finishes. The class will use the "Now You're Talking" book as a textbook for the class. Sam Wilson—N5CPA, stated that he had spoken with Al Zermeno—KK5W, and that he had inquired about the club purchasing some instructional videotapes from the ARRL and it was suggested that B-VARC should possible purchase 1 or 2 and loan them out. Louis House—KD5GM, again presented a document from the ARRL concerning the purchase of ARRL materials at a discounted rate. For a $30.00 registration fee, B-VARC could receive a package of books and tapes valued at over $100.00 containing one of each of the publications available to us at this discounted rate, as well as the ability to purchase these materials for a period of one year at the discounted rates listed on the brochure. President, Ron Grimes—WA5SCE, stated that he thought this package would be a good library for the class instructor to have available. Ron then presented two issues: (1) payment of the $30.00 registration fee to receive the package of materials and the ability to receive discounted materials; and (2) making discounted materials available to students enrolled in any classes B-VARC offers. A motion was made by Terry McCoy—KK5RL and seconded by Jackie Burton—KC5OHJ for the club to go ahead and pay the $30.00 registration fee and receive the materials from the ARRL as well as the ability to purchase materials in the future at a discounted rate. The motion passed unanimously.

President, Ron Grimes—WA5SCE, reported that Field Day was coming up on June 22 and 23, 1996. He stated that it would be held at Katy County Park, same as last year. He further stated that Allen Brier—WB5BIR, is taking care of the deposit on the park, as well as the coordination of the event.

There being no further business, the meeting was adjourned by Ron Grimes—WA5SCE, at 8:20 p.m. with a motion, second and unanimous vote.

MEMBERSHIP REPORT

by Pete Norris—KJ5SS

As of March 31, 1996, the current membership for the club is:

123

OUT OF THIS WORLD HAM RADIO ACTIVITY

by Bruce Paige—KK5DO

Segment: What are Keplerian Elements?

Seven numbers are required to define a satellite orbit. This set of seven numbers is called the satellite orbital elements, or

sometimes "Keplerian" elements (after Johann Kepler [1571-1630]), or just elements. These numbers define an ellipse, orient it about the earth, and place the satellite on the ellipse at a particular time. In the Keplerian model, satellites orbit in an ellipse of constant shape and orientation.

Orbital elements remain a mystery to most people. This is due to the aversion many people have to thinking in three dimensions and second, to the horrible names the ancient astronomers gave these seven simple numbers and a few related concepts. To make matters worse, sometimes several different names are used to specify the same number. Vocabulary is the hardest part of celestial mechanics!

The basic orbital elements are:
1. Epoch
2. Orbital Inclination
3. Right Ascension of Ascending Node
4. Argument of Perigee
5. Eccentricity
6. Mean Motion
7. Mean Anomaly

And the optional...
8. Drag

1. **"Epoch" [a/k/a "Epoch Time" or "T0"]:** A set of orbital elements is a snapshot, at a particular time, of the orbit of a satellite. Epoch is simply a number which specifies the time at which the snapshot was taken.

2. **"Orbital Inclination" [a/k/a "Inclination" or "I0"]:** The orbit ellipse lies in a plane known as the orbital plane. The orbital plane always goes thru the center of the earth, but may be tilted any angle relative to the equator. Inclination is the angle between the orbital plane and the equatorial plane. By convention, inclination is a number between 0 and 180 degrees.

3. **"Right Ascension of Ascending Node" [a/k/a "RAAN" or "RA of Node" or "O0" and occasionally called "Longitude of Ascending Node"]:** RAAN wins the prize for most horribly named orbital element. Two numbers orient the orbital plane in space. The first number was Inclination. This is the second. After we've specified inclination, there are still an infinite number of orbital planes possible. The "line of nodes" can poke out anywhere along the equator. If we specify where along the equator the line of nodes pokes out, we will have the orbital plane fully specified. The line of nodes pokes out two places, of course. We only need to specify one of them. One is called the ascending node (where the satellite crosses the equator going from south to north. The other is called the descending node (where the satellite crosses the equator going from north to south). By convention, we specify the location of the ascending node. "Right ascension of ascending node" is an angle, measured at the center of the earth, from the vernal equinox to the ascending node.

   I know this is getting complicated. Here's an example. Draw a line from the center of the earth to the point where our satellite crosses the equator (going from south to north). If this line points directly at the vernal equinox, then RAAN=0 degrees. By convention, RAAN is a number in the range 0° to 360°.

4. **"Argument of Perigee" [a/k/a "ARGP" or "W0"]:** Argument is yet another fancy word for angle. Now that we've oriented the orbital plane in space, we need to orient the orbit ellipse in the orbital plane. We do this by specifying a single angle known as argument of perigee.

   A few words about elliptical orbits: The point where the satellite is closest to the earth is called perigee, although it's sometimes called periapsis or perifocus. We'll call it perigee. The point where the satellite is farthest from earth is called apogee (a/k/a apoapsis, or apifocus). If we draw a line from perigee to apogee, this line is called the line-of-apsides. (Apsides is, of course, the plural of apsis.) I know, this is getting complicated again. Sometimes the line-of-apsides is called the major-axis of the ellipse. It's just a line drawn through the ellipse the "long way."

   The line-of-apsides passes through the center of the earth. We've previously identified another line passing through the center of the earth. That was the line-of-nodes. The angle between these two lines is called the argument of perigee. Where any two lines intersect, they form two complimentary angles, so to be specific, we say that argument of perigee is the angle (measured at the center of the earth) from the ascending node to perigee. By convention, ARGP is an angle between 0° and 360°.

5. **"Eccentricity" [a/k/a "ecce" or "E0" or "e"]:** This one is simple. In the Keplerian orbit model, the satellite orbit is an ellipse. Eccentricity tells us the "shape" of the ellipse. When e=0, the ellipse is a circle. When e is very near 1, the ellipse is very long and skinny.

6. **"Mean Motion" [a/k/a "N0"]:** So far we've nailed down the orientation of the orbital plane, the orientation of the orbit ellipse in the orbital plane, and the shape of the orbit ellipse. Now we need to know the "size" of the orbit ellipse. In other words, how far away is the satellite?

   Kepler's third law of orbital motion gives us a precise relationship between the speed of the satellite and its distance from the earth. Satellites that are close to the earth orbit very quickly. Satellites far away orbit slowly. This means that we could accomplish the same thing by specifying either the speed at which the satellite is moving, or its distance from the earth!

   Satellites in circular orbits travel at a constant speed. Simple. We just specify that speed, and we're done. Satellites in non-circular orbits move faster when they are closer to the earth, and slower when they are farther away. The common practice is to average the speed. You could call this number "average speed," but astronomers call it the "Mean Motion." Common units are revolutions per day. Typically, satellites have Mean Motions in the range of 1 rev/day to about 16 rev/day.

7. **"Mean Anomaly" [a/k/a "M0" or "MA" or "Phase"]:** Now that we have the size, shape, and orientation of the orbit firmly established, the only thing left to do is specify where exactly the satellite is on this orbit ellipse at some particular time. Our very first orbital element (Epoch) specified a particular time, so all we need to do now is specify where, on the ellipse, our satellite was exactly at the Epoch time.

   "Anomaly" is yet another astronomer word for angle. Mean anomaly is simply an angle that marches uniformly in time from 0 to 360 degrees during one revolution. It is defined to be 0 degrees at perigee, hence is 180 degrees at apogee.

   If you had a satellite in a circular orbit (therefore moving at constant speed) and you stood in the center of the

earth and measured this angle from perigee, you would point directly at the satellite. Satellites in non-circular orbits move at a non-constant speed, so this simple relation doesn't hold. This relation does hold for two important points on the orbit, however, no matter what the eccentricity. Perigee always occurs at MA=0°, and apogee always occurs at MA=180°.

It has become common practice with radio amateur satellites to use Mean Anomaly to schedule satellite operations. Satellites commonly change modes or turn on or off at specific places in their orbits, specified by Mean Anomaly. They use 256ths because this is a magic number in the computer world.

8. **"Drag" [a/k/a "N1"]:** Drag caused by the earth's atmosphere causes satellites to spiral downward. As they spiral downward, they speed up. The Drag orbital element simply tells us the rate at which Mean Motion is changing due to drag or other related effects. Precisely, Drag is one half the first time derivative of Mean Motion. Its units are revolutions per day per day. It is typically a *very* small number. Common values for low-earth-orbiting satellites are on the order of 10^-4. Common values for high-orbiting satellites are on the order of 10^-7 or smaller.

Thanks to Franklin Antonio—N6NKF, the author of Instant Track, where I acquired the information for this segment.

THE INTERNET

by Jackie Burton—KC5OHJ

The following article is the eighth in a series of articles John Moore—KK5NU, has written for publication in the B-VARC Bulletin.

The Editor

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All You Want to Know About the Internet and More

by John W. Moore—KK5NU

Now That I'm Connected ? ? ?

Let's assume that you have been a faithful reader and follower of this series from somewhere near the start. Even if you haven't, with the carefully screened and verified information given out to you last month, we still got bitten. Alas - the URL given for the B-VARC home page was changed after the deadline and prior to delivery of the Bulletin. Welcome to the fast-moving and ever-changing world of the Internet! If you did get on-line, you should have been able to find it through the use of one of the several varieties of search engines on-line. If not, visit the B-VARC home page site as now found at its URL of:

http://www.hal-pc.org/~bvarc/

(Please note that this address is a change since the last issue.)

Browse the information that has been compiled and placed on-line by the members of the club: check out the local examination schedules; net times and frequencies; see if any of the links that are shown are of any interest to you. Please be advised that you should of course check back often as the material is being updated on a regular basis. You will find the current edition of the B-VARC Bulletin on-line; a new membership roster with e-mail addresses that have been furnished by some of our members; Space News, with a link to the satellite pass predictor; and much, much more. If you can't find what you want, drop an e-mail to your writer and I'll try to respond to questions of general interest in future editions or better yet, on-line on the home page.

However, there is no substitute for just "cruising" or "surfing" the net. Don't say that I didn't warn you:

It is extremely addictive!

More to come...

John Moore—KK5NU

VE EXAM RESULTS APRIL 1996

by Harold Parker—ND5F

B-VARC again sponsored and administered the ARRL's Amateur Radio Examinations that were held on Tuesday evening, April 9, 1996 at Strake Jesuit College Preparatory in Houston.

The VE Team consisted of:	
Chuck Andrews -	NI5I
Ron Grimes -	WA5SCE
Harold Parker -	ND5F

The Assistants were:	
Cass Germany -	KG5IT
Don Schexnailder -	AB5IV

A total of 15 exams were administered during the evening to 11 applicants. Five (5) unlicensed candidates received their new licenses. Three (3) others upgraded, with a total of 12 elements passed. The overall "pass rate" for the evening was 80%.

Congratulations to all the following who passed exams:

Dennis Bradley—KD5XA - Extra
Richard Carter - Technician
Steve Gottlieb—WA5OEN - Extra
Stephen Hunt - Technician
Ross Lawler—W5HFF - Element 4B
Andrew Lingenfelter - Element 2
James Martin - Technician
Robert Spain - Technician
James Thompson—KB5GTK - Tech Plus
John Williams - Technician

Many thanks to all the Team Members and Assistants who volunteer their valuable time and effort each month.

All of us at B-VARC again thank Vincent—WA5ETS, and everyone at Strake Jesuit College Preparatory for making these excellent classroom facilities available to us for our exams each month.

73, Harold Parker—ND5F

THE WORLD OF TEN TEN INTERNATIONAL

by Al Mattis—N5AFV

Ten International has announced that a special QSO party will be held on Ten Ten day—the tenth day of the tenth month. The first annual Sprint QSO Party will be held October 10, 1996. The Sprint will be similar to the current QSO parties, but will only be a 24-hour event.

All Houston area members of Ten Ten International should consider going to the annual Texas Hill Country Gathering held by Jack Moore—K4NF at his residence near New Braunfels, Texas, on Sunday, May 19, 1996. This annual gathering is held in a picnic format, and usually draws 35 to 50 persons. Every year a number of active paper chasers from outside Texas attend the Hill Country Gathering.

If your travel plans include visiting Nevada this summer, the annual Reno Paper Chasers Bash will be held August 15-18, 1996, at the Circus-Circus Hotel in Reno, Nevada.

If you are a local member of the Houston S.H.O.T. chapter, and interested in

working toward the chapter's various upgrades, a list of the local chapter members and their upgrades and point value is available. This list may be obtained by sending the certificate manager—N5AFV, a self-addressed, stamped envelope.

Paper chasers continue to be active on 28.345MHz and 28.375MHz when the band is open. Chapters with specials this month include Battle Road (MA), Fort McHenry (MD), and Cornerstone (MD). A new chapter, the Mule Town Chapter, has been formed in Columbia, TN.

Sad news has been received about the loss of a number of paper chasers again this past month. Charlie O'Neill—KB7CNV in Oregon became a silent key in late March. O'Neill was an active member of the Speedway chapter. Bob Crawshaw—WA0NGV of Wichita, KS also became a silent key last month. Bob, who was active in the Air Capital chapter, also operated WA0RJE, the club station of the Wichita Tec-Ni-Chat ARC. O'Neill and Crawshaw were worked by many Houston area amateurs who participated with the S.H.O.T. chapter in QSO parties.

Because we are currently in the low portion of the solar cycle, propagation on the 10m band continues to be poor. Domestic band openings still occur, but are usually of short duration. Occasional DX can be worked at times. DX contacts with stations in Latin America, the Caribbean, Australia and New Zealand have been reported during the past month by Houston area operators.

Remember, the Houston S.H.O.T. net meets every Tuesday evening at 8 p.m. local time on 28.488MHz. All amateurs are welcome to check in, even if they do not have a Ten Ten number. If you are not a member of Ten Ten International and wish to join the organization, please check into the net. There are a lot of exciting activities in Ten Ten, and many friendly people can be found on the 10m band.

B-VARC RAG CHEW NET CHECK-INS

by Sam Wilson—N5CPA

The B-VARC Rag Chew Net is held on Wednesdays at 8:00 p.m. on 3.960MHz, +/- 3kHz. The following check-ins were reported for the month of March:

March 6, 1996
N5CPA (NCS), K5ZRC, KG5KV, N5AFV, WN5A, WB8SVR, WD5CJL, KJ5SS, KB5ION, KB5TBZ, W5EFB, KK5DO, KI5SC, KB5PAJ, KK5RL, KD6QZH, W5IHY, AB5OK, WA5TWL.

March 13, 1996
N5CPA (NCS), W5IHY, W5EFB, KK5DO, WB8SVR, WD5CJL, KC5NMR, N0IYY, KG5KV, KK5RL.

March 20, 1996
N5CPA (NCS), KF5NU, W5EFB, KG5KV, KK5DO, KC5NMR, KB5ION, KK5RL, N0IYY/5, W5GLD, KC5HNJ, KE5SR, KB5TBZ, KI5SC, KB5PAJ, WN5A, N5RIV, W5IHY.

March 27, 1996
N5CPA (NCS), KE5SR, KK5XR, KC5NMR, W5IHY, KK5DO, WB8SVR, W5GLD, KB5DL, KI5SC, KB5PAJ, KF5NU, W5RIY, KK5RL, WD5CJL, KK5UO, WN5A, N5ECP, KC5HNJ.

PSN CHECK-INS

by Jackie Burton—KC5OHJ

The Brazos Valley Amateur Radio Club Public Service Information Net had the following check-ins for the month of March, 1996. Only the count is listed, as there is not enough room to list individual callsigns:

March 4, 1996	68
March 11, 1996	41
March 18, 1996	45
March 25, 1996	53

UPCOMING SWAPFESTS . . .

May 4-5, 1996
Abilene, Texas
Contact: Peg Richard—KA4UPA
(915) 672-8889

May 17-19, 1996
Dayton, Ohio
Contact: Hamvention
(513) 276-6930
e-mail: hamvention@aol.com

June 7-9, 1996
Arlington, Texas
Contact: Tom Gentry—K5VOU
(214)442-1721
e-mail: hamcom96@aol.com

SCANNER JACK'S CORNER

by Jack Roberts—KB5TMY

Frequencies for Houston Lighting & Power Company:

852.4625	855.8625
854.9125	855.8875
854.9375	855.9125
855.1125	856.3375
855.1375	857.3375
855.1625	858.3375
855.1875	859.3375
855.3875	860.3375
855.4125	856.3625
855.6125	857.3625
855.6375	858.3625
855.6625	859.3625
855.6875	860.3625

NOVICE/TECHNICIAN CLASSES ANNOUNCED

by Pete Norris—KJ5SS

The Brazos Valley Amateur Radio Club will hold its Novice/Technician theory classes beginning on May 13, 1996, and lasting through July 8, 1996, for testing on July 9, 1996.

The classes will be held at the First Colony church of Christ in room 121 from 7:00 p.m. to 9:00 p.m. each Monday evening.

For further information, please contact Pete Norris—KJ5SS at (713) 342-9089.

B-VARC CODE PRACTICE NET

by Louis House—KD5GM

The Brazos Valley Amateur Radio Club sponsors a Morse Code Practice Net, called BCN, on Monday, Wednesday and Friday nights at 8:30 p.m. CDST. The purpose of this net is to offer a consistent code practice schedule for all amateurs who are working on their upgrades. The practice text is sent at approximately 5, 8, 10 and 13 wpm. The signal type is MCW on the 2m frequency and CW on the 10m frequency. The source of the text is announced in CW before the text is sent. The length of the net is usually 25 to 30 minutes. Check-ins are welcome at the start of the net (on 10m, check-ins are taken from 8:15 to 8:30 p.m.). Tune in on 146.47MHz simplex or 28.146.47MHz CW, with a desire to increase your code proficiency and have a good time.

Reminder: BCN will not have a Monday night session during the B-VARC Code Class.

A call for help: BCN is in need of one or more persons to take over the operation of the net. Due to a health situation in my family, I can no longer afford the time it takes to manage the net. I regret that I can no longer enjoy this service through amateur radio and will miss it. If you are interested, please call me for details @ 498-5639.

The net roster for the month of March lists a total of 14 stations checking in. These are: KB5WZI, K5HFY, N5UOG, KC5HNJ, N5AFV, KC5KGG, KC5EUS, KB5VTB, WD5DRB, KC5NMR, KK5DO, KC5QZD, KC5SJU, and KD5GM/NCS.

Have fun and...73 de KD5GM/NCS AR SK

ADDENDUM TO BCN

by Bruce Paige—KK5DO

As of April 9, 1996, I have taken over conducting the BCN. I will do it on both Monday (except for the last Monday of the month) and Wednesday at 8:30 p.m. with check-ins before and after the net. Frequencies are the same, 28.14647MHz and 146.47MHz simplex. All copy will come from *QST* and code is generated from a computer text file. My signal on April 9th, 2m was copied Q5 in Galveston County, so there should be no problem for the members of B-VARC.

PUBLIC SERVICE EVENTS

by Mike Hardwick—N5VCX

Volunteers needed for the following:

Clean Air Challenge Bike Ride
May 12, 1996
Contact: Mike Hardwick—N5VCX at 984-8885 (wk) or 771-4625 (hm)

PROFILES

[None provided]

B-VARC LADIES BRUNCH

The B-VARC Ladies Brunch will be held again on Saturday, May 4th. For more information, please contact Sandra Gottlieb—KC5IWL, at gotsan@tenet.edu or by telephone at (713) 472-6361.

SCHEDULE OF WEEKLY NETS

Monday

7:30 p.m.	34.94 Swap Net 146.94MHz
8:00 p.m.	Ft. Bend Cty EM Net 145.49MHz
8:30 p.m.	B-VARC Code Practice Net 146.47MHz (receive only)
9:00 p.m.	B-VARC 145.47MHz

Tuesday

6:30 p.m.	RACES Net 146.84MHz (103.5PL)
8:00 p.m.	Ten Ten SHOT Net 28.488MHz

Wednesday

8:00 p.m.	B-VARC Rag Chew 3.960MHz (+/- 3kHz)
8:30 p.m.	B-VARC Code Practice Net 146.47MHz (receive only)

Friday

8:30 p.m.	B-VARC Code Practice Net 146.47MHz (receive only)

Saturday

9:00 a.m.	Houston Emerg. Mgmt. Net 146.84MHz (SkyWarn/ RACES)

Sunday

7:30 p.m.	ARES Net 147.30MHz
10:00 p.m.	AMSAT Net 147.10MHz

2nd & 4th Sundays

1:30 p.m.	TX State RACES Net 7.248MHz

RFI, EMI AND OTHER STUFF

by Pete Norris—KJ5SS

Last time, a table of four quantities was introduced. The first was "Length(L)." We might describe a length as "L = 6.56 ft."

As in the first example, L is the symbol for length and also tells us the units must be one of those shown in the table. In the above example, the English unit "foot" was chosen, as indicated by the abbreviation "ft." We might as well have chosen the "meter" from the meter-kilogram-second (MKS) system, and might write "L = 2m," or we might have chosen the centimeter-gram-second (CGS) system, and have written "L = 200cm." In each case, L must bear the units of feet, meters or centimeters. A magnitude, 6.56, 2 or 200 in the examples, must also be given. These magnitudes are only numbers without significance, until units are specified. As length is the same quantity, the units must all be related, and, in fact, "1 foot = 0.3048 meters" and "1m = 100cm." In summary, when L is specified, think feet, meters or centimeters, or, in other words, a distance which can be specified in three systems of units.

Skipping to time, all three systems use the second as the unit of time: "T = 5s." Notice the system of units is not identifiable. When we think time, or use the symbol T, there is a magnitude (5) and the units are seconds, with the symbol "s," for all systems.

Now we will consider mass. Notice the English unit for mass is the "slug." Really! Don't feel bad if you don't remember the slub (as a unit of mass). You are not alone. On the other and, that you are reading this, sets you apart from most of the people in this world and, in a few minutes you will, to be sure, have something new to talk about at the next party, on the next date, or whatever.

Now imagine being far out in space away from any influence of the earth, sun or any other astral body. Now imagine two bricks (like on your house) out there in space separated by a few feet. The two bricks will be attracted to each other by force(f) equal to: $f=k_n*(M_1 M_2)/L^2$ where M_1 and M_2 are the masses of the two bricks and L is the distance separating them. We have yet to define force, but the units of force is pounds, as most of us know and so if we put two bricks close to one another with nothing else around, they will be attracted to each other with a force, f, as shown above. The "k_n" is a "fudge factor," or proportionality constant, that makes the formula work out right, and is not important to the concept. Now most everyone already knew this because this is the same force that attracts the planets to the Sun and the Moon to the Earth, and is a statement of Newton's[1] universal law of gravitation. If the Earth is one of the masses, say M_2, then we can write: $f=M_1 g$ where g is the acceleration due to the Earth's gravity, and the brick, M_1, is positioned somewhere above the Earth's surface. Notice the K and L have disappeared. Now, forget about bricks and write, for any mass: $F=Mg$. So when we step on the scales to weigh, we are measuring the force by which our body mass is attracted to the Earth. We might write: $w=Mg$, which we may remember as the expression for weight, "w," and the units are the same as a force, which are poinds in the English system. Our mass, then, is: $M=w/g$. If one weighs 160 pounds and using 32 feet per second per second (32 ft/s/s or 32 ft/s^2), $M=160lbs/32ft/s^2=5$ slugs. Unfortunately, most of us were taught about the force attracting our mass to the Earth as weight, and not a force. If, on

[1]Sir Isaac Newton (1642-1727), English mathematician and natural philosopher.

the other hand, you go to a country using the metric system, such as Mexico, you may notice the scale is annotated in kilograms, the MKS unit of mass. But to say you weigh 80 kg. is incorrect. Your mass is 80 kg. The unit of force in the MKS system is the Newton but more of that later. Some of you may have noticed oil pressure gauges in some foreign automobiles is marked in kg/m^2, which is misleading, because pressure is measured in force per unit area, not mass per unit area. The way around both these difficulties is to say "the force of" a kilogram, or the weight of one kilogram.

To summarize, mass is fundamental quantity and the units are the slug, the kilogram (1,000 grams) or grams. Force is a derived unit we will deal with later. For now, though, we have lots of party material.

Next time: More on the force(s).

REVIEW OF ICOM IC-W21A DUAL BAND HANDHELD

by Al Mattis—N5AFV

In November, 1994, I purchased an ICOM IC-W21A dual-band handheld transceiver. The model was being closed out, and offered at a very attractive price. The radio did not have a touchtone keypad, but because I do not use an autopatch, I did not need one.

The IC-W21A had the option, through use of a keypad entry, to expand the receiver coverage to include 100-200MHz, 400-500MHz and 800-1000MHz. With 64 memory channels and the usual scan functions, the radio could be used as a scanner as well as a dual-band handheld. It was very convenient to have a scanner and transceiver in one unit. The IC-W21A operated mobile with a power of 5 watts using Icom's CP-13L cigarette lighter plug. The transceiver seemed to offer all that I wanted, but my satisfaction was short-lived.

The sixth week I owned the radio, I was talking to a group on 2m during the morning commute, when the radio went dead. I found that the DC power input jack where the CP-13L power chord plugged in did not work, but the radio would work with its battery. I returned the radio to Icom for repair under the warranty, and received it back 30 days later. The DC input diode had blown and was replaced. Two weeks later, during the morning commute, the DC input diode went out again. I returned the radio to Icom, and this time I received the radio back in 14 days. Six months later, while walking on the Strand in Galveston with the radio on my belt, the PTT assembly fell off and was lost. I again returned the radio to Icom for repair, and received it back in 31 days. Two weeks later, the DC input diode went out again. The pattern had become painfully clear to me. One of the buttons on the radio was badly worn and difficult to depress, so I requested that Icom replace the button as well as the DC input diode. I did not hear from Icom for over six weeks, so I called them to find out the status of the repair. The button assembly was out of stock and back ordered from Japan, and it could be several months until they could repair the radio.

I had not yet owned the radio one year, and had to have it repaired under the warranty four times. I began discussions with Icom about sending me another radio, as I had decided that I did not want that particular radio back. Icom no longer had the IC-W21A in stock, but they did have the IC-W21AT, a similar radio with a touchtone keypad. After ten days of talking back and forth, Icom agreed to send me an IC-W21AT. It was 102 days after I sent my old radio to Icom that I received the new radio. I had owned my dual-band handheld for a total of 377 days, but I had been without it for a total of 177 days or 47 percent of that time.

I do not know if my experience was typical for IC-W21A owners, but I was able to locate two other amateur operators in Houston who had purchased IC-W21A's. Carl Cunert—WB8SVR, had one and was very satisfied. He reported no problems, and in fact encouraged others to purchase the radio at the special closeout price. Bob Brigham—AA5ZK, also had an IC-W21A. He reportedly had problems with the DC input diode, and seldom used the radio because it didn't work properly with an external DC power supply.

I have to honestly say that the IC-W21A was a good radio when it worked, and I miss having a scanner and transceiver in one unit. The IC-W21AT does not have the expanded receiver capability. Do I like my new IC-W21AT? Ask me in a few months.

ANTENNA COLUMN

by Rick Hiller—KF5NU

Watch for...

"A Shortened Delta Loop for DX'ing"
(Theory and Construction)

...coming next month!

FIELD DAY

by Allen Brier—WB5BIR

The 1996 ARRL Field Day event is coming up on June 22nd and 23rd. Any and all interested in participating, loaning equipment, operating or just plain having fun, please call me at 342-1590 or 342-1882 or e-mail me at 74323.1140@compuserve.com or simply 74323,1140 if using CompuServe.

73, Allen R. Brier

REMINDER . . .

The deadline for articles to be placed in the B-VARC Bulletin is the **15th** of each month. Please make every effort to have your article(s) to me by that date. If you know that you will not be able to meet the deadline but are planning to contribute to the newsletter for that month, you may call me to make special arrangements. Otherwise, if I do not have your article(s) by the deadline, it/they will not be published in that issue. Thank you for your cooperation.

—The Editor

Membership Application

☐ New ☐ Renewal ☐ Roster Update Only

Bring to a Club meeting, or mail with check to:
B-VARC, P.O. Box 1630, Missouri City, TX 77459

Regular membership dues are $16.00/year. Life Memberships are $160/person. Additional family members may join B-VARC for only $2.00/year each with no additional copy of the newsletter.

Name _____ Callsign_____ License Class _____

Home Phone _____ Work Phone _____ ARRL MEMBER? _____

Mailing Address _____

E-Mail Address _____

Remittance:

Regular Membership _____ + Family Membership _____ = Amount _____
B-VARC Life Memberships at $160/person Qty _____ Amount _____
ARRL Memberships ($31.00/year) Qty _____ Amount _____
Worldradio Subscription ($15.00/year) Qty _____ Amount _____
TOTAL _____

I agree to observe the By-Laws of the Club and the rules and regulations of the Federal Communications Commission.

Signature _____ Date _____

B-VARC CALENDAR OF EVENTS FOR MAY 1996

2nd	7:30 p.m. - B-VARC Board Meeting	12th	Clean Air Challenge Bike Ride
4th	Ladies' Brunch - (location TBA)	14th	VE Testing Session
9th	7:30 p.m. - B-VARC Regular Meeting	17th	6:30 p.m. - Friday night dinner (location TBA)

the B-VARC BULLETIN

The Monthly Publication of the
BRAZOS VALLEY AMATEUR RADIO CLUB
Serving the Greater Houston Area
(Club Call Sign—KC5OIG)

Editor-in-Chief: Jackie Burton—KC5OHJ (713) 460-1968
e-mail: jburton@nol.net or CompuServe—71573,471

The Brazos Valley Amateur Radio Club (B-VARC) was originally organized in 1978, primarily as an emergency communications group available to assist the communities of Missouri City and Stafford, when required. Since that time, B-VARC has grown and expanded its activities to become the most active HAM radio club in the southwest Houston area.

Today, B-VARC is truly a general-interest club with an impressive record of Public Service. The commitment to service has been recognized by the Amateur Radio Relay League (ARRL) with the coveted status of Special Service Club. We are proud of our members who represent the finest in Amateur Radio. Membership is not limited to licensed operators, but is open to anyone with an interest in Amateur Radio. Meetings are held at 7:30 p.m. on the second Thursday of each month, at the Sugar Land Community Center. Talk-in assistance is available on the 145.47, 444.55 and 442.5 MHz repeaters.

To obtain information about the club, its activities, or about joining B-VARC, contact Betty Wilcox—KA0TEN, at (713) 859-6512

B-VARC MEETING SCHEDULE

Thursday, May 2nd — Board of Directors Meeting
7:30 p.m. — Sugar Land Community Center
Open to All B-VARC Members

Thursday, May 9th — B-VARC Regular Meeting
7:30 p.m. — Sugar Land Community Center
Program: 6m Model Airplane Repeater
by Joe Ross—AA5BC

B-VARC EATING SCHEDULE

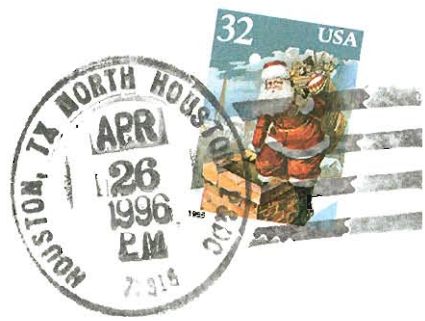
Saturdays—7:00 a.m. to 9:00 a.m. Location: New York Coffee Shop, 9720 Hillcroft @ S. Braeswood

3rd Friday Dinners—6:30 p.m. SHARP!
Locations announced each month

Volume 19 Issue 5 May 1996

BRAZOS VALLEY AMATEUR RADIO CLUB
PO BOX 1630
MISSOURI CITY TX 77459-1630

ADDRESS CORRECTION REQUESTED



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