



# The PROPAGATOR

November, 2000

The Monthly Newsletter of South Orange Amateur Radio Association

## Gordon West Program was Entertaining and

It is always a special treat to have Gordon West give a presentation at SOARA's general meeting. Gordon is one of those talented and hard working people who has managed to make Amateur Radio a full time vocation. Practically all hams are familiar with Gordon's Amateur Radio License Study Guides. He has also written study guides for commercial FCC license tests, operates a school which provides classes on Amateur Radio, and writes for several publications.

Gordon's talk at the Monday evening meeting covered several aspects of antennas, mobile and fixed. Since many hams have to contend with CC&Rs which may effectively prohibit outside antennas, his comments on attic antennas were well received. A dipole, he pointed out, need not be in a straight line, bends and zig-zags will allow a dipole to fit in a smaller than optimum attic area.

Grounds are important and not always readily available. One often overlooked option is to tap into the chicken wire mesh that is a part of the stucco that is so popular in Southern California homes. The metal mesh is a good conductor and the large area makes an acceptable ground system.

He discussed tests of mobile antennas — for HF operation, large ugly antennas work best! Antennas for small boats benefit from several advantages. The "ground" surrounding the boat is highly conductive sea water. Just a few feet of copper strap will make a very good connection to that "ground" so there is no reason for grounding problems. Most small boats have relatively high masts which will support one end of a long wire antenna.

At the end of his presentation Gordon held a drawing for an automatic antenna tuner. K6LIO was the lucky member who took home the SGC 237 tuner.

## Important

**Don't forget  
- return your  
SOARA dues  
payment  
today!**

## Auction Time Again.

November's general meeting is, by tradition, SOARA's Fall auction. Dig out all of that old equipment that you are not using and bring it down. Some other ham will probably find it to be a fine treasure. Old and used equipment can have a new life. All it takes is to treat it to a SOARA auction.

Even if you have no older equipment to bring — especially if you have no old equipment — you won't want to miss the auction. It is your big chance to acquire some old equipment. The prospect of opening up that bright shiny new rig to look at its insides could result in an expensive trip to the repair depot. No such fears are associated with examining the "innards" of equipment obtained at the auction.

Come and watch the excitement, buy, sell, or just enjoy examining the gear and watching the heated bidding. The auction starts at 7:00 PM. Setup and tagging of sale items starts at 6:30 PM.

## Annual Party Set for December 3.

Don't put it off. Get your reservation in early for this year's SOARA Holiday party. We have a new location and a great time is planned. As in past years, there will be live music for your enjoyment. Entertainment, prizes, and the chance to visit with other club members and their families add to the attraction.

The date is Sunday, December 3, starting at 5:00 PM. The location is Sarducci's Capistrano Depot, 26701 Verdugo Street in San Juan Capistrano. Take the 5 freeway to Ortega Highway. A few blocks west on Ortega takes you past the Mission to Camino Capistrano. Go left and look for Verdugo St. on your right. There is a convenient parking structure located near the restaurant. See the enclosed flyer for a map.

Sarducci's is a bit more "upscale" than the Sizzler at the Lake in Mission Viejo where we have held the party for the past few years. The Sizzler in M.V. closed and we had to find a new location. The room we will use is very nice and will be festively decorated. Adult meals range from a high of \$21.00 for Top Sirloin to \$16.00 for Pasta. A Kid's Meal is available for the youngsters for only \$3.95. The prices include beverage, tax and gratuity, so they represent the total cost.

Lou and Muriel Parker are taking reservations and collecting the money. Send the reservation form and your check to :



Lou Parker, KA6BJO  
24055 Paseo Del Lago West  
Tower #1 — #1006  
Laguna Hills, CA 92653-2645

For answers to your questions call Mike Mullard, KF6HVO, at (949) 249-2846

Plan to attend the party and share the fun.



## The Way I See It: Understanding Radio Theory Without Math.

If you attended Gordon West's presentation at the October meeting you saw an amazing demonstration. Gordon had cylindrical magnet and an aluminum tube through which the magnet would easily pass. He demonstrated that the tube, being aluminum, was not attracted by the magnet. However, when the (fairly heavy, and certainly powerful) magnet was dropped through the length of the tube there was a dramatic effect. The magnet traveled through the tube rather slowly. No it didn't rub against the sides of the tube, and no, there were no baffles in the tube to hinder the magnet's fall. It was indeed an attention getting demonstration.

Do you remember from a science class that one can make an electrical generator from a magnet and some coils of wire? Or was that a motor? In fact, you may recall that the construction of a motor and a generator are essentially the same. In a generator, if we move a magnet past a wire, a voltage is generated in the wire. For a motor we pass a current through a wire and find that there is a force on the wire if it is immersed in a magnet field.

Let's assume that we have a wire moving through a fixed magnet field (a generator) and that we have an external circuit so that the generated voltage causes a current to flow. But now we have a wire with current immersed in the magnet field (a motor?), so there should be a force on the wire. Not too surprising, if the current flow is doing work on an external circuit, then we expect to have to supply that work in turning the generator. That is, in forcing the wire to move through the magnetic field — counteracting the force due to the interaction between the magnetic field and the current flow through the wire.

If we disconnect the generator from any external circuit, so no current can flow, then

we will find that the generator is very easy to turn. We only have to overcome the friction in the bearings.

Ah!, you are beginning to suspect that the magnet falling through the center of that aluminum tube was closely related to a generator. Lets consider a round bar magnet with the North and South poles at the ends of the round bar. This isn't necessary, but the symmetry will make it easier to picture what is happening. First we will drop the magnet through a wire ring. (If you are more comfortable with the magnetic field fixed, i.e., the magnet not moving, we could drop the ring over the magnet.)

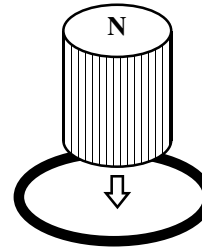
This is very much like a generator, and the relative motion of the wire through the magnetic field will give rise to a voltage in the wire. Since the wire forms a closed circuit, current will flow. The current will only be limited by the resistance of the wire. Current flowing in the wire ring will produce a magnetic field, and this field will result in a mutual force between the magnet and the ring.

Now, we could go into a the complex rules to find the directions of the currents and forces, but there is an easier way. We will take advantage of the symmetry of the case we are looking at, and use the principle of conservation of energy.

Before going into those considerations lets just recognize that the aluminum tube can be thought of as a stack of metal wires forming a continuous tube. We saw the effect of the tube on the falling magnet. So we know what the end result must be.

First lets look at the symmetry. If we rotate the bar magnet and tube about their mutual axis, there is no change — there is no preferred radial direction. Then it follows that whatever occurs in one radial direction must happen in all radial directions. No current can be flowing up or down the walls of the tube. If it is flowing up in one point, then it must be flowing up at every point around the tube at that height. There is no closed circuit for such a flow. The current will have no place to go when it reaches the top of the tube. The only way that we can

have a radially symmetrical current flow is for the current to flow around the circumference of the tube.



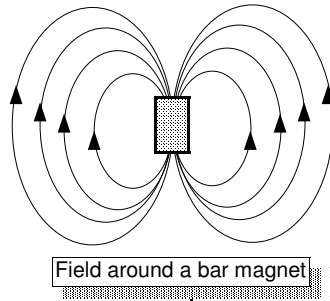
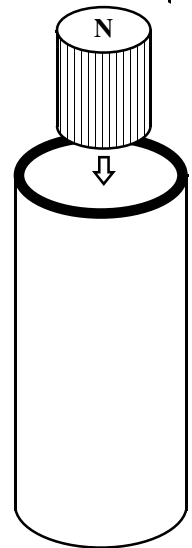
Also by symmetry, the only direction in which forces can act is along the axis of the tube and bar magnet. If we hold the tube and drop the magnet through the center, then the force on the magnet must be either up or down. We will call on the conservation of energy to determine which of these two directions will result.

If, when we dropped the magnet into the tube, it experienced an added downward force in addition to gravity, then it would be gaining excess energy. Where would this energy originate? There is no source of energy. On the other hand, if the magnet experiences an upward force (which slows its fall) where would the energy lost by the falling magnet go? That is easy. The current flowing in the magnet tube sees some resistance and heats the tube.

In the most simple terms what we see is that a moving or changing magnetic field will induce a voltage in any nearby conductors which, in turn, gives rise to a current which opposes any change (or motion) of the magnetic field. This is true even if that magnetic field was produced by a current.

An inductor is a device designed to be sensitive to any changes in its self induced magnet field. If the current through the inductor changes, then the magnet field changes and in such a direction that it generates a voltage which acts to oppose that change in current.

Where a resistor opposes the flow of current, an inductor opposes any change in the flow of current. You could think of resistance as similar to friction which opposes motion. Inductance would be similar to inertia which opposes any change in motion. It is hard to get a very massive object moving, just as it is hard to stop that same object.



Year 2000	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
<b>General Meeting</b> 7:00 PM	24	28 PSK31	20 T-hunt	17	15 Auction	19	17	21	18 Hosp.	16 Gordo	20 Auction	No meeting
<b>VEC Testing</b> 5:30 PM	24	28	20	17	15	26	17	21	18	16	20	
<b>Propagator Deadline</b>	8	12	4	1	4/29	3	1	5	2	9/30	4	2
<b>Board Meeting</b>	31	3/6	27	24	22	26	24	28	25	23	27	
<b>Spring Auction</b>					15							
<b>ARRL Field Day</b>						24 - 25						
<b>SOARA picnic</b>								5				
<b>Fall Auction</b>											20	
<b>SOARA Holiday Party</b>												

**Holiday Party**  
Don't miss it

### NEWS FLASH! SIX SOFTWARE COMPANIES ADDED TO "WATCH LIST"

New York - People for Ethical Treatment of Software (PETS) announced today that six more software companies have been added to the group's "watch list" of companies that regularly practice software testing.

"There is no need for software to be mistreated in this way so that companies like these can market new products," said Ken Grandola, spokesperson for PETS. "Alternative methods of testing these products are available."

According to PETS, these companies force software to undergo lengthy and arduous tests, often without rest, for hours or days at time. Employees are assigned to "break" the software by any means necessary, and inside sources report that they often joke about "torturing" the software.

"It's no joke," said Grandola. "Innocent programs, from the day they are compiled, are cooped up in tiny rooms and "crashed" for hours on end. They spend their whole lives on dirty, ill-maintained computers, and are unceremoniously deleted when they're not needed anymore."

Grandola said the software is kept in unsanitary conditions and is infested with bugs.

"We know that alternatives to this horror exist," he said, citing industry giant Microsoft Corporation as a company that has become successful without resorting to software testing.

### Frank McDonald,

We were recently notified by Malcolm McDonald, that his father, Frank McDonald, KD6WWF, recently became a Silent Key.

Frank has been active in SOARA for many years, and served as club Secretary a number of years ago.

### James Gesner, W6ZYW, SK

James Gesner, W6ZYW, a resident of San Clemente passed away after an extended illness. Jim had been a ham for many years and was active in SOARA before failing health curtailed his activities.

Jim could be heard most evenings on the SOARA repeater visiting with friends.

### ARRL Renewals

SOARA members can join or renew their annual membership in the League through the club. You save postage and some hassle, and in addition, the club gets a small portion of the money.

Membership in the ARRL carries many benefits, not the least of which is QST. This fine magazine carries articles of interest to hams at all levels if interest. See the treasurer for details.

### Board Report

The board announces the following changes in duties:

Heiko Peschel, AD6OI, has moved from the position of Education Director to take on the job of Treasurer.

Mike Mullard, KF6HVO, who has been the Activities Chair will take over as Director of Education.

Carroll Straus, KE6EER, who has served as the Hospitality person (the "Coffee Lady") is unable to continue in that capacity. Carroll has done a great job and deserves a hearty "thank you" from SOARA.

We do need to find a person willing to take over this monthly job starting in January, 2000. Interested? See Paul, NZ1M, and let him know you are available

# The PROPAGATOR

South Orange Amateur Radio Association  
P.O. Box 2545  
Mission Viejo, CA 92690

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**Meeting: Monday 11/20/00 at 7:00 PM**  
**Auction — Sellers come early to setup.**

☛ **SOARA** meets at the Mission Viejo Community Center, 26932 Veterans Way, Mission Viejo, the third Monday of every month at 7:00 PM. Changes to the meeting time or place are announced in this newsletter and on the two-meter repeater.

☛ **License Exams:** Amateur License Exams are given prior to most SOARA meetings. Exams are from 5:30 to 7:30 PM. You must make an appointment at least a week in advance. Call Lou Parker, KA6BJO, at 951-0336. (No calls after 9:00 PM please.)

☛ **Contacting SOARA:** Questions about SOARA? Send e-mail to: [info@soara.org](mailto:info@soara.org), or leave a message at 949-249-1373.

☛ **Web Site:** SOARA maintains a web site with current club information. The URL is: <http://www.soara.org>.

☛ **Repeaters:** The SOARA 2-meter and 70 cm repeaters are open to all licensed hams.

SOARA 2m — 147.645 - (110.9)

SOARA 440 — 445.660 - (110.9)

The SOARA 220 and HROC 440 repeaters are shared by members of both clubs. Each machine is subject to the operating rules of its respective club. Call KG6GI for details.

SOARA 220 — 224.100 - (110.9)

SOARA 220 — 224.640 - (123.0)

HROC 440 — 447.180 - (131.8)

☛ **Nets:** SOARA 2 m repeater open net is held on Tuesdays at 8:00 PM following the Laguna and M.V. emergency nets.  
40 meter HF net (7.262 MHz +/- for QRM), Sunday 7:30 AM  
PSK-31 net: 28.120 USB 1 KHz meets Fridays at 6:00 PM.

## SOARA OFFICERS

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