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The Monthly Newsletter of the Monongalia  
Wireless Association  
Morgantown, West Virginia

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President: Bill Jacobs, WA8YCG  
Secretary/Treasurer: Norene Arnold, N8TJM

Vice President: Jack Averill, N8NQW  
Newsletter Editor: Jack Coster, WF8X

## Next Club Meeting

Tuesday, September 24  
Room G084, WVU Engineering Bldg.

## Some Things Never Change...

This is what went on at the W8SP field day site in 1976. The cartoon is by Bob West-WA8YCD (Maybe in-between contacts?) in a 1976 QST magazine. -- Thanks Sam, N8IY

## W8MWA 440 Repeater

Randy, N8OZY, and Mike, K8LG, have been working on the 440 repeater over the past several weeks. Considerable work is required, and the machine is not up to where it should be yet. But it will be soon.

For those not familiar with the 440 operations, the antennas are also on the PBS tower with the 2m repeater. The output of 440 transmissions comes across both the regular 2m output on 145.43 as well as on the 444.7 output of the 440 repeater. On the 2m output, you can tell that the input was on the 440 repeater by the higher sound of the repeater's courtesy tone.

Thanks Randy and Mike for the work.

## And Look for the WVU Repeater Soon.

Mike, K8LG, is the trustee for the WVU Radio Club repeater. The repeater has been down for some time because of equipment problems. Mike has been reworking the repeater and it should be back on the air in a month or two. Look for it on 146.76.



## What's That Sound?

Norene, N8TJM, send along this interesting article from *Physics News Update*, June 30, 2004 by Phillip F. Schewe, Ben Stein.

**WHY DO TRANSFORMERS HUM?** Scientists in Switzerland have explained, for the first time, the microscopic cause of hum in those massive yokes of iron which help transform AC electricity from one voltage to another. When current reverses 60 times a second the iron core of the transformer undergoes magnetostriiction twice during each cycle. In other words, 120 times per second induced fields cause the core to stretch slightly; a meter-sized transformer might stretch or shrink by only a micron but this would be enough to set up an audible 120-Hz hum. (Earth itself is a magnet. Because of its own magnetic field, Earth's diameter is shrunk by about 10 cm. Turn off the terrestrial field and the Earth would spring back; its surface area would immediately increase by about 10 square kilometers.)

The new experimental work probes theories, going all the way back to Werner Heisenberg in the 1920s, about how the shrinkage arises from the magnetic interactions (spin exchange) among pairs of atoms (dimers), which share a common electron. The two magnetic ions want to be closer together. For studying this effect iron itself is not the best test material and the Swiss scientists (ETH Lab in Zurich and the University of Bern) use another magnetic atom, manganese. Mn is a common ingredient in the magneto-resistance data storage systems found in most disk drives. Normally in a pure crystal, Mn atoms would be arrayed in endless straight lines. But in this experiment the Mn atoms are isolated, two by two, with plenty of intervening magnesium atoms. This allows the researchers to variably "dilute" the magnet interactions between Mn atoms. The strength of these interactions (or to be more precise the energy levels of the excited Mn atoms) is measured by scattering a beam of neutrons from the sample, a process called

neutron spectroscopy. The observed microscopic magnetostriction mimics the striction at the macroscopic level, but it does depart considerably from the predictions of the traditional Heisenberg model.

(*Editor's note:* President Bill will give a short quiz on this article at the next club meeting.)

### WACOM HAMFEST

Sunday, October 3, Washington, PA  
Washington Co. Fairgrounds, 8AM - 1PM  
Breakfast and Lunch available, door prizes,  
free coffee. VE Session 10AM.  
Talk-in 145.49

## Distribute Your Computer

How busy is your computer? Mine is connected to the Internet by cable modem and is turned on most of the day. But how busy is the machine? Not very. Most of the time, maybe 95%, it is just idling, waiting for me to do something.

A chap at University of California, Berkely, came up with a way to utilize the idle time of thousands of commuters to analyze data for scientific projects that generate tons of data. He originally applied the idea – known as distributive computing – to analyzing data from the SETI (Search for Extraterrestrial Intelligence) project. See more information on this at [www.setiathome.ssl.berkeley.edu](http://www.setiathome.ssl.berkeley.edu). Software can be downloaded there. About a half- million computers are active on this project, and when they all are working they average 70 teraFLOPS (70 trillion floating point operations per second!). That is about twice the speed of the largest conventional supercomputer.

Other distributed computing projects are: understanding protein interactions with diseases, [www.stanford.edu/pandegroup/folding](http://www.stanford.edu/pandegroup/folding); climate prediction, [www.climateprediction.net](http://www.climateprediction.net); fighting AIDS, [fightaidsathome.scripps.edu](http://fightaidsathome.scripps.edu); designing

new medicines, [www.d2ol.com](http://www.d2ol.com) ; and prime number search, [www.mersenne.org/prime.htm](http://www.mersenne.org/prime.htm) . There is more information in *Outside the Box: SETI Begins at Home*, PCToday, September, 2004.

– Jack, WF8X

### **Position Available**

#### **Editor, Solid Copy Newsletter**

*Duties:* Prepare monthly newsletter of the Monongalia Wireless Association, a newsletter in its 27th year. Wide freedom to design the newsletter as you want it.

*Qualifications:* Not many – take a look at WF8X for proof. A computer with Word or WordPerfect and email capability are necessary.

*Benefits package:* 365 days vacation each year. Freedom to travel anywhere, anytime, on your own. 100% Flex-time working hours. No dress code. Valid driver's license not required.

*Compensation:* No.

*Availability:* January 1, 2005, or sooner if you just can't wait to get started.

*Application:* Verbal applications only. Speak to President Bill, WA8YCG, for further information.