

W5YI

America's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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In This Issue...

Riley's HamVention Keynote Speech
What's Happening in Amateur Radio
States with Most Ham Operators
Countries with Most Ham Operators
Amateur Radio Industry Meeting
Boeing to Add Airline Web Access
Dot-Coms Feeling Financial Pinch
WRC-2003: Ham Radio Agenda Items
"Tex" Beneke K0HWY Dead at Age 86
Hams Rescue Stranded Teachers
Australia Links Repeaters to Internet
CQ Magazine has New Ad Manager
"Napster": Music File Sharing Report

Vol. 22, Issue #13

\$1.50

PUBLISHED TWICE A MONTH

July 1, 2000

HamVention Keynote Speech by Riley Hollingsworth, K4ZDH

The keynote speech given at the Dayton Saturday night HamVention banquet featured FCC's Riley Hollingsworth, K4ZDH. It was presented on May 20th at the Nutter Coliseum on the campus of Wright State University. Hollingsworth, of course, heads up the FCC's Amateur Radio enforcement effort. Here are some of the points he made.

He started off by talking about the FCC's enforcement effort. "Enforcement will continue and it will continue with the same energy. I will say that a new trend is developing: decreased complaints. Don't for a minute think that will allow us to drop our guard. All that means is that we will have more time to work with you on more complicated cases.

"I will say we will have less patience. The long period of government neglect is over, and the word is out and everyone is on notice: we will do basic maintenance on this service. While it is true we were missing in action for a long time, 'that was then and this is now.' We will give no safe harbor to those who don't care about the service or who are intent on degrading it.

This is most recently illustrated by the fact that on May 5, Richard Burton of Los Angeles, California, a long time unlicensed operator, was indicted by a federal Grand Jury on 6 counts of violating the Communications Act. He's been jailed twice before for that. We sincerely hope that the third time won't be quite as charming."

"We can have the world's finest Amateur Service."

"We stand on the shoulders of a lot of great people who gave us this wonderful service known as Amateur radio.

"I had the good fortune to meet people who took the high road and who have a vision for Amateur Radio and who devote hundreds of hours of personal time to make it succeed.

"I've thought almost every day about those people and I realized that what Walt Stinson said about them is true: 'they are all bound together by one common bond: the love of the magic of radio.' They are people who want to make a difference, who want to leave a legacy, and who want to make the world a better place.

"This afternoon I met W1QWT. I didn't get his name, but he proudly told me about the club he formed to communicate with radio museum stations on ships all over the world. His enthusiasm was contagious.

"I've spent hours with them and I will never forget their gracious response and their devotion to Amateur Radio. My wife and I are runners, and I've thought about them often as I ran late at night through the battlefields of Gettysburg, when the town was asleep and the fields were silent, lighted only by the sky and they belonged only to me.

"I've thought about what inspired the people I

THE W5YI REPORT [Pub. No. 009-311] is published twice monthly by The W5YI Group, Inc., 2000 E. Randol Mill Road # 608-A, Arlington, TX 76011
SUBSCRIPTION RATE: (U.S., Canada and Mexico) One Year (24 issues) \$24.50 • Two Years: \$45.00 • Three Years: \$64.00. • Tel. 817/461-6443
Foreign Subscriptions via Air Mail: \$39.50 per year. (Payment may be made by Check, Money Order, VISA or MasterCard payable in U.S. funds.)
Periodicals Postage paid at Arlington, TX. POSTMASTER: Send address changes to THE W5YI REPORT, P.O. Box 565101, Dallas, TX 75356

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #2

July 1, 2000

met this past year and a half to be so giving of their personal time in a world where there are never enough hours in a day, why they were so dedicated and with little or no regard to financial gain or fame. I'm reminded of the Southern writer and poet James Dickey and the poem he wrote decades ago for the inauguration of a Southern president. Dickey wrote of the drive some persons have, and the motivation, to elevate the common causes of man and to struggle for those causes because they want to make a difference. It goes like this:

*Tell me train sound, with all your long lost grief,
What I can give.*

*Dear lord of all the fields, what can I do? Tell me,
freight train, when there is no one else to hear. Tell
me in a voice the sea would have if it had not a better
one: as it lifts, hundreds of miles away, its fumbling,
deep structured roar like the profound unstoppable
craving of nations for their wish.*

*You ? Me ? What difference is there? Lord, let we
shake with purpose. Wild hope can always spring
from tended strength. Everything is in that. That and
nothing but kindness. More kindness, dear Lord of the
renewing green. That is where it all has to start: with
the simplest things.*

*More kindness will do nothing less than save every
sleeping one and night-walking one of us.*

My life belongs to the world. I will do what I can.

"Instead of being cynical or jaded after 18 months of enforcement, I am more optimistic than ever about Amateur Radio. It is not only fundamentally sound, but it's a great hobby service as well. It's because of people such as you - you that make this annual migration to Dayton from all over the world. Any great moment in life is the sum of all of its parts.

"The North Carolina writer Thomas Wolfe said: 'we are the sum of all the moments of our lives - all that is ours is in them.' Amateur Radio has such moments - the people who understand it and care about it. I saw them in California and in Texas, in Florida and in the Carolinas, in Georgia and in Minnesota and in New England. I met leaders and volunteers in Amateur Radio who helped in forest fires, in plane crashes and in tornadoes and in hurricanes and parades and marathons and walkathons and clubs, and devoted countless hours to the nets of our National Traffic System, and who taught classes to prospective licensees.

"To work with you in restoring Amateur Radio service to its rightful place in the American communications infrastructure is the greatest privilege of my professional and personal life. I will never forget this period of my life, and I will never forget the privilege of working with all of you towards this common goal.

"Because Amateur radio is serious business. It's fun and it's a hobby but it's also serious business. Too many in our ranks over the last decade have taken our frequency allocations for granted. They have focused on rights and ignored responsibilities. They've failed to realize that just because one has a right to do something does not mean it's right to do it in every circumstance.

"They've failed to understand that more people than ever before listen to us, because more people than ever before are buying scanners and short-wave radios. And while they may have prided themselves on winning an argument over radio, or driving someone off the frequency, they failed to realize that for every person listening to them that decided not to become involved in Amateur Radio, they took it one step closer to extinction.

"What kind of service is it if you're afraid to leave the radio on in the house or the car? When you have to apologize for it? Certain members of our ranks have taken everything for granted, and they know all the answers only because they haven't thought of all the questions.

"As ham operators, we have to realize our playing field - that is, the context in which we work and operate and enjoy this hobby/service. Our overall telecommunications industry in the U.S. is the most *innovative* industry the world has ever known. Amateur Radio is fun, but it has to be taken seriously.

"The communications networks we have in this country are the envy of the rest of the world. There is *no reason* why our Amateur radio Service can't be the envy of the rest of the world.

We are part of an International community.

"In much of the world, basic telephone service is two villages away, and the Internet is something they hear about on the radio. The United Nations says that 'half of the world population has never made, or received, a telephone call.'

"We take communications for granted, but Amateur Radio cannot isolate itself and it cannot survive if we don't keep in mind everyday that we are an important link in the world in the world communications system, and that the public looks at us in comparison to all other communications systems.

"When I first heard ham radio operators on a breadboard shortwave radio at 13, I knew my life would never be quite the same again. I've been around the block a few times since then. I'm older now, possibly wiser; but I can remember my first contact as if it were yesterday. Do you suppose Earl Savage, K4SDS, in Richmond, Virginia knew what impression he made on a 13 year old's first radio contact that summer of 1960? I doubt it.

"But I do remember he took time to encourage me and tell me what a great hobby this was, and he offered to

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #3
July 1, 2000

help me in any way he could. Recently, out of curiosity I checked that call sign in our records. It still belongs to Earl, and he's still in Richmond. I wrote him a letter and sent him the QSL card he had sent me that summer, along with a copy of the yellowed page out of my logbook that I still have. He wrote back that he was still into ham radio in a limited way, and was a teacher, retired.

"I thought so. He probably had no idea what influence he was having on me. Teachers often never know. It's been said that teachers may very well be immortal, because no one knows when, or even if, their influence ever ends.

"Maybe he didn't think he was teaching me anything that July evening, just encouraging me. But I'll tell you what: I'm willing to bet he realized that he was making some impression on me and that it was important and that it would be a lasting one. There have been too many people in our ranks that didn't have a clue as to the damage they were doing by setting bad examples and taking the hobby and the frequencies for granted.

"All of the people I met that organize Hamfests, help out in disasters and teach classes – all understand that one of the greatest joys in doing anything is to experience joy in doing it. They care about life, they think about what they're doing on the air even tho they're having fun, and most of all: They have vision.

"The [FCC] Chairman went to Europe last year and brought back this story about one of the great buildings on the European continent: St. Paul's Cathedral, designed by architect Sir Christopher Wren.

"One day while it was being built, an inspector from the king went to the site. He approached one of the workers and asked 'What are you doing?' The worker replied 'I'm cutting stone. He asked the same of another worker. That worker said 'I'm making 5 shillings 2 pence a day.' He asked a third, but that worker put down his chisels and said, 'I'm helping Sir Christopher Wren build the most beautiful cathedral in the world.'

Each worker had the same job. One had a vision.

"To those of you in the audience tonight, or who are listening to this through some other medium, or who read it later, in your 70's and older: I have a special message and a request. Tom Brokaw, in his new book, has called you the '*Greatest Generation*' in American history. He said:

"You came of age during the Great Depression and the Second World War and went on to build modern America – men and women whose everyday lives of honor and achievement and courage gave us the world we have today.

"At a time in your lives when your days and nights should have been filled with innocent adventure, love, and

the lessons of the workaday world, you were fighting in the most primitive conditions possible across the bloodied landscape of France, Belgium, Italy, Austria and the Coral Islands of the Pacific. You answered the call to save the world from the most powerful and ruthless military machines ever assembled. You faced great odds and a late start, but you did not protest. You succeeded on every front. You won the war, and you saved the world.

"You came home to joyous and short-lived celebrations and immediately began the task of rebuilding your lives and the world you wanted. You married in record numbers and gave birth to another distinctive generation: the Baby Boomers.

"A grateful nation made it possible for more of them to attend college than any society had ever educated, anywhere. You gave the world new science, literature, art, industry, and economic strength unparalleled in the long curve of history.

"As you now reach the twilight of your adventurous and productive lives, you remain for the most part exceptionally modest. You have so many stories to tell, stories that in many cases you have never told before, because in a deep sense you didn't think that what you were doing was that special, because everyone else was doing it too.

"Well, I suppose Tom Brokaw didn't realize it, but to Amateur Radio, you are our greatest generation too. You taught us everything about ham radio, and delivered a legacy to us that joyfully occupies our lives. Thank you. Thank you for restoring Amateur Radio after the war, and for saving Amateur Radio during the long period of government neglect.

"We call upon you one more time to save Amateur Radio by embracing our newcomers – the new people coming into our ranks that we have *needed for so long*, and that we must have for Amateur Radio to survive. Take them under your wing – teach them all you know – the knowledge you have and worked hard for in the days when you had to know the theory and the technology.

"You know more about radio than all the rest of us put together. And you learned it without question pools and without multiple choice examinations, I might add.

"Our long sought new people will stand on your shoulders – we all do. Leave Amateur Radio a legacy that will make it *last forever* and that will make this your finest hour and Amateur Radio's finest hour.

"It would never have survived without you, the long-term licensees out there. What Amateur Radio will be in the future can be determined by you – it's in *your* hands and you can save us one more time.

"Thank you very much, and I remind you in closing, and assure you, that we will work with you for as long as it takes for this vision to become a reality: Amateur Radio as the finest radio service in the world. Thank you for working with us".

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #4

July 1, 2000

WHAT'S HAPPENING IN AMATEUR RADIO?

While it is still too early to say that a trend has developed, one thing is for certain. Radio amateurs are upgrading in unprecedented numbers.

- 1.) Over 20 thousand licensees have upgraded to the new General and Extra Class during the months of April and May. You can expect another 15 or 20 thousand upgrades during June.
- 2.) About 1,500 new (first time licensed) radioamateurs are joining the hobby monthly. More than 85% start at the no-code Technician level. The total number of amateurs is not increasing - just those upgrading.
- 3.) More than 33,000 amateurs have licenses that have expired during the past two years. That is about 5 percent of the total ham census. 22,000 of these amateurs (whose license is in the 2-year grace period) hold Novice and Tech Plus licenses.
- 4.) There are essentially no "Codeless" Technician amateurs in the 2-year grace period since that license

did not begin until February 14, 1991. It will be interesting to see what the "fall out" rate is after February 14, 2001 when their first ten year license term is up.

- 5.) More than half of all currently U.S. licensed amateurs live in just 10 states. The states with the most radioamateurs are:

Rank - State:	Amateurs:	% of Total:
1 - California	102,778	15.2%
2 - Texas	41,152	6.1%
3 - Florida	39,818	5.9%
4 - New York	32,664	4.8%
5 - Ohio	30,121	4.4%
6 - Pennsylvania	24,115	3.6%
7 - Washington	23,898	3.5%
8 - Michigan	20,847	3.1%
9 - North Carolina	18,278	2.7%
10 - New Jersey	15,739	2.3%

Month of April - (As of 4/30/2000)

From: > To:	Nov.	Tech	Tech Plus	Gen.	Adv.	Total Upgrades	Total New	Expired < 2 Yrs.	Current Amateurs	% of Total
Nov.	----	----	----	----	----	0	72	11,842	49,929	7.4%
Tech	2	----	----	----	----	2	1,639	3	205,857	30.4%
T-Plus	101	657	----	----	----	758	142	10,477	131,781	19.4%
Gen.	8	148	1732	----	----	1,888	10	5,679	111,260	16.4%
Adv.	0	1	19	169	----	189	2	3,871	101,653	15.0%
Extra	2	11	130	28	1446	1,617	3	1,512	77,506	11.4%
Total	113	817	1881	197	1446	4,454	1,868	33,384	677,986	100.0%

Month of May - (As of 5/31/2000)

From: > To:	Nov.	Tech	Tech Plus	Gen.	Adv.	Total Upgrades	Total New	Expired < 2 Yrs.	Current Amateurs	% of Total
Nov.	----	----	----	----	----	0	25	11,997	49,016	7.2%
Tech	11	----	21	----	----	32	1,110	4	206,646	30.5%
T-Plus	33	155	----	----	----	188	53	10,540	123,920	18.3%
Gen.	8	753	7841	----	----	8,602	94	5,354	117,902	17.4%
Adv.	0	0	9	52	----	61	0	3,674	96,759	14.3%
Extra	3	55	864	94	6002	7,018	8	1,466	83,104	12.3%
Total	55	963	8735	146	6002	15,901	1,290	33,035	677,347	100.0%

[The above licensing statistics are based on information from the FCC, Gettysburg, PA. Total radioamateurs in the Amateur Service database consists of current amateurs plus those in the two year grace period for renewal.]

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #5

July 1, 2000

THE WORLD'S AMATEUR RADIO OPERATORS

According to the *International Amateur Radio Union*, there are about 3 million licensed amateur radio operators in the world. Although ham radio is an international pursuit and available in most countries, nearly 90 percent of all licensed radioamateurs are located in just ten countries. It is little wonder that most ham equipment is manufactured in Japan. They have the most ham operators and (together with the USA,) represent the biggest market.)

Actually it is a little difficult to determine global Amateur Radio census figures since some countries license stations and operators separately. But here is a list of the countries that have more than 5,000 licensed ham operators. (China, the most populated country in the world, only has 850 operators.)

Rank	Prefix/Country	Operators/Stations
1	JA Japan	1,296,059 (stations)
2	W USA	679,864
3	HS Thailand	141,241 (50,988 stations)
4	HL Rep. Korea	130,000 (51,172 stations)
5	DL Germany	80,336
6	BV Chinese Taipei	68,692 (24,373 stations)
7	EA Spain	58,700
8	G United Kingdom	57,124
9	VE Canada	45,000
10	R Russia	38,000
11	PY Brazil	32,053
12	YB Indonesia	27,815
13	I Italy	30,000
14	F France	18,500
15	UR Ukraine	17,265
16	LU Argentina	16,889
17	VK Australia	15,874
18	SP Poland	15,000
19	PA Netherlands	14,693
20	YV Venezuela	11,900
21	SM Sweden	10,817
22	OZ Denmark	10,060
23	VU India	10,003
24	HA Hungary	8,000
25	XE Mexico	7,558
26	CE Chile	7,054
27	S5 Slovenia	6,778
28	OE Austria	6,214
29	OK Czech Republic	6,189
30	OH Finland	6,075
31	ZS South Africa	6,000
32	HK Colombia	6,500
33	ZL New Zealand	5,694
34	LA Norway	5,588
35	HB Switzerland	5,500
36	ON Belgium	5,468
37	ZP Paraguay	5,085

HAM RADIO INDUSTRY MEETING HELD IN DALLAS

The Amateur Radio industry convened its second meeting of the year on Thursday evening, June 8, at the Dallas Ham-Com 2000 convention. The first ham industry meeting was held in April in Milwaukee. The Dallas meeting was hosted by Evelyn Garrison WS7A and Gordon West WB6NOA.

ARRL President Jim Haynie, W5JBP outlined an aggressive Corporate/Education partnership program for getting ham radio back into the schools. The project -- which is under the guidance of ARRL Vice President Kay Craigie, WT3P -- will initially try to raise \$1 million in corporate and foundation contributions. The idea is to develop a turnkey Amateur Radio curriculum and to provide equipment for school ham stations. The training program will play a role in helping teachers to provide knowledge on geography, math, electricity, electronics and physics. Industry will do what it can to assist Mr. Haynie with this major project.

Rosalie White, WA1STO -- the League's Educational Coordinator -- talked about a new inexpensive CD-ROM aimed at kids which would promote ham radio. She indicated this might be the next best thing to actually putting kids on the air with a piece of equipment. Jennifer Hagy, N1DTY -- who is responsible for public relations at the League -- indicated a need to increase the dialogue between industry and her PR Division.

The Amateur Radio industry will be establishing a committee that will regularly meet with top League officials to discuss recruiting various groups to ham radio ...such as boaters, flyers, RVers, missionaries, travelers and the retired.

Gordon West, WB6NOA -- a former Instructor-of-the-Year -- presented his "Ham Ambassador" program which would utilize ham radio instructors who would work closely with local VEs to recruit newcomers to ham radio. The enthusiasm to this program among manufacturers and dealers was extremely positive. The program will begin on January 1, 2001.

The Gordon West Radio School classes schedule next year will continue to offer monthly "new ham" and bimonthly "upgrade" classes throughout his area and at pre-selected national locations. His focus, however, will be to train Ham Ambassadors (instructors) on how to take advantage of their new industry status and all of the techniques he has learned over the years.

The American Radio Relay League was given the opportunity to become "sales manager" for this program, but showed little interest. It appears Gordo will be developing it on his own and with input only from the industry.

This Dallas gathering also brought with it the realization that there is a big difference between the wants, needs and desires of the ham radio retail community and the political arm of the hobby. The latter as represented by the American Radio Relay League.

CUTTING EDGE TECHNOLOGY

■ "How NOT to wire things."

Check out Joe Tedesco's Web site at www.joetedesco.com for National Electrical Code data, as well as snapshots of real violations of not just the NEC, but also common sense. Strange as it may seem, people think they can safely replace fuses with copper pipe or build an extension cord out of a standard electrical outlet and mount it in a plastic soap bottle. There's a whole rogue's gallery of these electrical violations, and if you've got some doozies of your own, you can upload them for everyone else to view.

■ **About 132 million pounds of solder go into electronic devices each year.** That's a great deal of tin and lead!

■ **"Do you smell gas?"** The newest electronic gas detectors use infrared technology to detect hydrocarbon gases such as propane, methane, kerosene and gasoline. They can find leaks long before our noses can. One method of such detection uses two separate IR emitters and detectors, tuned to different frequencies. If any hydrocarbon gas affects both wavelengths at the same time, the internal controller knows it's found a leak, and sets off the alarm.

■ **An experienced engineer can look at a schematic and quickly determine how well a particular electronic circuit might work,** but it's very tough to determine at that stage how well the circuit will fit into a package. Schematics make no mention of physical dimensions of components. This is very critical for microwave-frequency circuits, because any change in component layout can drastically change the circuit's performance. Microwave Office is a high-tech software package that not only draws two-dimensional circuit layouts, but also provides a very realistic 3-D image of how the layout will look. If a connector will get in the way of something, changes can be made less expensively early in the process.

■ **Soon, the United States and Russia won't be the only countries to investigate the red planet Mars.** The European Space Agency is building their own robotic explorer, the Mars Express. Due for launching in June, 2003, it will reach the planet before the end of that year and enter Martian orbit. Mars Ex-

press will take readings of the planet's atmosphere and look for ground-based water and mineral deposits. Also on board will be the United Kingdom's lander, Beagle 2. The lander is scheduled to investigate further the possibility of life on Mars, using the orbiting Mars Express as a radio relay link with Earth.

■ **Some robotics engineers predict that within 20 years, industrial robots will be "smart" enough to inform maintenance crews of not only immediate problems, but also preventive-maintenance measures that need attention.**

■ **Presently, about 60,000 robots are being used in American factories.** Japan, however, has six to eight times as many.

■ **Laying out the switches and controls for a front panel?** Human-factors engineering says that, as a whole, people favor rotary and slide switches over push-buttons. Too many buttons leads to confusion. Rotary switches should have some sort of mechanical feedback, such as click-stops, to let the user "feel" as though something is being accomplished.

■ **Remember those classic Tektronix oscilloscopes?** You can surf your way to an on-line museum full of them at <http://margo.student.utwente.nl/~wel/tek.htm>. It covers most of the Tektronix 'scopes up to about 1970. You can see pictures of the most common models, find troubleshooting information, and contact sources for replacement parts.

■ **The Radio History Society is on line, too.** You can see pictures of many kinds of very old radios, especially Atwater-Kents and others at <http://www.radiohistory.org>. The Society recently opened their own "brick-and-mortar" museum in Bowie, Maryland.

■ **Coaxial cable marks its 60th anniversary of commercial use in the U.S. this year.** Bell Telephone installed a polyethylene-based cable between Washington, DC and Baltimore, MD in 1940.

■ **Remember how difficult it was to find short-duration pulses (or "glitches") with analog oscilloscopes?** Often they'd be so brief as to be invisible. Today's digital 'scopes can not only capture these "glitches," they can also display them on the screen in a different color from the usual pulse train. This makes less-common signals stand out and easier to spot.

■ **Lower-loss power transmission lines may be on the way.** American Superconductor Corporation is trying to develop high-temperature superconducting cables for power lines. Transmission lines operate at extremely high voltages because they lose less electricity that way, but the amount still lost just through transmission is still beyond belief. Superconducting power cables that can operate in the middle of summer could carry several times the amount of power copper provides, with far less loss.

■ **Oil-blotched fix-it manuals on the garage floor could be a thing of the past.** Mechanics working on cars, trucks, and even airplanes are making more use of head-mounted, wearable computers that display digitized repair manuals in their field of vision. Thousands of pages, instructions, drawings, photographs, and other data can be accessed with voice commands while the mechanic is busy beneath (or inside) the machine.

■ **RadioShack Corp. is the first to sign up as a co-sponsor of the first commercial lunar landing,** a robot probe for ancient ice that could reveal secrets of the solar system, provide rocket fuel for deep space missions or allow human colonies on the moon. The *Ice-breaker Moon Rover* is a project of the privately held LunaCorp, of Arlington, Va.. The moon prospector will be launched in late 2003. LunaCorp said it was still looking for four or five other sponsors. The RadioShack logo will appear on the Moon Rover robot.

EMERGING COMMUNICATIONS

■ **Within five years, we'll have more mobile phones than wired phones.** No wonder the RF spectrum has been so crowded lately.

■ **For travelers who want to read their hometown paper, they can download it from NewspaperDirect (www.newspaperdirect.com).** When you subscribe to the service, you describe which paper or papers you want access to, which types of stories or features you're interested in, and you then download that day's paper in .pdf file format for high-resolution printing. It gathers newspapers from cities all over the U.S. and other countries.

■ **Lasers used to be locked into**

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #7
July 1, 2000

definite frequencies. If the laser was red, it stayed red. A white laser can be broken into several component colors with a prism, just like sunlight, but changing those colors quickly used to be impossible. But tunable lasers are now here; their output wavelength can be changed within nanoseconds, fast enough to modulate a carrier. That means they can carry information, and very, very quickly.

■ **Boeing is building a telecommunications system that will let each passenger on an airplane access high-speed Internet and TV signals in real-time, while in flight.** The system, called Connexion, will be built into Boeing jetliners starting late in 2001. Users can download data at 5 megabits per second and upload data at 1.5 megabits per second. Connexion will require each plane to be outfitted with more satellite technology, a network server, and links to each seat. Different languages can be provided for watching TV. North American flights will get the technology first, and it will then spread to other flights around the globe. Connexion may be eventually used on cruise ships and other travel applications. (Honeywell is working on a similar system, which lets jet passengers access their e-mail.)

■ **The marriage of your PC and TV to expand!** In an effort to compete with Microsoft's WebTV, America Online has launched its AOLTV - a cable-ready set-top box that will retail for \$249.99 at Circuit City stores. Monthly subscription cost will be \$14.95 for AOL members, \$21.95 for non-subscribers. AOL wants television broadcasters to enhance the interactive experience for AOLTV users. Later this year America Online will introduce its satellite-delivered DirecTV/AOL-TV service.

■ **Can't hear your favorite radio station because you're in a steel building or you're too far away?** Perhaps it's transmitting its signal over the Internet. At least 1,500 other radio stations in America are doing the same thing. This means that FM is no longer restricted to "line of sight" and AM doesn't suffer from noise. You don't have to wait until after dark to listen to your distant hometown station anymore.

■ **What can the newest professional video cameras do?** They can save a lot of time for the news crews, for one thing. Instead of recording onto videotape, new cameras by JVC and Panasonic store pic-

tures and sound on internal hard drives. The drives can be physically swapped out or downloaded to an editing workstation, depending on the model. One of Sony's latest videocams includes a microphone with its own built-in liquid-crystal display. The viewscreen, visible only to the reporter, lets him or her see what the camera sees and can therefore adjust settings accordingly. Yet another series of cameras lets news teams embed recorded video with GPS location and time information, so editors will always know exactly when and where a particular scene was photographed.

■ **There have been major motion pictures with different endings.** Now we may soon have movies with different audio tracks, depending on where you sit in the theater. Testing is being done on a process called Second Sound, which lets only certain members of the audience hear precisely what is being said. At the same time, other moviegoers hear something totally different. It's a challenge to screenwriters, who can take advantage of the technology to play with viewers' expectations of exactly what is happening in the film. Second Sound takes advantage of the fact that certain frequencies travel farther than others.

■ **What satellites are available to you at your location?** There are so many "birds" up there that it's hard to keep track of them. Besides, what one region of the country can see may not be available in other regions. SATfinder is a CD-ROM that displays a list of satellites whose "footprints" contain your location. If you're trying to align a dish antenna to pick up a particular satellite, SATfinder also gives you compass and azimuth settings (including magnetic deviation)..

COMPUTER INFO

■ **Sony's new PlayStation2 home videogame system** contains more transistors in its microprocessor (13.5 million) than Intel's Pentium III (9.5 million).

■ **Floods and severe storms can wreak havoc on computer hardware.** For the most part, though, everything in your desktop computer can be replaced rather inexpensively, except for the data on your hard drive. A hard drive that's been immersed in water, clean or otherwise, would ordinarily be a total loss. But

data-recovery services can often rescue your files by cleaning the interior platters and electronics, and transferring the data. To make their job easier, though, don't pour out the water and try to bake or blow-dry the hard drive; instead, seal it inside a plastic bag with a wet washcloth to keep the air humid inside the bag. Tell the data-recovery service in advance that you'll be shipping it, so they'll know to expect it. If the interior of the drive should dry out before they can get to it, it will leave a dirty mess that will make their job much more difficult -- or even impossible.

■ **The current computer displays that clip onto eyeglasses will soon have more advanced company.** Micro-Optical, which leads the field in this equipment, is working on interfacing visual data directly into the lenses themselves. When no data is meant to be seen, the viewer sees everything through the glasses normally. As soon as the computer needs to alert the viewer, an image will "pop up." For cell-phone users, this could alert the viewer to an incoming call or e-mail message. This creates the possibility of laptop computers with no display screens attached; you just plug in your glasses, or perhaps a wireless link will be used.

■ **Do your homework before you make a major computer hardware or software purchase.** A company may entice you with a service contract, because the odds are in their favor that they'll make money on it. For peace of mind, try calling their technical support line. Is it toll-free? If not, how much do they charge, and how long will you have to wait? When someone does answer, how deep is their technical knowledge of the product? Will it be easier to use e-mail? Try testing that method and see how long it takes to get a response (if ever). The rule of thumb is, the bigger the company, the worse their customer service is.

■ **Some hospitals are upgrading their registration systems with fingerprint identification equipment.** Patients often are not conscious when brought in, and if they are regular visitors, their fingerprints can identify them in moments. This is much faster than looking in wallets or purses, and also guards against insurance fraud.

■ **It should come as no surprise that Microsoft's Bill Gates is still the world's richest man** according to Forbes magazine's rankings. His \$60 billion,

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #8
July 1, 2000

however, is one third less than last year's \$90 billion. Microsoft stock slid from a high of \$120 to a low of \$60. The 14th annual list of the working rich ranks Oracle Corp's Larry Ellison as the world's second-richest man with \$47 billion. Last year he was ranked number 30 on the list with \$9.5 billion.

■ Who needs a video monitor?

Microvision says all you need are your own eyes. They've developed a tiny computer display system that focuses display information directly into the retina through the pupil.

■ **Photonics (the optical equivalent of electronics) may be the next revolution in computers.** A "light optics microchip" has been developed at the University of Toronto. And scientists at Columbia University working under National Science Foundation funding have created a microchip that combines electronics and its optical equivalent. The company that manufactures these chips could be the next Intel. Using light beams instead of electricity, this chip is much faster because the data will be carried on light waves instead of electrons. This will help speed up a computer and make them more compact because of the more limited use of wires. Electricity experiences loss in signal due to the properties of wire and does not move at the speed of light.

INTERNET NEWS

■ **Another job that didn't exist 10 years ago: Web crasher.** Start-up companies worry about generating so much demand that their Web site will crash, due to the heavy traffic. New companies can "load test" a Web site, blanketing it with thousands of "users" in a simulation to see if the equipment can bear the strain. If it breaks, it's better to find out in advance, before the real world gets a shot at it. These testing companies can then point out to the customer where the bottlenecks and weak spots are. (A sudden surge of "hits" on a Web site is called a "flash crowd.")

■ **Fostex, an audio equipment manufacturer, has adapted its 16-track, hard-disk-based digital recorder** so it can write a recorded song directly into a .WAV file, allowing professional recording engineers to exchange music and songs over the Internet, rather than have to ship

heavy reels of tape.

■ **Last year's future promised us a "paperless" office.** Forget it. Paper is in demand more than ever. And if you're on the Internet, you probably print out about 20% more sheets of information than computer users who don't surf the Web.

■ **Dot-coms feeling the pinch.** What a difference a year makes. Last year, Internet startup companies were springing up everywhere, complete with investors pouring unlimited millions into their financing. A shakeout is now taking place as many - perhaps most - Internet-based firms simply are not making it. Stratopheric stock prices are returning to Earth, financing is drying up and many web-based companies are laying off recently hired people. Many recognized dot-coms will run out of money unless they get more financing. Forrester Research predicts the majority of dot-coms will go out of business by 2001.

WASHINGTON WHISPERS

■ **Several aerospace firms are working on unmanned aerial vehicles,** which can be used by soldiers in the field for reconnaissance. The Department of Defense wants future armies to be able to scope out dangerous territory without having to risk pilots' lives. Operated by remote control, the flying robots can carry infra-red video cameras and other surveillance tools; they could fly for as long as 24 hours, for several thousand miles before returning to base.

■ **It looks like Republican U.S. presidential candidate George W. Bush has a plan to bring technology to the classroom** that is not much different than the project planned by ARRL President Jim Haynie, W5JBP. Bush wants to add technology projects to the already existing FCC "Schools and Libraries" program which hooks classrooms to the Internet. "The real divide is in educational achievement, not just digital access," Bush said. "Technology is a tool, and the goal must be improved student performance." Bush's package, totaling \$400 million over five years, would encourage the use of technology as a means to student achievement.

■ **The ultimate DX?** NASA's Jet Propulsion Laboratory still keeps in touch with Voyagers 1 and 2, though they fulfilled

their primary missions long ago and continue to hurtle away from us at tens of thousands of miles an hour. Thanks to the Deep Space Network, JPL keeps tabs on the robot spacecraft by exchanging commands and data with them at least once a week. The round trip for radio signals from Voyager 1 is over 21 hours, and Voyager 2's round-trip radio link is over 16 hours.

AMATEUR RADIO

■ **Look for special event station, AX8IARU on CW and phone during the International Amateur Radio Union Region 3 Conference** being held in Darwin, Australia from the 28th of August until the 1st of September. More than 100 delegates from radio societies in the Asian and Pacific regions will be attending the conference, which is hosted by the Wireless Institute of Australia. A special QSL card will be available.

■ **It appears that a number of issues concerning the Amateur Service will be on the agenda for the World Radiocommunication Conference 2003,** including a review of the ITU-RR Article S25 regulation that requires Morse code proficiency when operating under 30 MHz. There was considerable support among delegates at the recently concluded WRC 2000 conference held in Istanbul, Turkey that this item be on the agenda for the next conference. Section 1.7 seeks to consider "...issues concerning the amateur and amateur-satellite services" and a "...possible revision of Article S25." HF broadcasters and various satellite services are also seeking additional frequency allocations between 4 and 10 MHz which could have an impact on amateur allocations. Other agenda items include minor changes to ITR-RR Article S1 which contains the definition of the Amateur and Amateur Satellite Services and a possible worldwide "harmonization" of the 40 meter band. The format of amateur call signs (Article S19) could also be included in the WRC-2003 agenda. And the Earth Exploration Satellite Service is seeking up to 6 MHz of spectrum in the 420 to 470 MHz band.

■ **Testing your antenna's ground system?** Wait until the soil is bone dry. If you test your ground resistance while the ground is soaking wet (after heavy rain or just watering the yard), naturally the

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #9

July 1, 2000

results will look very good. Too good, most likely. Broadcast engineers test their ground systems under worst-case situations, which means dry ground.

■ How well is your shack labeled?

In an emergency, does anyone else know how to shut off the power? Studies of electrical accidents show that over half of all "events" in the workplace are caused by labels that are either damaged, smeared, hard to read because of bad penmanship, in the wrong place, or just plain missing. Can someone with no knowledge of your equipment turn all of it off in a hurry, if he had to?

■ Legendary band leader and vocalist Gordon L. "Tex" Beneke, KØHWY (Advanced Class), died on the 30th of May at a convalescent home in Costa Mesa, California.

He was 86. Born in Fort Worth, Texas, he lived much of his life in St. Louis, Missouri where he got his ham callsign. He joined the Glenn Miller band in 1938 as a tenor saxophone player and vocalist and took over the orchestra after Miller's plane disappeared during World War II. He spent the rest of his life playing Miller's music or music in the 'big band' Miller style. He is remembered for his most famous hits, *Chattanooga Choo-Choo*, *I Gotta Girl in Kalamazoo* and *Don't Sit Under the Apple Tree*.

■ Canadians support lowering their Morse code license speed from 12 words-per-minute to 5 wpm.

In an Internet survey, *Radio Amateurs of Canada*, their IARU radio society put the question to radio amateurs. Twice as many voted to drop the 12 wpm code exam and replace it with 5 wpm and more comprehensive written examinations. RAC has already begun discussions with their telecommunications regulator, *Industry Canada* on the matter, and will soon be sending it a formal proposal asking that the 12 wpm test be dropped.

■ Amateur radio operators in Hawaii and on Fanning Island in the Republic of Kiribati worked together to help the US Coast Guard rescue a group of teachers adrift for two days in the Pacific on May 12th.

Five Fanning Island teachers were aboard a 36-foot outrigger canoe on a day long fishing trip when the canoe's engine failed. A relative reported the missing boat to an amateur radio operator on Fanning Island who, in turn, reported it to another amateur in Hawaii. The Coast Guard was notified and a C-130 plane found the boat, dropping

food and water to the teachers, together with a radio and beacon. A nearby ship then proceeded to rescue the teachers and salvage the boat.

■ You will shortly be able to work repeaters in Australia.

The *Australian Communications Authority (ACA)* has given the go ahead for amateur repeater stations to be linked via the Internet and issued guidelines for the activity. The ACA guidelines only permit the Internet to be used as an "end to end" link. The ACA guidelines state: "The stations operating the link must employ security and filtering systems which prevent access to the public telephone network by stations using the link. Access to the link from the Internet must also be prevented."

■ CQ Magazine has a new advertising sales manager.

He is Jon Kummer, WA2OJK. He replaces Arnie Sposato, N2IQO, who "...resigned to pursue other opportunities in other fields." Jon, first licensed 20 years ago at age 15, has sold advertising space for more than a decade for a wide variety of magazines including *Modern Electronics*. He is also a collector and restorer of antique radios and television sets. His fully operational collection numbers about 100 pieces dating back to a 1920 battery operated Westinghouse radio.

■ Former Japanese prime minister, Keizo Obuchi, J11KIT, died on May 15.

He was 62. He had been hospitalized in Tokyo after suffering a stroke on April 2nd. J11KIT was an active radio amateur, and a strong supporter of JARL, the *Japan Amateur Radio League*.

■ Aiming at the new radio amateur or recent license upgrader is the new Icom IC-718 which is street priced at around \$700.

It has a .5 to 30 MHz general coverage receiver and transmits 100 W on all bands: 160 through 10 meters. The radio has an amber LCD display, a front panel mounted speaker, and features automatic tuning steps, built-in CW keyer, direct keypad frequency entry, optional internal DSP module, IF shift, microphone compressor, built-in S-meter with SWR function, VOX, a microphone with up-down frequency controls ...and more. It was introduced at the Dayton HamVention.

■ Amateur Radio Enforcement - Lonnie H. Allen KØJHP, Crane, MO had his previous license (NØTBO) canceled earlier this year when he failed to

appear for reexamination. He later took license examination and was granted KØJHP. After reviewing Allen's responses, the FCC has agreed to a one year short term licensing period. If there are no further violations of the rules, Allen's license will be routinely renewed for a ten year term.

■ The FCC also granted Jeffrey C. Dressler KF6VOT, Cypress, CA a one year short term license renewal "...conditioned upon [his] agreement not to operate on the W6NUT repeater system."

■ The FCC has again warned Angos Winke KC6OK and Scott Swanson K6PYP about their uncoordinated repeater.

They were asked to inform the FCC what steps they had taken to prevent interference to coordinated operations on the 145.46 MHz repeater pair.

■ The attorney of convicted computer hacker, Kevin Mitnick, N6NHG

was notified that Mitnick's Amateur Radio license is valid until FCC action is taken on his renewal. The FCC wants information regarding the conditions of Mitnick's probation or release from prison so that a determination can be made as to what action should be taken on his renewal application.

■ Rusty Leewright KE6UOF, Northridge, CA had his license canceled on May 19, 1999 for failure to appear for reexamination.

The FCC has now received his Technician Class application. Before granting the application, the FCC wants Leewright to respond to a 1999 complaint concerning his operation on the 147.705 MHz repeater system.

■ John F. Gammon, W5VYY, Lucas, TX has been asked to respond to a complaint signed by six amateurs alleging deliberate interference by Lucas on 3.819 MHz. His response is due within 30 days.

The FCC said it had received a complaint alleging that **Jeff Coldon K2RFI, Neptune, NJ** was operating an uncoordinated repeater on 145.190 MHz that was interfering with the coordinated N2ORM repeater. Coldon was asked to supply information concerning the steps he was taking to resolve the interference problem.

■ Alain P. Foucard KF4MIL, Morehead City, NC was notified that the FCC has received information that he - or someone using his callsign - has been operating on 14.118 MHz in the 20 meter band - a frequency not available to him under his Technician Class license.

W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #10

July 1, 2000

TEENAGER INVENTS FILE SHARING SOFTWARE

Recording industry says it encourages copyright infringement

The Internet is generating legal headaches that were never anticipated by copyright law. You have probably heard that a year-old silicon valley startup firm called Napster is being sued by the *Recording Industry Association of America* on behalf of eighteen powerful record companies.

The RIAA originally thought their problem was music stored on MP3 websites and began taking action against them. Now comes a bigger dilemma - the emergence of file-sharing software.

Calling Napster an online music pirate, the RIAA has charged the firm with "contributory copyright infringement" ...that is, aiding and abetting a theft. It is an interesting story. One that will eventually change the entire record industry as the public moves from the corner music store to the web to purchase music.

Napster's website says it "...is the world's leading file sharing community. Napster's software application enables users to locate and share media files from one convenient, easy-to-use interface. It also provides media fans a forum to communicate their interests and tastes with one another via instant messaging, chat rooms, and 'Hot List' user bookmarks."

Napster was actually invented last August by a true Internet kid, teenage Northeastern University computer science freshman, Shawn Fanning. What he did was to figure out a way to allow anybody free and total access to everybody else's music collection. He now works for Napster (named after his childhood name) full time. The firm also has received \$15 million in startup funding. Its CEO is Hank Barry ...an ex-Stanford University lawyer who specializes in copyright law. The plot thickens.

With Napster, you only have to type in the name of the song or artist and up pops hundreds of host computers where it is located ...complete with type of modem connection and ping (transfer speed) rate.

This lawsuit has huge ramifications for copyrighted "anything" ...software, books, recordings, DVD movies, you name it -- and the rights of private people. The suit also will determine if legitimate owners can legally transfer copyrighted products to anyone they choose once they have paid for it.

The legal question: is Napster breaking the law by depriving copyright owners of compensation. This highly controversial Internet service lets you swap high-quality digital copies of music in MP-3 format without the record companies (or performers and song writers) getting their share. You can even play someone else's music right from the owner's computer without transferring it to your PC!

Napster says what it is doing is perfectly legal since

its web site does not contain music. Instead it is basically an index of digital music that exists on the hard disks of people all over the world who (supposedly) paid for the music and have digital copies on their hard disks.

Essentially, Napster is just a downloadable search engine program which lets anyone forage for music by artist or song title ...or browse the entire digital collections of other online users. You then just transfer them free to your computer from another PC owner's hard disk.

Once you have the music, then you own it. Or do you? You can even record it on a blank CD disk or to one of those new breeds of digital music players. What particularly infuriates the music industry is that once you have downloaded the copyrighted material from someone else's PC, you can offer it to others free of charge.

Napster says it is just a "conduit" that facilitates the transfer of used products existing on consumer's hard drives. So far, nearly 4,000 host computer users have accumulated more than half a million copyrighted songs that reside "somewhere" - Napster tells you where they are and helps you get them. Every possible artist, music format, movie soundtrack, Broadway show - you name it -- is represented and available to anyone free.

Can a "transfer pipe" or communications system be sued? Frankly, I dunno. But the high-powered legal profession is lining up on both sides and publishers everywhere are tuned in. How the public feels about it is generally a case of which side of the fence they are on.

The RIAA has long been an opponent of any kind of music recording method. They opposed audio cassette tapes years ago. Besides its Napster case, the RIAA has another copyright suit pending against MP3.com. For the recording industry to prevail, it will have to prove that Napster is used almost exclusively for illegal activity. This won't be easy since Napster provides access to new, uncopyrighted artists as well. And the company plans to expand into other items ...such as the transferring of digital photos.

You can download the new Napster 2.0 at: <<http://www.napster.com/>>. You had better get it while you still can. There is no cost. It has already been downloaded 5 million times.

Napster has yet to produce any revenue -- much less a profit. And they have not even determined what their future business model might be. But their 5 million downloads (which represent a giant fan base) are a big asset. As I see it, the shrinkwrapped CD is about to fall by the wayside. It will join 8-track tapes, 33, 45 and 78 vinyl LPs. The future is low priced high-volume music downloaded from the web. And companies like MP3-com and Napster will be the distributor. Major artists will make more money, too. They get paid very little by major record labels. This is what the RIAA is really concerned about.