

Mtg Fri 6:30 Jan 23 at the MCL Cafeteria in Kettering **Jan 2015**

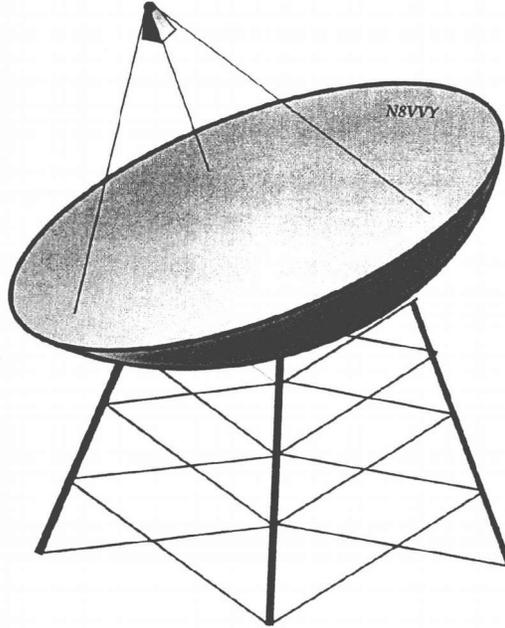
# ANOMALOUS PROPAGATION

Newsletter: *The Midwest*  
*VHF/UHF Society*

**Editors:**

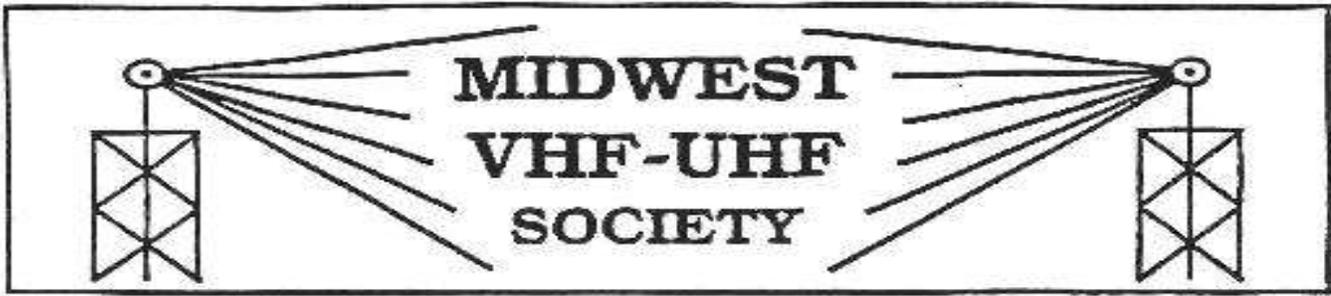
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Annual Society membership is \$ 12.00.  
Please make checks payable to Gerd Schrick



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Jan 2015

Beacons: 1296.079 **W8KSE** EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.

Listen for the **K9AYA Beacons** at EM79qk, 2W @ 10,368.000 MHz  
both are copied by K4TO daily. 1W @ 5,760.000 MHz

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## Don't Forget!

Big VHF Contest this Weekend: 24/25 Jan 2015!

## MVUS Officers:

Pres. Tom Holmes, N8ZM,  
Vice Pres. Bob Mathews, K8TKQ  
Secretary, Steve Coy, K8UD  
Treasurer, Bulletin Editor, Gerd Schrick, WB8IFM

## DE N8ZM:

'Tis the season where all I write about in this column is Hamvention. You've been warned. I have confirmed that the VHF/Microwave forum will again be held on Saturday, 3:15 to 5:00. I hope to have a moderator soon; I am talking to someone now who is a very good candidate if he is willing to do it. More to come on that.

I haven't yet put in for our booth space but that will be done shortly. As always, I am looking for ideas for catchy things to do in the booth. The Hamvention theme this year is home-brew, which I think is right up our alley. Yes, it is very similar to last year's Makers theme, but improvisation and creativity are key facets of this hobby. So let me know if you want to do some booth time, either staffing or helping with setup and tear down. You'll get an Exhibitor badge for sure! I need to know who the volunteers are soon as I have to submit the names in order to get the badges made. So let me know if you can help promote MVUS by doing some booth duty.

He hasn't mentioned it yet but I am pretty sure that Joe, N8QOD, will want a few folks to help him with the balloon launch activities. He has kindly accepted that responsibility so that I can devote my full attention to the Prize Committee. Please let him know if you are willing to help out. If you need it, I have his contact information.

If Mike, W8RKO, is willing, we will once again have our 2m and 70 cm beacons located at HARA; even if we again are criticized by those folks who wish to take us to task for being outside the designated beacon bands. OR maybe we will fix that; it's up to Mike as he has to do the necessary mods to the equipment. Watch this space ☺ .

Coming up this weekend is the ARRL January VHF Contest. Starts at 2:00 PM on Saturday and runs to 11:00 PM Sunday. All bands above 50 MHz; mostly SSB and CW, but FM is allowed on the usual simplex frequencies. As a matter of fact, there is now an FM-only category to enter; so get on! There is a lot of commercial interest in our bands, especially as you go higher in frequency, so anything we can do to activate those bands is important. You know darn well that the FCC has no particular motivation to protect our space when it is staffed by political appointees. Need I say more? This coming Friday, the 23<sup>rd</sup>, is the January MVUS meeting at the MCL. See you there!

De Tom, N8ZM

## This and That 1-2015

**Andrew Carnegie.** Over the course of his life, he endowed 2,811 libraries and many charitable foundations as well as the famous Carnegie endowment for International Peace. He also bought 7,689 Organs for churches. The purpose of these were in Carnegie's words: "To lessen the pain of the sermons".

[Writer's Almanac, Garrison Keillor]

**Stupidity.** If humans were just bad, they always were, but that they got so stupid is suspicious. Should the end of the world be so close?

[Curt Goetz]

**Progress.** The phenomenal progress we have made with science serves no other purpose but to help destroy what we have achieved. That's stupidity!

[Curt Goetz]

**Homo.** The Encyclopedia Britannica, started on St. Nick's day in 1768 was finally completed, several thousand pages long, in 1771. The entry for "woman," in its entirety, read: " 'Female of Man' See HOMO."

[Garrison Keillor in Writer's Almanac]

**Encyclopedia Britannica.** The famous encyclopedia came out between the years 1768 and 1771 in weekly installments. The entry for "woman," in its entirety, read: " 'female of man' see HOMO."

[Garrison Keillor in Writer's Almanac]

**Peak Car.** "Cities are reaching a limit in terms of how many more cars they can accept" [Assaf Biderman, founder and CEO of Superpedestrian] And a study by the U. of Michigan suggests that the US has reached "Peak Car".

[ Time Mag. 12-8-14]

**Mutation.** This is a hereditary mistake where a gene does not copy itself exactly. And the copy passes along the mis copy. No big deal. You are a mutation. Me too. If the heredity experts are correct, each of us has six to 10 defective genes. And we get by.

**Idiot Switch.** Our new "icebox" has a control knob way in the lower back of the freezer section, where it is hard to see. Goods were piled in there, but all seemed OK. Now, months later, the xyl commented that the settings were not right, the ice cream was getting too soft... so we took enough packages out and finally the control knob became visible. There were thee markings: on the left it said "cold", in the center it said "normal" and on the right, it said "colder". Confusing, you bet! Obviously the person labeling this "rotary control" must have a few too many bad mutations. See previous item!

[Gerd, WB8IFM]

**Why Sleep is Precious.** Sleep is really mostly used to do brain maintenance, which is very important. In particular: toxins are cleared out, daily wear and tear is repaired, order is made from chaos and memories are created among other things.

[As told to Gabrielle deGroot Redford, ARRP Mag, Jan 2015]

# Benjamin Franklin

In what later became the United States, the pointed lightning rod conductor, also called a "lightning attractor" or "Franklin rod," was invented by Benjamin Franklin in 1749 as part of his groundbreaking exploration of electricity. Although not the first to suggest a correlation between electricity and lightning, Franklin was the first to propose a workable system for testing his hypothesis.[7] Franklin speculated that, with an iron rod sharpened to a point,

"The electrical fire would, I think, be drawn out of a cloud silently, before it could come near enough to strike...."

Franklin speculated about lightning rods for several years before his reported kite experiment. This experiment, it is said, took place because he was tired of waiting for Christ Church in Philadelphia to be completed so he could place a lightning rod on top of it

## Create Your own Lightning!

Dec 20-2014

Today is the birthday of **American physicist Robert Van de Graaff (1901)**, born in Tuscaloosa, Alabama, and known for the literally hair-raising generator that carries his name. A Van de Graaff generator primarily consists of a hollow metal globe standing on a thick, hollow pole; inside the pole, a pair of pulleys drive a belt of silk over a pointed metal comb that is hooked to an external power supply. The comb and one pulley sit at the base of the pole, the second pulley sits inside the metal globe, and as the belt runs it builds up impressively large static electric charges - Van de Graaff's original hand-built generator, which is now housed at the Boston Museum of Science, can generate more than 2 million volts on a dry day.

Van de Graaff generators are popular in science classrooms and science fiction; when students touch one while it's running, the static charge will lift their hair into ball-shaped halos around their heads. Recently, Van de Graaff generators have become popular with home hobbyists, who have used them to turn out extreme Christmas light displays, or who run music through the electrical discharges so that the sound is transmitted to the audience on bolts of man made lightning.

[ From Writer's Almanac by Garrison Keillor ]

## Lightning Protection Advice!

- 1) Disconnect, by pulling a plug that feeds your entire station from the house power (all leads!)
- 2) Disconnect, by unscrewing the coaxial antenna lead as it exits your station, usually from the linear to an antenna switch which selects the antennas in use.

Make sure the plug and the coax connector are about the width of a hand separated from the respected receptacles.

Thats all. If properly arranged, this procedure, which should be gone through each time you leave the station, should not take longer than maybe 30 seconds. Likewise, plugging the station back in should be accomplished in less than 30 seconds.

Ever, since I made these changes to my station, I have had zero lightning problems. Prior to this I had 3 costly lightning accidents with damage ranging into the 100s of dollars.

[Gerd, WB8IFM]

## Overhead Wires

“Grandfather did decide once to install electricity at the farmhouse. But, when Grandmother saw the first poles marching up the lane, she objected. The wires ruined her view from the kitchen window, the gentle vista across fields and woods rising to a distant ridge dotted with white farm houses, unpainted barns. She was strong-willed too. He took down the poles...”  
[William Greider]

Of course, we can sympathize with Grandma. Antennas and overhead wires that are not antennas don't belong together. We were first renting our house for a few years and, it had an extra pole on the lot with the overhead wires going from the feeder to the house. We liked the house and location and eventually purchased it from the owner.

One of our first actions after that was to put the wires, electricity and telephone, underground. All we had to contribute was to have someone dig the ditch for the wires, which cost us, as I recall, \$ 30. That was in the 1970s.

As the workman were removing the wires and the extra pole we got into a brief conversation. I representing the underground solution, but they preferred the wires overhead. So I asked them why? The answer I got was: in case of a repair, they couldn't see and find the bad spot. To which I replied, that from here on out it was highly unlikely that my new underground wires would ever need replacement. Then I realized it was also their livelihood to fix broken wires and we all know how busy they are after a windstorm. Such is our system.

At the time there were three aluminum wires put in for a 230 V 200A service and since I did the electric work I had to learn how to connect the aluminum to the copper and brass hardware already in the house. The inspector okay'ed the work but recommended I'd use some black tape to mark my hot white wires. I was innocently unaware of the US electric color code. We've lived here now 50 years and had numerous power outages, but none from our underground wires!

On a recent trip as a passenger, I had a lot of time looking out on the landscape to the right or left of the freeway. What I noticed was there seemed to be a lot more wires than what I remembered, and I noticed too that they were mostly of the shiny type, indicating aluminum, the only darker wires were associated with the real high voltage line where longer spans are requiring stronger wires. This is a good indication of the high price of copper today!

[GERD, WB8iFM]

## Re Batteries in Electric Vehicles (EVs)

“Are we there yet?”

“...One would think that about as much electricity could be stored in a battery as oil can be stored in a tank, because the same kind of forces are being manipulated. Unfortunately reliable lead batteries are very heavy because they use lead from the heavy end of the periodic table. They provide only about as much energy as would result from an equal number of atoms at the light end of the series. Clearly what is needed is a good storage battery in which lithium is oxidized and reduced instead of lead.”

[This from the Scientific American written in 1971]

To-days electric car batteries, made with lithium, are **five times lighter** than their lead equivalents and therefore win hands down in competing for the electric vehicle (EV) use. {Ed.]

# The Nobel Prize in Physics 2014

Isamu Akasaki, Hiroshi Amano, Shuji Nakamura

## Award Ceremony Speech

Presentation Speech by Professor Anne L'Huillier,  
Member of the Royal Swedish Academy of Sciences;  
Member of the Nobel Committee for Physics,  
10 December 2014

Your Majesties, Your Royal Highnesses,  
Ladies and Gentlemen,

In many fairy tales, light is a power that is used to overcome the forces of evil. In *The Lord of the Rings*, written by J.R.R. Tolkien in 1954, the elf queen gives the ring-bearer a glittering crystal vial and says, "May it be a light to you in dark places, when all other lights go out."

When our ancestors learned to master the fire about 300,000 years ago, they used it not only as a source of heat or as a weapon against wild animals. The fire shined in the dark when all other lights had gone out.

In the late 19th century, the American inventor Thomas Edison was able to improve the incandescent light bulb to make it usable. It has been said that it took him around 2,000 experiments to succeed. When people said that he had failed, he replied, "No, I have not failed. I have found two thousand ways not to make a light bulb." As the electrical power grid expanded and the light bulb improved, millions and soon billions of people gained a cheap and sustainable source of lighting. The light bulb shined in the dark when all other lights had gone out.

After the Second World War, electronics based on semiconductor materials was developed. Scientists discovered at an early stage that certain combinations of semiconductor materials, diodes, could emit light. In a light bulb, a filament is heated so that it begins to shine. Light emitting diodes transform electricity directly into light and are therefore more efficient than light bulbs. In Europe, they were called crystal lamps, since they are made of crystals. In the United States, they were called LEDs.

The first LEDs emitted red light. Soon afterward came LEDs that emitted green light. If you mix red, green and blue light, you get white. Creating white light sources also required blue LEDs. From the 1960s, industry and

universities invested a lot of effort to create blue LEDs, but the necessary gallium nitride crystals turned into a powder. Many researchers tried, failed and gave up. In the early 1970s, a new technique for growing gallium nitride crystals was developed. This led to new research efforts, new experiments and new failures. It was simply too difficult.

Isamu Akasaki and his PhD student Hiroshi Amano at Nagoya University in Japan, as well as Shuji Nakamura, then researcher at a small company in Tokushima, succeeded where all others had given up. After several years of hard work in the late 1980s – with great persistence, skill and perhaps a bit of luck – they were able to produce fine gallium nitride crystals and give them the properties needed for efficient light emission. The Laureates certainly performed a lot more than 2,000 experiments, and they found many ways not to make a blue LED. But they succeeded in the end.

Thanks to the blue light emitting diode, it became possible to produce white lamps. Today these are everywhere – in our mobile telephones, our bicycles, our cars, our cities and our homes. By using an LED lamp for lighting instead of an incandescent light bulb or a fluorescent lamp, we save energy and thereby protect the environment. An LED lamp also has an incredibly long lifetime: approximately 100,000 hours, or about 11 years. Since it is so efficient, it can shine for many hours using the electricity from a battery, which can be charged using sunlight. LED lamps light up places on earth where there is no electrical power grid. They shine in the dark, when all other lights have gone out.

More than a century ago, Alfred Nobel wrote in his will that the Nobel Prize in Physics should be awarded to those who shall have conferred the greatest benefit to mankind. This year's prize fulfills Alfred Nobel's wish extremely well.

Professor Akasaki, Professor Amano,  
Professor Nakamura:

You have been awarded the 2014 Nobel Prize in Physics for your invention of efficient blue light emitting diodes, which has enabled bright and energy saving white light sources. On behalf of the Royal Swedish Academy of Sciences, it is my honour and pleasure to convey to you the warmest congratulations for your outstanding work. I now ask you to step forward to receive your Nobel Prizes from the hand of His Majesty the King.

## 5 Operating System Alternatives to Windows

By Steven J. Vaughan-Nichols

for "Between the Lines" | Apr 9, 2013

On April 8, 2014, Microsoft will stop supporting XP, but most people are not moving to Windows 8. Indeed, according to a TechRepublic survey, enterprise XP users are especially reluctant to move to Windows 8, so what are you going to use for your desktop in 2014? Here are my five suggestions in the order I think you should consider them.

### 5. Android Tablet/Apple iPad

You really can use a tablet for some work purposes, but it works far better if you're primarily an information consumer rather than an information producer. So, sure, if you're looking up data from a spreadsheet, searching the web, or reading email, they're great. But if you're putting data into a spreadsheet, creating web pages, or writing long emails or documents, the platform can quickly become annoying.

You can solve those problems with a Bluetooth keyboard and a mouse, but do you know what you call a tablet with a keyboard and a mouse? I call it a laptop computer, myself.

I find it very telling that Charlie Sorrel, a true hard-core iPad-for-work user, recently had to throw in the towel because of "Gorilla Arm". This ailment, which had been known about long before the iPad was a gleam in Steve Jobs' eyes, happens when you're always bringing your arm up to touch a screen. Even with a keyboard, Sorrel found that after using an iPad day after day for over a year, the result was so painful that he would "sometimes rush through posts just to get them finished".

Jobs could have told him that. In fact, he did, back in 2010. "We've done tons of user testing on this and it turns out it doesn't work. Touch surfaces don't want to be vertical. It gives great demo, but after a short period of time, you start to fatigue, and after an extended period of time, your arm wants to fall off."

So, go ahead and support bring your own device for tablets if you like, just don't expect them to replace PCs. They won't.

4. Mac I know, I know, if you're a Windows user you don't want to hear this, but Macs really are fine PC replacements. You can run many Microsoft office applications on them, such as Office for Mac and Outlook. True, they're not the newest versions, but if you have to have Microsoft applications, they

are there. In addition, thanks to virtualization software like Parallels, you can still run your native Windows applications.

The downside, as always, is that Macs are never cheap. They'll also require you to learn a new way of doing things. That said, the learning curve from Windows to the latest version of Mac OS X, Mountain Lion, isn't as steep as from, say, XP to Windows 8's Metro.

### 3. The Linux Desktop

**What's always been far more secure than Windows, a great deal more stable, and with the right combination of distribution and desktop interface? And it actually looks and feels a lot like XP. That would be desktop Linux; in particular, Linux Mint with the Cinnamon interface.**

**The downside is that it's more trouble to run Windows applications on Linux. It is not, however, impossible, thanks to a program called Wine and its commercial incarnation, Crossover Linux. In addition, just like the Mac, there are ways to run Windows virtually on Linux, such as Oracle's VirtualBox.**

**Frankly, though, for most office work, I find that LibreOffice and Evolution are better than their Windows counterparts, Microsoft Office and Outlook.**

**Don't believe me? Give it a try. You can download Mint and use it for free. You may just find that Linux is the operating system for you.**

### 2. Chrome OS

Google thinks you don't need a fat-client desktop-any version of Windows, Mac OS X, and most Linux editions at all. Instead, all you need is enough Linux to run a system and the Chrome web browser for all your needs. With Chrome OS, they may be right.

I've been using Chrome OS on older PCs, and chromebooks for almost two years now. I've found that it works really well for most purposes. Better still, Chrome OS will run well on everything from cheap, \$250 ARM-powered chromebooks to the fast, beautiful, and pricey, \$1,299 Chromebook Pixel.

Perhaps the best thing about Chrome OS and its chromebook is that it has no learning curve whatsoever. If you can use a web browser, you can use a chromebook.

Is it right for you? Sit down and take a long, hard look at what you and your staff actually do all day. If you find — and I think many of you will — that most of their work can be done with software-as-a-service (SaaS) apps such as Google Docs and Gmail, then Chrome OS is your natural choice.

## **Birth of the Transistor** By Garrison Keillor 23 Dec, 2014

It was on this day in 1947 that the first transistor was demonstrated at Bell Laboratories in New Jersey. It was the culmination of a four-week period dubbed the "Miracle Month." For years scientists had been trying to find a way to make better use of the potential of electricity, but the technology that picked up radio signals was clunky. Vacuum tubes were big and awkward, they used a lot of power and put off too much heat, and they didn't work very well.

About 10 years earlier, Bell Labs had hired the physicist William Shockley to develop a new model to amplify current. Shockley assembled a team that included Walter Brattain and John Bardeen. In 1945, Shockley had high hopes for a new model he had designed: a cylinder coated with silicon, mounted to a metal plate. It didn't work, and Shockley asked Brattain and Bardeen to figure out the problem.

On November 17th, 1947, Brattain was frustrated because condensation kept forming on the surface of the silicon on a device he had built. He knew he should put the silicon in a vacuum, but he was feeling lazy so he just stuck it in a thermos of water. He was shocked to observe the largest amplification so far in their trials. After that, Bardeen and Brattain had to do a lot of tinkering, but they felt as though they were on the right path. They replaced the silicon with germanium, and instead of water they used germanium dioxide, and then eventually phased out the liquid altogether. They used two gold contact points, which negated the effect of the electrons - just as liquid had done - but worked at all frequencies. The radio signal came in one gold contact and went out the other. On December 16th, a successful transistor was invented.

The scientists kept their invention a secret, and on this day in 1947, Brattain and Bardeen demonstrated it to a group at Bell. The three scientists were awarded the Nobel Prize for their invention in 1956.

The first transistor was about half an inch high; today, 7 million transistors can fit on a silicon chip (of a few square mm.

[From Writer's Almanac]

### **Our BIG Cars**

<b>Vehicle Class</b>	<b>Curb Weight in Pounds and Kilograms (Wikipedia)</b>	
Compact car	2,979 pounds	1,354 kg
Midsize car	3,497 pounds	1,590 kg
Large car	4,366 pounds	1,985 kg
Compact truck or SUV	3,470 pounds	1,577 kg
Midsize truck or SUV	4,259 pounds	1,936 kilograms
Large truck or SUV	5,411 pounds	2.460 kilograms

The weight of a car influences fuel consumption and performance, with more weight resulting in increased fuel consumption and decreased performance. According to research conducted by Julian Allwood of the University of Cambridge, global energy use could be heavily reduced by using lighter cars, and an average weight of 500 kg has been said to be well achievable.[35]

In some competitions such as the Shell Eco Marathon, average car weights of 45 kg have also been achieved.[36]

[37] These cars are only single-seaters (still falling within the definition of a car, although 4-seater cars are more common), but they nevertheless demonstrate the amount by which car weights could still be reduced, and the subsequent lower fuel use (i.e. up to a fuel use of 2560 km/l).[38]

**For comparison: a bicycle weighs about 20 pounds!** [ED]

It's the birthday of one of the people who helped invent the modern computer: Grace Hopper, born in New York City (1906). She began tinkering around with machines when she was seven years old, dismantling several alarm clocks around the house to see how they worked. She was especially good at math in school.

She studied math and physics in college, and eventually got a Ph.D. in mathematics from Yale. Then World War II broke out, and Hopper wanted to serve her country. Her father had been an admiral in the Navy, so she applied to a division of the Navy called WAVES, which stood for Women Accepted for Voluntary Emergency Service. She was assigned to work on a machine that might help calculate the trajectory of bombs and rockets.

She learned how to program that early computing machine, and wrote the first instruction manual for its use. She went on to work on several more versions of the same machine. In 1952, Hopper noticed that most computer errors were the result of humans making mistakes in writing programs. So she attempted to solve that problem by writing a new computer language that used ordinary words instead of just numbers. It was one of the first computer languages, and the first designed to help ordinary people write computer programs, and she went on to help develop it into the computer language known as COBOL, or "Common Business-Oriented Language."

[Garrison Keillor in Writer's Almanach ]

## **Our Planets**

The SUN is a huge mass of gasses that burn in a special way. This burning provides Planets with heat and light.

Mercury is the planet closest to the Sun. It has no air. It is covered with craters and this makes it look like our moon.

The Earth is different from the other planets because it has water in three forms: liquid (oceans), solid (ice), and gas (clouds). The Earth has one natural Moon.

Mars looks red in the sky because it is covered with a desert of red rock and dust. It has two tiny moons.

Jupiter is so large that all the other planets could fit inside of it. It is mostly gasses but these gasses aren't burning. Jupiter has one thin ring and at least 16 moons. Four of Jupiter's moons are as big as planets.

Saturn is another large ball of gasses. It has thousands of rings and at least 23 moons.

Uranus is so far from the Sun that it is always very cold. It also is a ball of gasses and has at least 12 rings and 15 moons. It rotates on its side and orbits around the sun sideways.

Neptune is about the same size as Uranus. It has at least two moons and seems to have a ring, too.

Pluto is a tiny, cold icy, rocky planet. [NASA, Lewis research CTR, 1988]