PCARA Update

Volume 12, Issue 4 Peekskill / Cortlandt Amateur Radio Association Inc. April 2011

Spring shoots

PCARA took a table at the Orange County Amateur Radio Club Spring Hamfest on March 26, 2011 at the Town of Wallkill Community Center in Middletown, NY, and we had 10 members in attendance! I was almost tempted to call a special meeting since we had a quorum! Thanks to everybody who turned out, it was great to see so many friendly faces after a long and hard winter.

Orange County ARC Hamfest — Bob N2CBH chats with Karl N2KZ and Joe WA2MCR at the PCARA club table.

I noticed that something else had turned up at the hamfest. Some of the growing wave of inexpensive Chinese HT exports. These models by Wouxun were being offered for sale by KJI Electronics at most reasonable prices. Malcolm, NM9J had a brief review of one brand of these low-cost units, the Feidaxin FD-268A VHF model, in the June 2009 edition of the *PCARA Update* (Vol. 10, Issue 6). At these prices, they are worth considering if you need a spare or backup HT.

TYT TH-F5 and Wouxun KG-UVD1P radios.

There are a couple of events coming up in April that you might want to mark on your calendar. First, The Mt. Beacon Amateur Radio Club Hamfest is scheduled for Sunday, April 10, 2011 at Tymor Park in LaGrangeville, NY. Details can be found at the MBARC website: http://wr2abb.org/home/. PCARA has a club table booked. Second, on Saturday, April 30, 2011 PEARL will be holding a VE Test Session at the Mahopac Public Library.

Our next regularly scheduled meeting is at 3:00 pm on April 3, 2011 at Hudson Valley Hospital Center in Cortlandt Manor, NY. I look forward to seeing each of you there.

- 73 de Greg, KB2CQE

PCARA Officers

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Joe Calabrese, WA2MCR; wa2mcr *at* arrl.net

Contents

Greg KB2CQE, Karl N2KZ and Robert N2GDY at OCARC Hamfest on March 26.

Adventures in DXing

- N2KZ

Slowly but Surely

Who won the race? The tortoise or the hare? I discovered a winner on 30 meters a couple of evenings ago. I heard a weak signal sending a very slow and tentative CQ. I waited patiently for that final 'K' and replied at the same speed. We were communicating at about three words per minute. One distinctive characteristic? The code I was receiving was clean and easy to read. It sounded like this person was serious about CW.

The guy at the other end of the sky was Ken, KC4ETW, down in Charleston, South Carolina. Ken's QRZ.com bio and a follow-up e-mail said a lot about this newcomer to the CW fold. Upgraded to a General license, Ken holds a nightly watch on or about 10.116 MHz on 30 meter CW. "I prefer short QSOs for now due to my code receive speed. Usually the basics are best. Name, QTH and a signal report will be enough. Thanks to all who answer my call on the thirty meter band. I am having a blast."

"All my life I have wanted to become a good CW operator. I remember as a child listening to CW on an ancient shortwave radio and ever since then I have been a CW fan. I am running an Oak Hills Research Explorer and, to the best of my knowledge, I am running maybe 5 watts using a home made dipole cut for the center of the 30 meter band without a tuner." (Strangely enough, my 30 meter QRP rig is an Oak Hills Research OHR-100A that is a descendant of the Explorer. Total power for our QSO, both stations combined? Under ten watts!)

Ken, KC4ETW

"Since I am such a CW fan, a Vibroplex Blue Racer has been my key of choice with a vari-speed to try to slow the key down to some reasonable useable speed. I have no idea how fast the key really can go but that speed would far and away exceed my ability to send code."

"If anyone ever asks me, I would recommend a straight key for a beginner. I had to wrestle with my bug for nearly a year before I could send any code worth trying to copy but I wouldn't trade the bug for anything else that I know of. I have learned that a bug will send a signature code instead of "vanilla code" that an electronic keyer produces."

Ken is looking for contacts during his radio watch nightly from 7:30 to 8:00 pm Eastern time. "It would be a milestone experience to hear my call sign and a day to remember." Why not hop onto 30 meters and see if you can find Ken? Not only would it make his day, it would probably make yours too! Isn't this what ham radio is all about?

Great Beginnings

Everyone starts somewhere. My shortwave life began, at age 11, in 1965. As a complete surprise, my Dad presented me with a four-tube Hallicrafters S-120 general coverage receiver covering 530 kcs through 30 mcs in four bands. What an amazing thing it was! Suddenly, I began to discover the world above the AM broadcast band. I used the supplied 25 feet of hookup wire as an antenna lying on my bedroom floor. Later on, my Dad strung a longer wire into our attic. Now I was really listening!

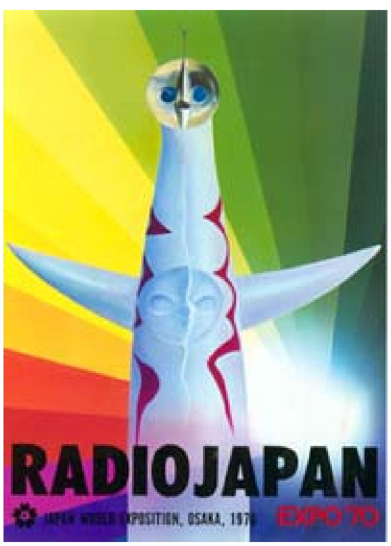
The very first thing I heard was a marine radiotelephone operator in Baltimore. I was stunned! Baltimore in the daytime? This was one of the many super-power simplex ship-to-shore telephone services heard just above 2 megacycles. *[We'll stay with Karl's vintage megacycle and kilocycle per second frequency units just for this article. –Ed]* You would hear both sides of the conversation but only one person could talk at a time. The ship could not hear the shore while it was transmitting. There was a similar operator called "New York Radio" based in our metropolitan area. The things you would hear on the radiotelephone channels were amazing. These frequencies were primarily used by the very rich and famous. Entertaining it was!

I also have to mention the big buzz just above the AM broadcast band. An enormous broadband signal was heard 24/7 from about 1750 to 2000 kcs. It was the voice of LORAN, a marine radio navigation system known for its megawatt transmitters and huge antenna farms. Boy! Was it powerful! It never, ever ended its broadcasts and made 160 meters fairly useless for amateur radio operators. 75/80 meters and 40 meters were simply packed with signals back then, mostly on CW and AM. Many hams could be heard chatting away day and night. Do you think they can hear me listening in?

I can't say I ever set any records as a serious shortwave DXer, but I did have fun. The Voice of America, The BBC and Radio Moscow were always omnipresent. There were two stations that dominated the mornings: The CBC from Canada on 9630 kcs and Radio Australia on 9580 kcs. There were three strong Canadian relay stations on 49 meters: CFCX on 6005 kcs from Montreal, CFRX from Toronto on 6070 and CHNX on 6130 from Halifax, Nova Scotia. They would relay their standard AM broadcast stations for listeners out of the reach of their primary signal. All three were heard worldwide. In the United States, they were daytime-only stations since they would be obliterated by more powerful international broadcasters at night.

Many international stations could also be heard every night. I particularly remember Radio Nederland from Holland, Swiss Radio International, Deutsche Welle from Germany, RAI Italy, Vatican Radio, Radio Espana and Radio Portugal and a bevy of broadcasters from the Eastern Bloc countries: Poland, Albania, Hungary, Yugoslavia, Radio Sofia Bulgaria, and Radio Prague Czechoslovakia. Kol Israel and Radio Cairo Egypt were both very interesting to hear. Radio Cairo was easy to find since it was at the very bottom of the 31 meter band at 9410 kcs all by itself.

Some areas were very hard to hear. Radio Australia was an easy catch from the Pacific Rim during American mornings, but everything else from this area was difficult. Far East stations always were best in the early morning. American listeners took advantage of grayline propagation at local dawn while the Far East was in darkness. During our evening, Far East stations would try to reach North America with superpower and complex directional arrays on 19 and 16 meters around 15 and 17 mcs. I can remember hearing Radio Japan, Radio New Zealand, Radio Australia and Radio Peking all come in with a signature quick warble sound due to multi-hop skip. These stations were bound and determined to be heard no matter what lousy propagation they had to deal with and chose the highest MUF (maximum usable frequency) they possibly could to make it through.



Keep in mind that in the 1960s, the maximum power being used by shortwave broadcasters was usually 50 kilowatts or less. It was only later that superpower stations began to use 500 kilowatts or more. As time progressed, major broadcasters, like Radio Canada International and Radio Nederlands (using their facility from the Caribbean island of Bonaire,) began hosting the broadcasts of other stations. For example, hearing Radio Japan through RCI's powerful facility in Sackville, New Brunswick, Canada was much clearer and reliable than direct transmission from Japan. Using multiple transmission facilities around the world reception improved remarkably and made shortwave listening more viable for casual listeners. In some respects, this change was the bane of DXers who now had to dodge between monster transmissions to hear the 'real DX' from the rare weaker stations.

Some stations were nearly impossible to log. I finally heard All India Radio in the 1970s after years of trying. Africa was fairly difficult. Radio Ghana could sometimes be heard during the afternoon and The Voice of Nigeria might also come your way on occasion. All of this changed when Radio RSA South Africa upgraded their signal and began powerful and dominant broadcasts to North America. Even the simplest receivers would have no problem picking them up.

At the height of my interest in shortwave, I developed a little schedule I could keep to hear all of the regular stations in one night. Most international broadcasters employed multiple languages throughout their prime time to North America. A station might broadcast in English, French and Spanish along with its native language (like Dutch or German) during the course of the evening. Each language would be allowed an hour or less in a four language rotation that might begin at about 7pm local time. In this era of dial needles and analog tuning, most every station would air a musical 'interval signal' before it began its broadcast so you could easily find them on the dial. You can hear what they sounded like by visiting www.intervalsignals.net - a wonderful collection of these musical signatures.

Later in the evening, antenna patterns would be adjusted and skewed to the West Coast of North America and the four hour cycle would repeat for this new audience. I think the major voices on the air worked out a voluntary plan not to conflict with each other's broadcasts that might draw an audience (or so it seemed.) You could follow the English broadcasts from one station to another all evening if you were clever and hear half a dozen or more countries with armchair quality reception.

The shows that were most fun to listen to were the ones aimed at true avid shortwave listeners. My favorite was Sweden Calling DXers hosted by Arne Skoog and later by George Wood. Radio Canada International offered Maple Leaf Mailbag and even organized a club for DXers. Another very popular show was The Happy Station Show on Radio Nederland on Sundays hosted by Eddie Startz. This variety show was on the air for decades starting in 1928!

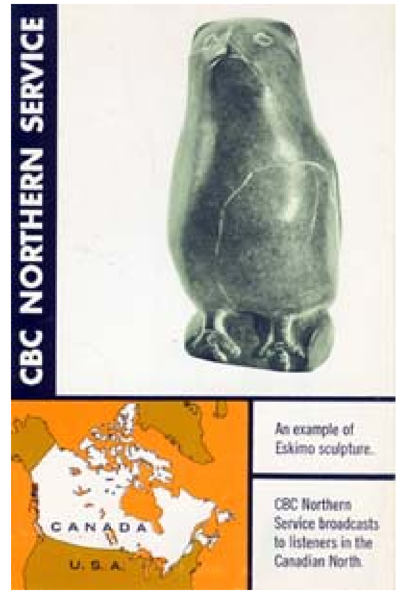
Radio Canada Montreal

I was very fortunate to visit Montreal in 1967 to witness their World's Fair called Expo '67. This event celebrated the centennial of Canada's confederation and independence from Great Britain. During this visit, my Dad took me to the offices and studios of Radio Canada International. I actually got to meet their entire staff including the legendary Ian McFarland who ran their shortwave club. We talked about how they decided on operating frequencies and worked things out with their competition on the air. I saw the actual studios where CBC broadcasts began and all their mesmerizing broadcast equipment. It really was a fascinating afternoon!

Listening to all these different stations certainly made me a worldly thinker and student of news. I was often amazed and entertained when I heard how different countries reported world events. Indeed, entire new worlds were revealed to me through my shortwave radio. I used to hear the CBC Northern Service on 31 meters in the late afternoons broadcasting in English and a great variety of Eskimo languages. The English news for this part of the world was amazing, listening to the progression of seal hunts, food distribution, community affairs and their art and culture. The Eskimo languages were quite unusual to hear with long words filled with vowels. I experienced similar fascination listening to Australian local shortwave stations from outback cities that could be heard for hours in the morning here on the East Coast.

Ian McFarland

The shortwave radios varied a great deal back in the 1960s. So many different models were available! There were still many sets in use that heralded back to the 1930s and 40s in beautiful wood cases. These tuned no differently than standard AM household radios except they had a band switch that would take you higher in frequency. At the other end of the spectrum were sets like the military surplus R-390 or the famous Drake SW-4A. These were the receivers that set the standard of excellence. Hallicrafters offered many very popular receivers within the budget of the average public (and all the boys saving their nickels and dimes!) The S-38 series led to rigs like the Sky Buddy and my model S-120. Even my S-120 was an expensive radio back in 1965. It was at the end of its production life being sold at about $59.95 which was a lot of money back then! I was very lucky to have a radio this fancy!



Did I love my Hallicrafters S-120? I wore this radio out every way I could. I experimented with its calibration and coils. I attached every kind of antenna I could try with it literally wearing out the antenna screw connections. I coupled antenna wires to its broadcast band ferrite loop. Even the knobs eventually had to be replaced due to endless use and wear. I'm very proud to say that I still have mine. I've rebuilt the power supply and coupling capacitors and it remains in my shack as a reminder of my beginnings. What is the ultimate complete treat? Using my S-120 as the receiver when I have my 250 milliwatt Tuna Tin II transmitter on the air! Now that's real fun!

The world of shortwave listening has changed a great deal since 1965. Many major governmental broadcasters have left the air. Some newcomers have taken their place. Shortwave receivers have become simply remarkable with all digital tuning and filtering for very little money. There is always so much more to hear!

Here are some suggested resources for beginning and seasoned shortwave DXers: Monitoring Times magazine's Shortwave Central at mt-shortwave.blogspot.com, Radio Netherlands' Media Network at http://blogs.rnw.nl/medianetwork/, English shortwave schedules at http://www.primetimeshortwave.com/ and Colin Newell's useful site www.dxer.ca. Take a few minutes with your

HF rig and tune around the shortwave broadcast bands. You might be amazed at what you can hear on HF beyond the world of amateur radio!

Don't forget to check the PCARA Facebook page for updated news and event listings all month long!

Until next month, 73 and dit dit de N2KZ 'The Old Goat.'

Essential$_2$ Farads

Previous articles in the "Essential$_2$" series have shown how chemical products are essential to electronics and radio. This time we'll see how a pioneering chemist became a force to be reckoned with in the field of electricity.

Did you ever wonder why electrical capacitors are marked with pF, nF and μF? Those are the abbreviations for the picofarad, nanofarad and microfarad. A really large capacitor will have its value marked in **farads**, the international unit of capacitance.

Capacitors with values marked in μF

That unit of capacitance, plus the Faraday cage, Faraday rotation and Faraday's Law are all named after one person — **Michael Faraday**, a well-known English chemist and physicist. Let's take a look at his life and achievements.

Bookish beginnings

Two hundred and twenty years ago, in 1791, Michael Faraday was born in what is now the Elephant and Castle area of the London Borough of Southwark, south of the River Thames. Michael's family moved north of the river, living over a stables. His father James, a blacksmith from Northern England, was not in good health. The family was very poor, and Michael Faraday only had a limited elementary education. At the age of fourteen he was apprenticed to a bookseller and binder named George Riebau and moved in with the Riebau family. In this new environment, Michael was surrounded by books, with the *Encyclopedia Britannica* being one of the volumes bound. Faraday was fascinated by *Britannica's* article on electricity, a field that was only a few decades old. Faraday started experimenting himself, building an electrostatic generator and voltaic pile. The pile consisted of seven copper halfpence, seven disks of sheet zinc and six pieces of paper soaked in salt water. With this early battery, he was able to decompose magnesium sulfate.

Voltaic pile as used by Michael Faraday

While still in his teens, Michael Faraday began attending public lectures on science, the entrance fees being paid by his older brother. Michael made detailed notes of the lectures, bound them into books and presented them to his employer George Riebau. One series of lectures was given by Sir Humphrey Davy at the Royal Institution in London. The Royal Institution of Great Britain had been founded in 1799 by a group of British scientists in order to encourage scientific discovery and to educate the general public about the latest advances. Sir Humphrey Davy was a noted chemist who investigated breathing of nitrous oxide and isolated the metallic elements sodium and potassium by electrolysis of their molten hydroxides. Subsequently Davy became famous for his invention of the coal miner's safety lamp.

The Royal Institution building in Albemarle Street, Mayfair, central London.

Michael Faraday made careful notes of Davy's lectures, bound them into a book and sent a copy to Davy, asking for his assistance "to escape from trade and to enter into the service of science." His apprenticeship to Riebau came to an end, and he moved to another bookbinder. But things were about to change because one day Davy sent a note to Faraday's home inviting him to visit. Faraday obtained a temporary job at the Royal Institution, which turned into a permanent job after one of Davy's assistants became involved in a fight and was asked to leave. Faraday took the position of "Chemical Assistant" at the Royal Institution in 1813.

Grand tour

Shortly after beginning his career at the Royal Institution, Faraday was invited to accompany Sir Humphrey Davy and his wife Lady Davy on a tour of continental Europe, visiting the scientific circles of the day. Although Lady Davy treated the young man as little more than a servant, Faraday was able to meet leading scientists on the tour — including discoverer of electromagnetism André-Marie Ampère, and inventor of the voltaic pile Alessandro Volta. As well as the opportunity to discuss scientific discoveries with these noted academics, Faraday's vision was broadened by seeing different parts of Europe, and by learning Italian and French. By the time of his return to England in 1815, he had become Davy's collaborator and was promoted to "Assistant and Superintendent of Apparatus" at the Royal Institution.

Chemical chap.

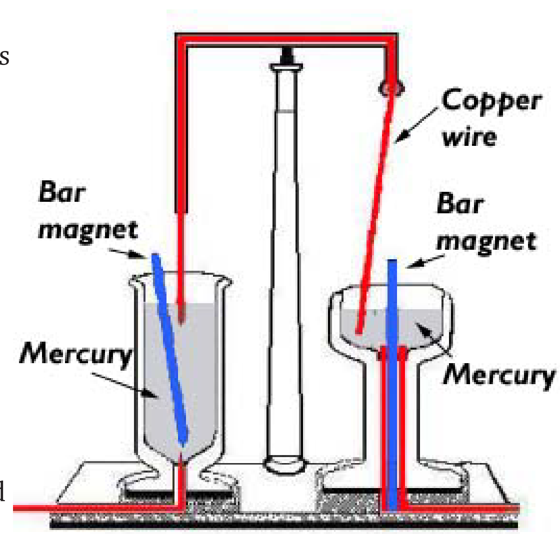
Faraday's early accomplishments at the Royal Institution were mostly in the field of chemistry. He conducted research on different steel alloys, and liquefied chlorine gas. Later he would liquefy sulfur dioxide, carbon dioxide, and other gases. Faraday produced the first synthetic compounds containing carbon and chlorine by a substitution reaction in which chlorine replaced the hydrogen atoms of ethylene. The products were tetrachloroethane C_2Cl_4 and hexachloroethane C_2Cl_6.

Michael Faraday working in the chemical laboratory at the Royal Institution, water color by Harriet Moore.

In 1825, Faraday investigated a by-product from the commercial manufacture of illuminating gas. In this process, whale or cod oil was gasified in a hot furnace, and the resulting vapors were compressed to thirty atmospheres for storage. During compression, an oily liquid was left behind, and Faraday was able to isolate a new compound from the residue which he called "bi-carburet of hydrogen". This is now known as benzene (C_6H_6), the first aromatic compound and one which was to have significant application in the manufacture of dyes and other products. Faraday also worked on the improvement of optical glass, laying the ground for some important later work with polarized light.

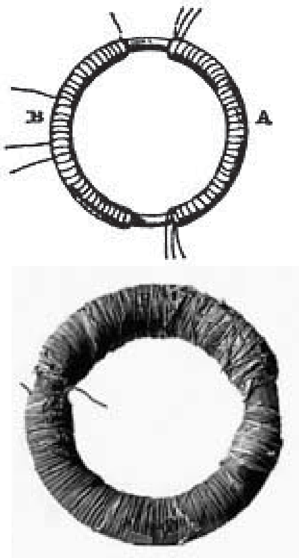
Electrical efforts

In 1821, Faraday became "Superintendent of the house and laboratory" at the Royal Institution, starting a period of multiple discoveries in the world of electricity. One year earlier in 1820, Danish chemist Hans Christian Oersted had discovered that a current from a chemical battery could influence a compass needle when switched on and off. Shortly afterwards, André-Marie Ampère showed that parallel wires carrying electrical currents would attract or repel each other, depending on the direction of the current. If an electric current could influence a magnet, Faraday wondered whether a magnet would be able to move a current-carrying wire. He devised an apparatus for "electromagnetic rotation" to demonstrate both effects. In one part of the apparatus, a bar magnet could be seen to rotate continuously around a current-carrying conductor while in the other part, a current-carrying wire would rotate rapidly around a static bar magnet. This circular motion around the wire reflects the direction of the compass deflection observed by Oersted. Faraday's apparatus is a very primitive electric motor.



Faraday's apparatus to demonstrate 'electromagnetic rotation'.

Faraday's thinking went further — if an electric current could produce magnetism, then perhaps magnetism would be able to produce electricity. His theory was proved in 1831, when Faraday took a soft iron ring and wound two separate coils of insulated

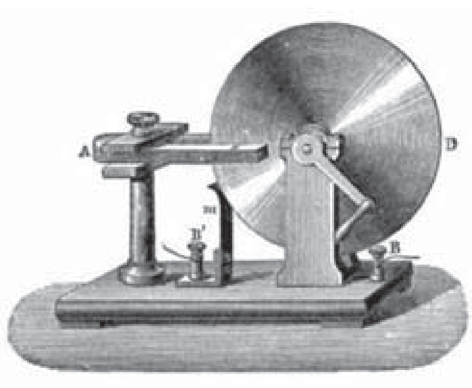


Faraday's iron ring

wire around it. The coil on one side (A) was connected to a battery, while the coil on the other side (B) was connected to a wire near a magnetic needle. As the battery was connected, the magnetic needle was deflected, then settled down. When the battery was disconnected, the needle was momentarily deflected once again. The magnetic field produced by coil A was conducted through the soft iron ring into coil B, where an electrical current was produced as the field changed. Faraday had discovered magnetic induction and produced the very first transformer.

Faraday went on to investigate a cylindrical coil of wire which would fit over a permanent bar magnet. By moving the bar magnet back and forth inside the coil, he was able produce an electric current. The current traveled in one direction when the magnet was inserted into the coil, and in the opposite direction when the magnet was removed. This proved that moving a wire through a magnetic field produces a current in the wire.

The last step in this set of discoveries was to generate electrical current continuously by rotating a copper disk between the poles of a horseshoe magnet. The disk had one contact at its center while the other contact slid along the edge. This was the first electric generator. Reversing the operation by feeding an electrical current into the disk would make the disk rotate, one more step toward a practical electric motor.



Faraday disk generator.

Faraday called the effect — in which a moving magnetic field produces an electric current — "electromagnetic induction". This transformation of changing magnetic field into electric current is in continuous use all around us, in every electrical transformer and electrical generator.

The effect is summarized in Faraday's law of induction — which states that the electromotive force generated in an electrical circuit is proportional to the rate of change of the magnetic flux. Faraday's law was subsequently incorporated into one of four equations formulated by Scottish mathematician James Clerk Maxwell in his paper "On Physical Lines of Force".

Positive charge

Faraday's electrical experiences were applied to chemistry in 1832. He was able to show that the various forms of electricity — voltaic electricity produced by a chemical battery, static electricity produced by friction, electricity induced by magnetism and animal electricity — were all manifestations of the same phenomenon. Along the way, he found that during the electrolytic decomposition of a conducting liquid, it was the passage of electrical current through the electrolyte which caused continuous decomposition, without any need for initial splitting of the liquid. Faraday assumed that motion of electricity through an electrolyte was caused by charged particles, which he called ions, a name from classical Greek suggested by William Whewell. As well as ion, Faraday gave us the names: anode, cathode, electrode, cation, anion, and electrolyte.

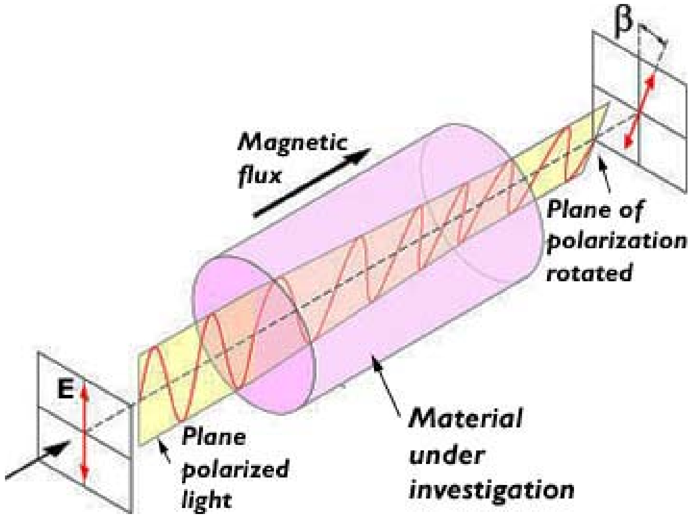
Following careful experimentation with the electrolysis of acidified water, tin chloride and lead chloride, Faraday's thinking about electrochemistry went along these lines. If a *fixed quantity* of electricity is passed through a liquid electrolyte, then a fixed number of negative ions (anions) will be attracted to the positive terminal (anode), and a fixed number of positive ions (cations) will be attracted to the negative cathode. Some of these ions can carry multiple charges. As the ions are neutralized at the electrodes they will produce a *specific amount* of a neutral metal or a gas.

This work was summarized in Faraday's two laws of electrochemistry:

1. The mass of an individual product liberated in electrolysis is proportional to the quantity of electricity which has been passed through the electrolyte.
2. The masses of products liberated in electrolysis by passage of the same quantity of electricity are in the ratio of their chemical equivalents.

Light twist

In 1845, Faraday was investigating the effect of magnetic fields on light, following a prediction by William Thomson (later Lord Kelvin) that a magnetic field would affect polarized light. Faraday looked for such an effect within various materials including air, flint and glass but without success. Then he tried the "heavy glass" based on lead borosilicate that he had previously prepared as part of his work on high refractive index optical glasses. When passing light through "heavy glass", Faraday found the plane of polarization was rotated by the application of an external magnetic field aligned in the direction of propagation. The sense of rotation depended on the direction of the magnetic field.



Faraday effect - rotating the plane of polarization of an electromagnetic wave using a magnetic field.

This phenomenon is known as the "Faraday effect" or "Faraday Rotation" and shows a significant link between magnetic force and visible radiation. The Faraday effect also applies to radio waves, where the plane of polarization can be rotated by the earth's magnetic field acting on the conducting plasma of the ionosphere. This explains why horizontally polarized HF transmissions can arrive with quite different polarization after passage through the ionosphere. The Faraday effect is also used in optical isolators, which transmit light only in one direction. Microwave isolators and circulators use a similar trick, with ferrite material in a waveguide, positioned within a steady magnetic field.

Anti-magnetic

In 1845, with the aid of a powerful horseshoe magnet, Faraday discovered that non-conducting materials such as his "heavy glass" could still be affected by a strong magnetic field. In this case, the magnetic field repels the material, the opposite of a magnetic material such as iron. Faraday named this weak effect diamagnetism and found that most non-magnetic materials show the property.

Michael Faraday

Charged up

Following his work on magnetic fields and magnetic induction, Faraday applied similar principles to static electricity. If lines of magnetic force were associated with magnetic phenomena, then similar lines of force could explain electrostatic phenomena, and different insulating materials might have different abilities to sustain these lines of force. In 1837, Faraday measured the varying effect of different insulators in determining the capacitance of a special device to store electrical charge. He employed two, concentric, spherical metal shells, connecting the internal sphere to a source of electricity and grounding the external shell. He filled the space in between the spheres with the insulating substance to be tested and measured the amount of electricity required to charge the inner sphere to the same potential. Comparing the quantity of electricity required for each substance, to the amount required for air or vacuum gave a ratio now known as the dielectric constant of the substance.

Faraday's apparatus for determining dielectric constant of insulators.

Caged in

Faraday's work on static electricity demonstrated that electric charge only resides on the exterior of a charged conductor, and the exterior charge has no influence on anything enclosed within the conductor. This is because the exterior charges redistribute themselves so that the interior fields due to them cancel out.

To demonstrate, Faraday built a large wooden cube with 12 foot sides. He had the sides covered with a mesh of copper wire and with bands of tin foil. He then insulated the cage on the floor of the Royal Institution and connected an electrostatic generator to charge it up. In his own words: "I went into the cube and lived in it, and using lighted candles, electrometers, and all other tests of electrical states, I could not find the least influence upon them, or indication of anything particular given by them, though all the time the outside of the cube was powerfully charged, and large sparks and brushes were darting off from every part of its outer surface."

A continuous screened enclosure used for its shielding effect is now known as a Faraday cage. The principle is widely used to create a quiet environment for electrical testing, preventing the intrusion of external electrical and electromagnetic fields. The same design can keep electrical and RF fields safely confined within a metal enclosure — whether within an electrical equipment room in the basement of a building, or within a microwave oven used to warm your lunch.

Humble chemist

Faraday refused offers of a knighthood. In 1861 at the age of 70 he resigned from the Royal Institution, and moved in the following year from Albemarle Street in central London to a house at Hampton Court arranged by Queen Victoria and Prince Albert. He died in 1867.

Faraday's statue by the staircase at the Royal Institution.

Faraday is memorialized in a number of places, including a statue at the foot of the staircase in the Royal Institution. During the last decade of the twentieth century, Faraday's face appeared on the Bank of England 20 pound sterling note. One of the events that Michael Faraday originated at the RI — the Christmas Lectures for Young People — continue to this day, and have inspired generations of youngsters to become interested in the latest discoveries of science and technology.

UK £20 banknote

- NM9J

Multipolarized antenna

Ray, W2CH recently installed a new "MP Antenna" model 08-ANT-0863 "Super-M Classic Base Multipolarized Antenna" which he obtained from Universal Radio. This model was reviewed in the April 2011 issue of *QST* on page 56.

The Super-M Classic Base is a scanner antenna with receive coverage of 25 MHz to 1.3 GHz. It can also transmit with up to 200 watts on the amateur bands of 144 MHz, 222 MHz and 440 MHz. Ray reports that the antenna seems to be working quite well for its size, with good SWR readings of less than 2:1 on the amateur frequencies. Ray seems to be reaching the same repeaters as with his Diamond

MP Super-M multiband antenna mounted on the balcony at the location of Ray, W2CH. [Photo by W2CH]

antenna on 144 and 440 MHz, but the MP has the added feature of 222 MHz.

According to MP Antenna: "These single feed, passive antennas transmit and receive signals in all polarizations. The patented 3D designs include built in spatial diversity and create a broad signal pattern that permeates obstructions, improving real world wireless coverage."

'MP' antenna on NMO trunk lid mount as seen at OCARC hamfest.

The size is pretty small, as can be seen from the photo, compared to Ray's vertical Diamond antenna. The MP has an N-type connector for lower loss, though Ray is using an N to SO-239 adaptor for his existing coaxial cables. Price was $110.95 from Universal Radio. Ray recently obtained the NMO Trunk Lid Mount for his vehicle — the Super-M antenna can be removed from the ground plane base and mounted on the car.

MP Antenna web site: www.mpantenna.com

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!
Archive: http://home.computer.net/~pcara/newslett.htm

PCARA Information

PCARA is a **Non-Profit Community Service Organization.** PCARA meetings take place the first Sunday of each month* at 3:00 p.m. in Dining Room B of the Hudson Valley Hospital Center, Route 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater. *Apart from holidays.

PCARA Repeaters

W2NYW:	146.67 MHz -0.6, PL 156.7Hz
KB2CQE:	449.925MHz -5.0, PL 179.9Hz (IRLP node: **4214)**
N2CBH:	448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun Apr 3: PCARA monthly meeting, Hudson Valley Hospital Center, 3:00 p.m.

Hamfests

Sun Apr 3: Splitrock ARA North Jersey Hamfest, Roxbury Senior Center, 72 Eyland Ave, Succasunna NJ.
Sun Apr 10: Mt Beacon ARC Hamfest, Tymor Park, LaGrangeville, NY. 8:00 a.m. **Club Table.**
Saturday May 28: Bergen ARA Spring Hamfest, Westwood Regional HS, Washington Township, NJ. 8:00 a.m.

VE Test Sessions

Apr 3: Yonkers ARC, Yonkers PD, Grassy Sprain Rd, Yonkers, NY. 8:30 a.m. Contact Daniel Calabrese, 914 667-0587.
Apr 10: Mt Beacon ARC Hamfest, Tymor Park, LaGrangeville NY, 9:00 a.m. Contact Andrew Schmidt (845) 462-7539.
April 14: WECA, Westchester Co Fire Trg Center, 4 Dana Rd., Valhalla, NY. 7:00 p.m. Contact Stanley Rothman, 914 831-3258.
Apr 25: Columbia Univ VE Team, 2960 Broadway, 115 Havemeyer Hall, New York NY. 6:30 p.m. Contact Alan Croswell, (212) 854-3754.
Apr 30: PEARL, Mahopac Public Library, 668 Route 6 Mahopac, NY. Contact NM9J

Peekskill / Cortlandt Amateur Radio Association Inc.
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