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NEW MEXICO RADIO COLLECTORS CLUB

Next NMRCC meeting: Jun 14th Meeting Topic –Reflex and Regenerative radios

William J. Halligan founded his own radio manufacturing company in Chicago in late 1932. Prior to this, he had been involved in radio parts sales for some years but decided that the time was right for a handcrafted amateur radio receiver - the company name being a combination of Halli(gan) and (hand)crafters. The new company was located at 417 State Street and immediately ran into patent difficulties when RCA decided to sue them for building radio sets without an RCA patent license. An opportunity came to purchase the concern of Silver-Marshall Inc. in 1933 and, with it, an RCA patent license as the most valuable asset. [wikipedia.org 2015]

The Hallicrafters Sky Buddy Receivers by Chuck Burch

In 1935, we were in the middle of the depression, and many of the commercial communication receivers were quite expensive and beyond the reach of the public. Bill Halligan, the founder of Hallicrafters, recognized this and decided to offer a low cost receiver that ordinary people could better afford. It was called the 5-T sky buddy. It was sold at cost with a no-profit price of 29.50. You could even make payments of \$2.50 a month, and after a year your Sky Buddy would arrive. A side benefit was this would introduce people to the amateur radio hobby which might later lead to purchases of more expensive equipment.

The first version of the 5-T had a picture of a boy sitting at a desk with headphones and a telegraph key, and it was given the nickname Sky Buddy. Legend

has it that Halligan had a neighbor with a son named Buddy who wanted a short wave radio but could not afford one.



The later version of the 5-T had a more traditional dial which is the version I have that I have brought to previous club meetings. The 5-T was produced during 1935 and 1936. It is a 5-tube, 3-band superhetrodyne receiver covering 540 KC to 16 MC.

(Continued on page Four)



The early version of the Sky Buddy dial



The Heathkit IG-18 Audio Generator John Estock

In the late 60s-early70s Heath marketed a sine-square wave generator that boasted (inaccurately) less than .1% distortion from 10Hz to 20kHz, and snuck in a graph showing .06% distortion.

For some unknown reason, this piece of 60s hobby-grade technology has acquired an almost mystical

(Continued on page Five)

The NMRCC Meeting Minutes by Chuck Burch

NMRCC 5/17/2015 Meeting notes by Chuck Burch

The May meeting was our spring picnic which was held at Quelab. The meetings started at 1:00 with everyone lining up to eat. After eating, we had the auction. Chuck Burch brought many of the more desirable items from a large donation recently made to the club. The rest of the donated items will be brought to future meeting auctions. Together with other donated items and auction commissions, the auction brought in \$295.50 of income.

ing at our club auctions. After some discussion, it was approved by the membership to add to our bylaws that non-members are allowed to buy and sell at club auctions and non-members pay the same 5% commission as club members for items sold at the auction. It was also decided that the minimum opening and minimum bid increase at club auctions will be one dollar. Also approved was adding the club bylaws to the club website where they would be available to members only. The meeting adjourned at 3:50. ~



Above: Mark Toppo, Ed Brady and Chuck Burch discuss the auction items, there were many good items and bargain prices again. Below: another view of the many items auctioned off.



After the auction, we had a brief club meeting. Les Davison brought in a large roll of aluminum tape and invited members to take whatever they could use. He also brought in a What-is-it which was correctly identified as an olive grabber. He passed around a 1950s Oldsmobile Transportable plug-in transistor car radio that he recently repaired. Mark Toppo reported that his wife is recovering from a recent fall. John Anthes reported that the new club web site is seeing quite a bit of activity. John requested we formally decide on a policy for non-members buying and sell-



A guest showed up with this beautiful Atwater Kent console, we sent him on his way to list his AK on eBay. (RM)

NMRCC 2015 MEETINGS

- Jun 14th—Reflex and regenerative radios
- Jul 12th - Radios with tuning indicators (magic eyes, shadow tuning, tuning meters, etc.)
- Aug 9th - Unique and novel radio antennas and noise eliminators
- Sep 13th - **Wild Card Sunday**” (nifty science gizmos, novel science toys, or non-radio collection, electronics, or science related that you think will dazzle your fellow members)
- Oct 11th – Fall Picnic Audio distortion of radio receivers demo
- Nov 8th - Old computers, calculators, slide rules, and associated items
- Dec 13th - Unusual Devices/Stump the Experts- Unusual tubes, light bulbs, transistors, and radio parts. Also, who can identify that strange gizmo you found, or explain how an unusual object works?

Proposed Programs

- *Radio trouble shooting and repair workshop—July or (TBD)
- *Alignment of AM/FM tuners workshop—Oct fall picnic

NMRCC Officers for 2015

- *John Anthes: President*
- *John Estock: Vice President*
- *Richard Majestic: Treasurer*
- *Chuck Burch: Secretary*
- *Ron Monty: Membership*
- *Mark Toppo: Director*
- *Ed Brady: Director*
- *Ray Trujillo: Director*
- *John Hannahs*
- *Richard Majestic: Newsletter Editor (President pro-tem)*

Why I Collect Transistor Radios by Don Menning

I came into the world nine days into the year 1950. I don't remember much of my early years but they were a good and happy time. One of my early memories is of a family's outing to the library at which I checked out my first book. It was on how to make wooden toys. I could not read a word but as my dad would tell me later I could look at a picture and then make something that looked very much like the picture. This is the start of a lifelong love of making things. From this time I was in love with science and making things.

My interest in electronic came some years later when we moved into a new house that my parents had just built. Many new houses were being built in the neighborhood and their trash piles became my source for wood, nails, wire and etc. When a boy my age moved in next door we became friends and in his house there was a set of old telegraph keys and sounders. We played with them trying to get them to work. Soon we had run a wire over between both our houses and got the telegraph working. About this time I had a set of ALL ABOUT BOOKS and in All About Radio and Television book there was the plan for making a fox hole radio which I built. I was amazed that some wire, a razor blade, a pencil lead, an aerial (that what they called it back then), a ground and an earphone brought the whole world of radio to my ear. This radio needed no power of any kind (seemingly) and was always on. This began a whole series of crystal radios and simple amplifiers I built. Only about half worked but the half that did work were enough to keep up my interest.

Soon I was off to middle school and met one of my best friends (to this day) Tom Dodds whose dad had been head engineer at KGGM radio station until his retirement. Tom and I, with the help of his dad did too many projects and experiments to even try to remember. In order in find electronic parts we hooked up with a sur-

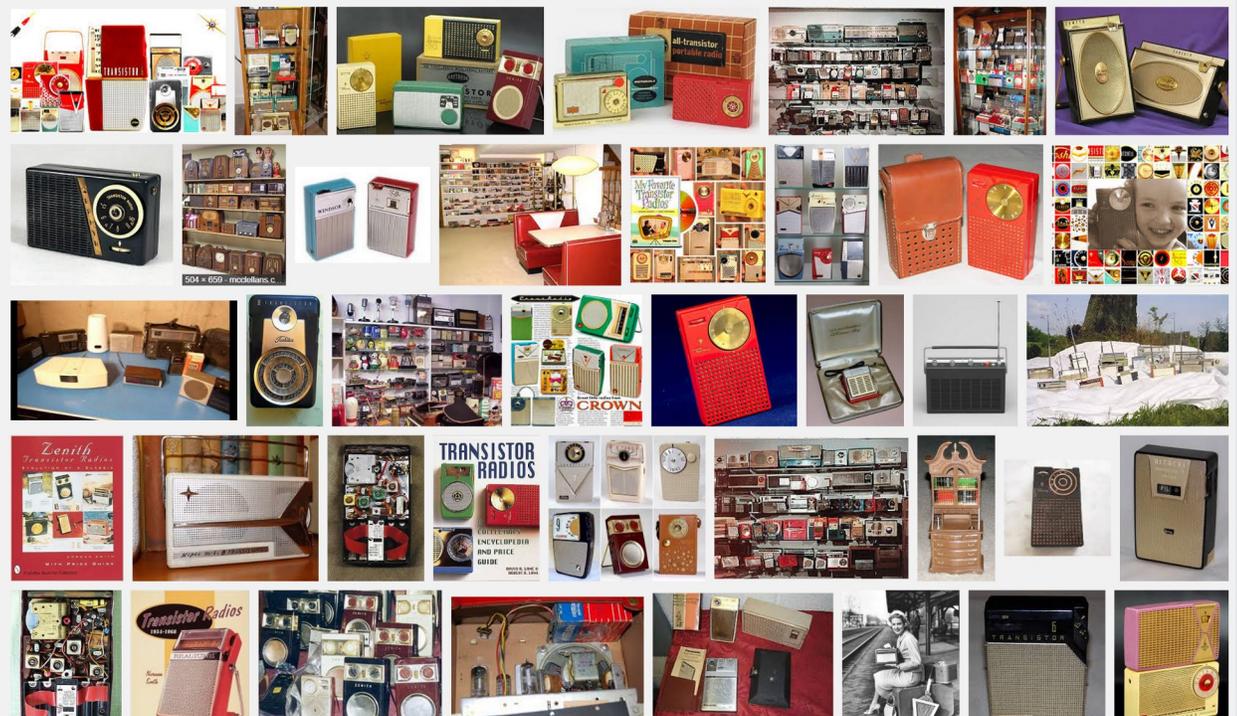
plus dealer, Egar Spalding who was the source of much of my love of old equipment (but that is another tale to tell). When I went to collage I thought about becoming an electronic engineer but a family and babies to feed sent me off in another direction. But I did not lose my interest.

Some years later a good friend, Mark Hooper who was a dealer in old Indian jewelry and did not drive asked me to drive him around one day a week. We would go to every thrift store and pawn shop in town. At this time I got a book (from the library) on collecting plastic items. In the book was an example of an old transistor radio. This brought back memories of my brother and I winning our

cheap they were given to the children who broke them and then they were thrown away. Very few still survive today. I do not try as hard as I once did to find them to buy but I still look for transistor radios where ever I go. Having narrowed my collection to those that were made in USA or Japan and were made to fit in my pocket. I feel lucky if I find one or two a year.

I also feel lucky to have been there at the start of the New Mexico Radio Collectors Club and too have known a group of people who are also trying to save some small part of our past.

~D. Menning 05/05/15



first transistor radio in a contest at KQEO radio, it was worth about \$70 which was a lot back then. Later I also remember buying a Rocket Radio and a Boys Radio at Walgreen's for about \$3 each. Right there and then I decided to make a collection of transistor radios. Next weekend I went to the flea market and bought Panasonic Tidy Tot radio in its original plastic watch package for 50 cents. The Tidy Tot radio is still one of the most wanted transistor radios. Going to every thrift store every week I thought that there must be lot of old transistor radios to be scooped up.

Little did I know? Transistor radios which started out expensive and were a prized items, but when they became so

[This the first in the series as requested by me to tell us why we collect radios. Thank you Don Menning for answering my request. RM]



The above are mine, the First transistor radio the Regency TR-1 1954 the Zenith Royal 500 (Nov 1955) the Royal 500H (1961) and Royal 20 (1966).

The Hallicrafters Sky Buddy Receivers

The next version of the Sky Buddy was the S-19 which was introduced in 1938 and was essentially an octal tube version of the 5-T. It was produced for only a short period and is quite rare. The last version of the Sky Buddy was the S-19R introduced in 1939 which is much more common. It was similar in appearance to the S-19 but was a total redesign that provided expanded frequency coverage and a band spread. It had 6 tubes and 4 bands covering 540 KC to 46 MC. Early versions of the S-19R had 6K7 and 6Q7 grid cap tubes while later versions had 6SK7 and 6SQ7 tubes that do not have grid caps. Some versions had a toggle switch for the standby mode while others had a slide switch. I brought my S-19R to the January club meeting whose theme was 1930/1940s military and amateur equipment.

The Sky Buddy II was introduced in 1961 with model number S-119. It was a commemorative set celebrating the 100th model produced since the S-19 Sky Buddy. It had 3 tubes, 6BE6, 6BA6 and 6CM6 with 3 bands covering from 535 KC to 16.4 MC. It was produced from 1961 to 1962 and sold as a kit for \$39.95 or wired for \$49.95.

Most of this information is from Chuck Dachis' book titled "Radios by Hallicrafters". It is an excellent book, and I highly recommend it to anyone interested in Hallicrafters equipment.

~C. Burch

◆ Raytheon is buying control of Websense as it plans a unit that will sell cybersecurity services to companies. B3

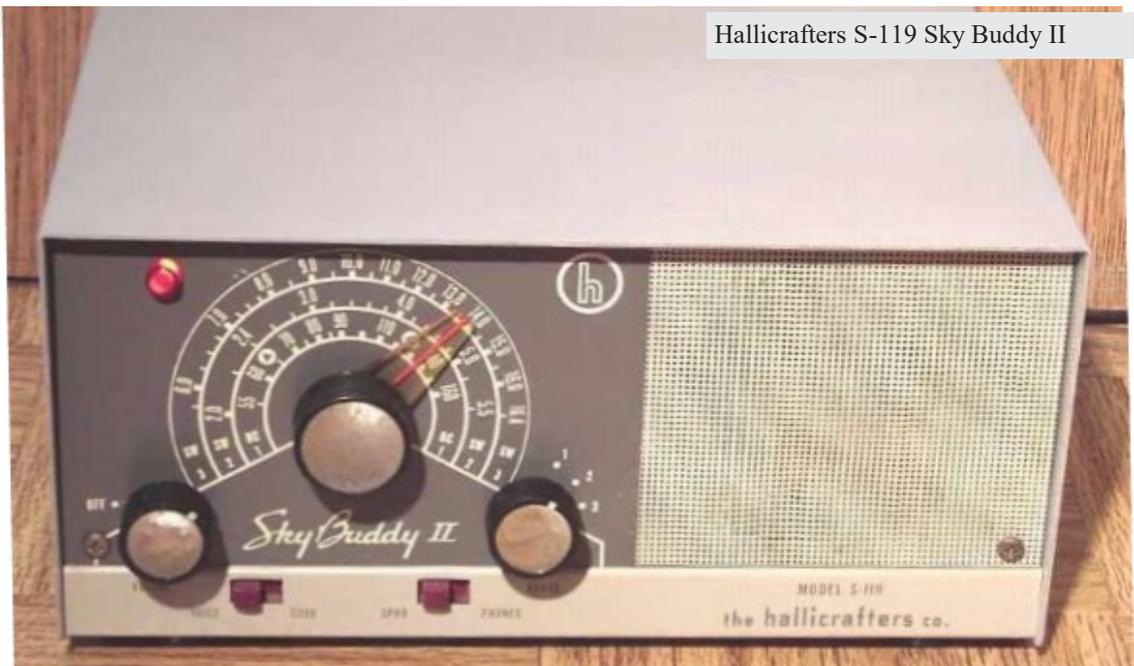
Hallicrafters 5-T designed by McMurdo Silver and built in the Howard factory



Hallicrafters S-19 Sky Buddy



Hallicrafters S-119 Sky Buddy II



The Heathkit IG-18 Audio Generator John Estock

charm and desirability; they sell well on eBay, and several engineer types have, over the past 4 decades, written articles on how to improve its performance. To be blunt, almost anything you did to an IG-18 would tend to improve its specifications.

Everything from the power supply to the output stage was designed with the barest minimum of parts. There is not one length of shielded cable anywhere; the power transformer is placed right next to the wave generator board. The range switches are not enclosed or shielded and the metering circuit introduces a huge amount of distortion. Grounding is often through single-strand wire, the bias and feedback circuits are so basic and poorly engineered that a setting for good distortion specs at 1kHz results in lousy specs for 100Hz or 100kHz.

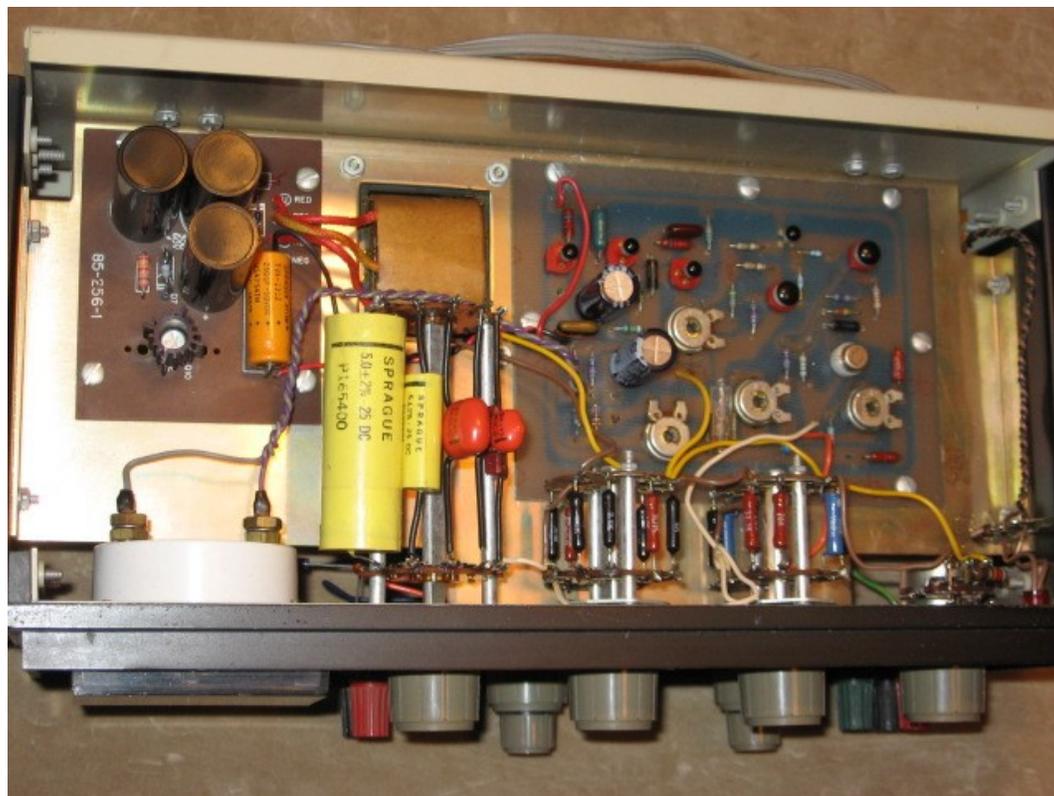
The square wave generator is on the same board as the sine wave generator, and operates at the same time from the same power supply source; a sure recipe for cross-modulation.

I recently acquired an un-molested/modified IG-18 which had several blown transistors. Replacements got the oscillator to function. I beefed up the power supply with new filter caps and installed a buffer circuit for the meter.

The audio output is tied indirectly to the meter through a full wave bridge rectifier and some resistors; this is a poor design as it places a non-linear load on the output. A buffering circuit consists of a transistor and a few resistors and capacitors; this makes for a high impedance that greatly reduces distortion by isolating the meter, effectively taking it out of the circuit. Component values aren't critical for a meter buffer.

After much cleaning and adjustments, this IG-18 is functional. I left the biasing and feedback circuits basically the same (only changing a resistor and capacitor); any improvement here would require a total re-design.

~J. Estock



Sometime in the 1960's I learned about Nipkow's disk mechanical television. I thought that it was clear and easy to understand and way cool. Sometime later my friend Tom Dodds and I came across a project in an electronics magazine about building an all solid state oscilloscope that used 100 LEDs instead of a CRT. It seemed like a very interesting project so we looked into building it. The circuit was easy to build and understandable and looked like we could do it. LEDs at the time cost about \$3 each which would have made the cost of the project \$400. With much cheaper used oscilloscopes available and thinking what a poor image 100 LEDs would make, we dropped the project.

About this time I came across an article about a company building the first all LED television (LEDs were all the rage then) and it had cost about \$500,000. This was an unbelievable amount of money and just crazy. Somehow in my mind I put the Nipkow disk television, the 100 LED oscilloscope and television together and realized that 100 spinning LEDs with a scan circuit would act like a 200x200 line television. Which meant that for \$500 I could build a television as good as the \$500,000 they had built. Although I did not do anything about building a spinning television, it was such a cool idea I never forgot the idea.

One evening about forty years later, after work I went into my work shop and about an hour later I had made a Nipkow disk with 18 holes 1/8 inch diameter that I made from an old 12 inch record. The disk I attached to a small DC motor on a simple wood stand and added a potentiometer to control the motor's speed. I then screwed two 12 gauge wires to the base and soldered them to a electroluminescent night light panel (this turned out to be a mistake but more about that later). Adding a microphone, a small amplifier and an audio transformer to the night light panel. With a battery attached to the motor it was ready for a test. The whole thing took less than two hours to make.

I spent the next four hours changing the motor speed and singing all sorts of notes and weird sounds and having an unbelievable time. I watched moving patterns of light and dark that seemed to be magical. I could also see that my hand layout Nipkow disk was not perfect in that some of the holes were a little out of place. But it worked and worked very well.

I next used my milling machine and a rotary table to make much more accurate

Nipkow disk and replaced my hand made disk. The new disk worked much better and was lots of fun. I replaced the microphone with an audio oscillator and other audio sources which gave a more stable pattern. Next I started a rebuild of my first television to make it more stable and prettier.

To make the television really work I needed to build a camera. A Nipkow disk camera is very much like the television but the light is replaced with a light sensitive photo cell that is masked to match the wedge shaped scanning area of the disk, a lens focuses the image on the photo cell. The disk is placed between the lens and photo cell. The camera is simple, but to make it work with television is not so simple. Both disks need to have the same number of holes, be turning at the same speed and be at the same starting place for the television and camera to be in synchronized. Using modern control circuits and stepper motors would make synchronizing easy but at that time I wanted to use what was available to the early experimenters in the '20s. Today, I used a DC motor, a potentiometer speed control and a push button switch to short the potentiometer and monumentally speed up the motor to bring both systems into synchronization. This will work but requires a lot of fiddling to synchronize.

When the first mechanical television was demonstrated, by J.L. Baird he used a single long shaft with the camera disk mounted on one end and the television disk on the other end thus the two disks were always synchronized. The use of the lens turns the image upside down and reverses left and right. I had mounted the television light source at the top of the disk but it will work as well at the bottom or on the left or right. Knowing this I thought about mounting the camera photo cell at the bottom of the Nipkow disk which when displayed on a top mounted television would turn the image up right. From this I wondered if one disk could have the camera mounted at the bottom and the television at the top. This would make the two images 180 degrees out phase. But by extending spiral nine more holes (180 degrees) the camera and television would each share nine holes and have nine holes to their own, one at the start and the other at the end of the spiral and would be in phase. This would allow a camera and television to both share one disk and eliminate any speed and phase problems.

With this idea in mind I built a camera-television which seemed to work but be-

cause a very bright light was needed to get enough light through the holes in the disk to make an image was also shining on the very dim television screen it was hard to shade the screen enough to see the image. So back to the drawing board and shop to build a second camera-television. This one I put the camera and television facing opposite directions and light shield to keep stray light off the television screen. This camera-television worked, I could see my hand when put it in a bright light and I could see my fingers move but something was wrong. Instead of seeing a hand, all I could see was a lighted out line of my hand so I put light reflector shining straight into the camera. I should have seen a circle of light but what I saw was a ring of dots of lights, dark outside the ring and dark inside the ring. What was wrong? Then it came to me the electroluminescent panel will only give off light on the upswing of a signal wave, nothing at a constant voltage and nothing on the down slope. The electroluminescent panel was only making light when the scan was on the edge of a scanned object and so just the outline. Back to the shop to build an LED array to replace the electroluminescent panel.

The camera-television now with LEDs as a light source worked as I hoped, it makes a recognizable image if only an 18x18 scan. I have plans to change the photo (solar) cell to a space grade solar cell which is much more efficient and should require less bright lighting and the camera sees the pulse of fluorescence lighting and I want to build a 12 volt DC light source to calm the 60 cycle hum. The camera-television can also be connected to my stand alone television and when synchronize can make a transmitted image. It also is possible connect an AM transmitter and radio receiver to send the signal over the air.

Now we come to where I wanted to go forty years ago. I took a Nipkow disk (the same as all the rest) and mounted 18 LEDs in series on the disk and an electrically divided a shaft that is mounted to the disk and used the bearings as brushes. I used a DC motor, pulley and belt to drive the disk. The bearings give me electrical access to the LEDs as they are spinning. If connected to the output of the camera you get 18 images each a little rolled from the next like when your old analog TV was rolling top to bottom. When connected to the microphone and amplifier a ring of dancing lights and patterns appears on the disk when voice or music is applied. I also made a disk which the hole disk had a line

of LEDs all the way to the center so the hole disk lite up but when I showed it to my granddaughter she became so excited that she accidentally hit the disk with the microphone and broke it in to a million pieces. Someday I need to make a new one.

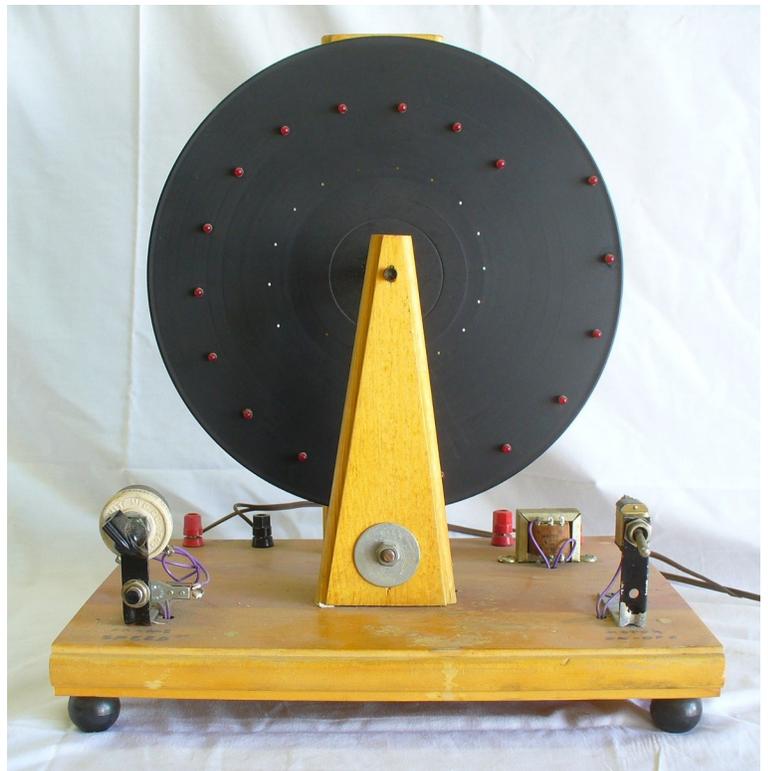
The 18x18 format of my cameras and televisor have only 324 bits on the screen so the image is pretty crude but the 18 LEDs on the spinning disk have 1296 bits of information and demonstrate what I thought forty five years ago.

In 1870's Paul Nipkow proposed the first scanning television system but the equipment to actually make it work did not exist until about 1920 when fast enough photoelectric cells, amplifiers (tubes) and a light bulb that could respond fast enough (neon) all came on the scene. Men like John Baird and Charles Jenkin led the way, first demonstrated and then advocated television. The simplicity and ease of understanding and the use of standard radio equipment allowed television to make its way out of the laboratory and into the world. However, a lack of developmental potential and the very simplicity also spelled the doom of mechanical television but we owe a great deal to these early ideas and early experimenters.

~D. Menning 05/08/15



Don Menning brought to our May meeting/picnic this recent example of a mechanical television, available as a kit.





**NEW MEXICO RADIO
COLLECTORS CLUB**

New Mexico Radio Collectors Club

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FOR INFORMATION CHECK THE INTERNET
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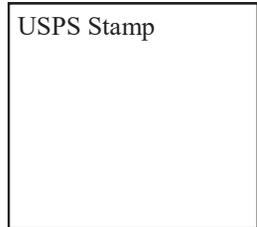
The New Mexico Radio Collectors Club is a non-profit organization founded in 1994 in order to enhance the enjoyment of collecting and preservation of radios for all its members.

NMRCC meets the second Sunday of the month at The Quelab at 680 Haines Ave NW , Albuquerque NM Tailgate sale at 1:00PM meetings start at 2:00 pm. Visitors Always Welcomed.

NMRCC NEWSLETTER

THIS PUBLICATION IS THE MONTHLY NEWSLETTER OF THE NEW MEXICO RADIO COLLECTORS CLUB. INPUT FROM ALL MEMBERS ARE SOLICITED AND WELCOME ON 20TH OF THE PRECEDING MONTH. RICHARD MAJESTIC PRO-TEMP NEWSLETTER EDITOR, SEND ALL SUBMISSIONS IN WORD FORMAT, PICTURES IN *.JPG FORMAT TO: RMAJESTIC@MSN.COM

USPS Stamp



REQUEST

I want to create a club history column for our newsletter, a story about why we collect old radios, old ham receivers and transmitters, vacuum tubes and old black and white televisions.

Tell Us...

What's your motivation? What's the limits we set for a collection? Why a particular brand? Why a particular year? Are we collectors or technology hoarders? How much time do we spend on this hobby? Do we research and record the history of items we collect? What are our sources of the items we collect? What are the stories you've heard from a seller? How far will travel to get an item? What's your hot pursuits this month?

Put your story in words, write it up and I want to print it as a monthly column in our newsletter. ~RM

Thank you Don Menning our first contributor...

