



**No Meeting No Picnic and but a November 8 ZOOM MEETING at  
1PM join us**  
Ribeye steaks at a later date

A Recap from an earlier time about an old radio company By Richard Majestic

A synopsis excerpt from ARC Blog/ Posting around February 01, 2009. Martin Blankinship wrote: Everyone has brought up some good points, but the comparison of Zeniths to other brands made me ask myself: could the rank and file Zenith models have drawn sales away from the Stratosphere models? You see, the point that I want to make is that Zenith produced models for all price brackets. Prospects who went with the intent only to see the Stratosphere would likely have been enticed by the much cheaper price of models 985 and 990 12-tube models (and all of the even cheaper models) for the first half of 1935. Subsequent model lines would have intensified the competition with the 1934- designed Stratosphere. In my mind, three factors in 1936 Zenith model line may have robbed from the Stratosphere some of its prestige: 1): the 12-tube models 12A58 and 12A57 (Zenith built at least 14,000 of the 1202 chassis allocated to these two models); 2): the doubling of production and sales of the 1936 Zenith over all of 1935 lines--270,000 units (which included the 800, 900, and 1100 series models, roughly 100,000 units altogether produced) inclusively. 3): The

new back-lit celluloid black dials, photoengraved by Howard Dilkes, was easier to read than the 6-layered, edge lit Stratosphere glass layers. For the 1937 model line, surely models 12U158 and 12U159 with their huge 10" diameter black celluloid dials, also photoengraved by Howard Dilkes, cut into the Stratosphere sales. This may have been the final blow to the Stratosphere. These models were photoengraved on the front side and the back side, making the dial opaque. Oh, and by the way, Zenith produced and sold about 521,000 units in the 1937 model line. Neither Scott nor Capehart had these low price brackets (down to \$19.95) to compete with or detract potential buyers of the pinnacle model 1000Z Stratosphere. 1938: Introduction of the Robot Dial: Zenith production and sales: 550,000 units; 1939: 705,000 units; 1940: 922,000 units; 1941: 1,151,000 units; the abbreviated 1942 year: 1,167,000 units (this section is for Curt's benefit--LOL). Just a thought, Martin Radio Stars wrote: I have always believed and said a number of times that the 16 tube Stratosphere models were not that much of a sound improvement over the 12-A-58

(Continued on page Six)

THE SATURDAY EVENING POST

*Only the success of*

**3½ million MAJESTICS**

could have made this latest achievement possible . . .

TO BUILD radio receiving sets so appealing to the public that nearly three and a half million owners still insist that nothing finer can be made is both an inspiring and a remarkable achievement.

Out of that experience has been born a new Majestic so amazing in performance that even despite the fact that it costs more than twice twelve months it seems incredible. And yet one has to look at it to realize that the seemingly impossible has been achieved.

The Majestic pictured at the left is a 7-tube superheterodyne set in all-brass. It is equipped with large twin-speakers . . . and provides dual-diode detection, full pentode amplification, and a built-in volume control. If represents, in its price class, the highest degree of radio performance ever attained. And the price, complete with vacuum tubes and with federal tax paid, is only \$89.50.

Ask your nearest Majestic dealer about Majestic's attractive pay-as-you-listen plan. Under this plan you can buy the Majestic in monthly installments, pay as little as \$1.50 a month, and still own the radio when it is paid off. Prices slightly higher on West Coast.

GREGORY-CRUMM COMPANY, CHICAGO, and affiliates,  
Oakland, Louisville, Portland, San Francisco, and  
Montgomery, Alabama. 24 BRANCHES. 24 SALES OFFICES.

**Majestic**  
SUPERHETERODYNE  
**RADIO**

The SEP AD above was Feb 8,1932 by Oct 1934 the sales number was 6 million and Majestic was now bankrupt, now Zenith had to pick up

## Minutes NMRCC Meeting by Chuck Burch

Next month

### NMRCC 2020 MEETINGS

**January 12th** 'FM tuners

**February 9th**. Tube boxes, old radio books and text books, documents (manufacturer newsletters), and advertising items related to radios and broadcasting

**March 8th** 1930s art deco radios, chrome chassis and intricate wood design radios

**April 19th** . Canceled Covid19 Old computers, calculators, slide rules, and associated items

**May 10th** . Canceled Covid19 Spring Picnic&scale – (J.Anthes's)

**June 14th** . Canceled Covid19 Zoom meetingUnusual 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?

**July 12th** Zoom meeting Unusual Devices and Stump the Experts. ... strange tubes, radio parts, devices etc.

**August 9th** Wild Card Sunday

**September 13th** Radios with odd construction

**October 11th** Fall Ribeye Steak Picnic (Wilson's)

**November 08th** Radio Repair Workshop with Richard Majestic AA12s

**December 13th** Zoom party

### NMRCC Officers for 2020

- *David Wilson: President*
- *Mark Toppo: Vice President*
- *Richard Majestic: Treasurer*
- *[open] Secretary C. Burch acting*
- *Membership Randy Gray*
- *Ron Monty Director*
- *Les Davidson Director*
- *John Anthes Director*
- *John Hannahs*
- *Richard Majestic: Newsletter Editor*

## Some screen shot Views from our August Zoom meeting



MY FADA CATALIN BULLET



FINAL RESULT

## FROM THE PRESIDENT'S DESK



I would like to thank our members who have hung in there with us this year as we adapted our meetings to the Zoom online platform. It has been critical to our club's survival in this year with the COVID Pandemic impacting all of our lives.

We are heading into the last stretch of 2020 with December left. December has traditionally been our club's Christmas party and unfortunately this year we are not able to hold a party due to our State's current restrictions on group gatherings which can be no larger than 5 people at one time. Hopefully, we will be through this Pandemic next year and be at point where we can return to holding regular meeting in person along with our Christmas party and the spring and fall picnics.

I want to encourage our membership to really try to attend the special Zoom meeting in December on the 13<sup>th</sup> at 1 PM. I'm setting up this special meeting since we will not be holding a Christmas party this year. At this meeting will be making some important decisions regarding the future of our 26-year old radio club. It going to be really critical you find a way to attend this meeting held online on Zoom. We are going to really need your input and vote on critical matters that could impact our club for a very long time if not addressed correctly and we need a good representation of membership to participate in this critical business meeting.

Have a safe Thanksgiving Holiday!

David Wilson  
NMRCC President

RADIO NEWS FOR APRIL, 1935

## WHAT'S NEW IN RADIO

WILLIAM C. DORF

### De Luxe 25-Tube Receiver

Here is an interesting announcement on the new Zenith Stratosphere 25-tube set, equipped with three speakers and employing eight 45 type tubes in a push-pull parallel output power stage. The speaker equipment comprises two concert dynamic-type speakers to handle the low-frequency response and a small horn-type dynamic speaker to take care of the high frequencies above 3000 cycles. The manufacturer

proven very simple and effective. It can be made from a few inexpensive parts and gives a change of 15 ma. from a 4½ volt flashlight at a distance of 3 feet. Moreover, it will operate from either 110 volt direct or alternating current.

The circuit, shown in Figure 1, makes use of a type 12A tube in a self-rectifier circuit. The filament is in series with a 25-watt lamp and a 100 ohm (10 watt) resistor. The plate circuit contains an 0-15 ma. meter as well as a relay. It is of course not essential that both be used and if a relay only is desired, the meter and one condenser can be omitted. However, it will be found that the meter is useful while the initial adjustments are being made. If only the meter is desired, the relay and one condenser can be left out. The Blan relay employed by the writer will trip at anywhere, from 2 to 15 ma.

The supply for the photo-cell is taken from a voltage divider and a 400-ohm potentiometer is used to vary the grid-bias of the tube.

The variations provided by the variable grid-bias and the adjustable grid-bias make it possible to trip the relay at almost any desired light intensity.

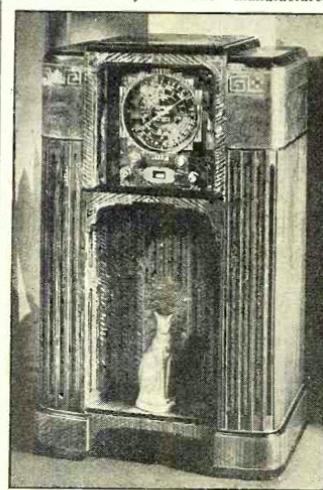
The photo-cell employed with the most success was the Cetron CE-1. In order to work the cell from a distance, a Blan Lightsource is used, comprising a transformer, a 21-candlepower automobile bulb, a reflector and lens all assembled in a suitable housing. This lightsource will concentrate the light in a narrow beam which makes it possible to work the device at greater distances.

The writer hereby thanks Mr. F. V. L. Smith, Chief Engineer, Continental Photo-Cell Co., for his assistance during the design of this device.

WALLACE M. MINTO,  
Jersey City, N. J.

### Special Cabinet and Panel for Senior and Junior All-Star Receivers

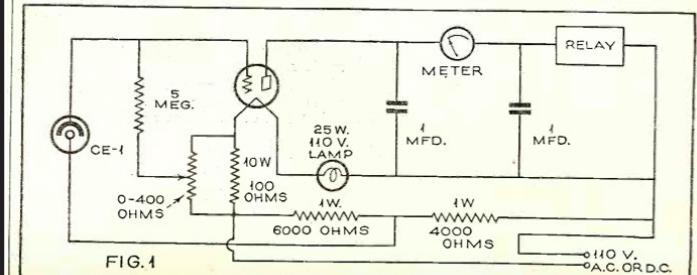
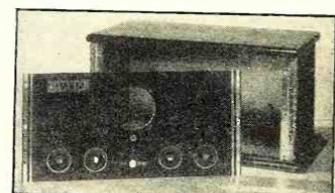
Owners of All-Star receivers will be glad to hear of the new Crowe model 246 cabinet and the de luxe etched aluminum, black enamel-filled panels especially made



states that the frequency range response of the triple speaker combination is from 30 to 8000 cycles. With 8 of the 25 tubes accounted for, the remaining 17 tubes are employed as follows: six 6D6's for the first and second r.f. stages, the first and second i.f. stages, the shadow-tuning meter and automatic volume control amplifier; one 76 for the second detector and two 76's for the parallel first audio stage, one type 79 as a relay for "Q" circuit, one 6A7 as a combined first detector and oscillator, one 85 a.v.c., two 42's in the second push-pull audio stage and three 5Z3's as rectifiers. The tuning range of the set is from 535 to 63,600 kc. and is divided into five bands. The set is equipped with the latest developments including a high-fidelity control. Expert craftsmanship is at once apparent in the construction and design of the cabinet housing this unusual receiver.

### Simple Photo-Cell Amplifier

The photo-electric device shown here has



# A DISCUSSION OF "HIGH FIDELITY"

## SOME PERTINENT FACTS ON A CONFUSING SUBJECT

Already 1934 is seeing much ballyhoo on the subject of "high fidelity" reproduction in radio receivers. Briefly, "high fidelity" means reproduction of musical overtone as well as fundamental musical notes. It has been the lack of such overtone reproduction in the past that has resulted in the unfavorable opinion of radio held by competent musicians.

Unfortunately the old adage "all is not gold that glitters" is only too true, and while at first glance "high fidelity" reproduction in radio receivers is the next step in technical development, the attainment thereof introduces problems to which it is quite apparent that the majority of radio receiver designers have given insufficient consideration, to say the least. The most pertinent of these problems are briefly treated in the following paragraphs.

The so-called fundamental musical tone range is from 30 cycles per second up to about 4,000 cycles, and it is this frequency range which every radio designer seeks to produce radio receivers to cover faithfully—with only too frequently and usually, the poor success that can be so easily appreciated upon comparison with such receivers as the MASTERPIECE III and the WORLD WIDE NINE.

But this is not the entire musical range, for it does not include the overtones of the higher frequency notes of many musical instruments. These overtones are actually harmonics of the fundamental instrument notes, and are what give the instruments their individual character—everyone knows that the middle C note of a piano does not sound like the same middle C note of a violin, and this difference is largely due to the different number and strength of overtones characteristically produced by each individual instrument.

These overtones or harmonics may be heard as high as 16,000 cycles per second, by one ear in every thousand average, but to the well trained ear of an extremely critical musician overtones up to 8,000 to 10,000 cycles are necessary for full enjoyment of music. On the other hand, the musically untrained ear not only does not miss the absence of overtones, but often actually prefers them to be entirely absent.

This may sound strange, but scientific investigation has found the answer—which is really familiar to anyone. The human reaction to music or tone is divided into two broad spheres—emotional and psychic. Bass notes produce an instinctive, or emotional reaction, while higher tones produce a psychic, or intellectual reaction. This is borne out by contrasting the music of savage and civilized people. Primitive African music is

characterized by the deep bass drum beat—the music of advanced civilizations by the presence and appreciation of high tones.

It is perhaps true that the great mass of radio buyers, having musically untrained ears, prefer a definitely subdued high frequency response in a radio receiver, one of the reasons being that while accentuated bass response gives rise to a pleasing emotional reaction, the initial reaction to high notes, particularly overtones above the fundamental musical range, is one of psychic annoyance. Yet as the listener advances in his experience with radio receivers, he develops a taste for really perfect reproduction.

A purely practical aspect of music in relation to radio is the allocation of frequency channels 10 kilocycles (10,000 cycles) wide to broadcast stations. Because the transmission of speech or music requires a frequency band width twice as wide as the highest modulation frequency to be used, it is apparent that the 10,000 cycle band width assigned to broadcast stations will permit modulation up to only 5,000 cycles before interference with programs on adjacent channels occurs. This, however, is purely theory—practice is much worse.

Due to the necessity in selective radio receivers of admitting one broadcast channel at a time and rejecting all others, an order of selectivity must be attained that will usually only admit modulation frequencies up to 1500 to 2000 cycles before selectivity discrimination begins to attenuate the higher modulation frequencies progressively—so much so that in the average selective radio receiver today even the top fundamental musical notes are almost entirely cut out. This has been tolerated by the average radio listener for the psychological reasons brought out previously, and he has been most frequent in his praise, not of the totally absent "brilliance" of reproduction of his particular radio, but of its "sweet, mellow and rich" tone—saying simply that he prefers and is satisfied with accentuated bass response at the expense of brilliance!

There is also the problem of the audio frequency heterodyne note which will be audible to good ears as a 10,000 cycle beat note in receivers having an admittance band width approaching the 10 kc. separation between broadcast channels, and while it is theoretically possible in a receiver to cut off at say 7500 cycles to eliminate such heterodyne note, at the same time such a sharp cut off is primarily theoretical and will unquestionably not be realized in many instances of wide range receivers to an extent sufficient to eliminate this annoying source of interference.

As the appeal of McMurdo Silver Custom

Built receivers is entirely to that small group of human society that is cultured, and consequently discriminating, we at the laboratory have been constantly in search of means of increasing brilliance of reproduction such as to satisfy really cultured musical ears in a manner which even the perfectly faithful reproduction of the fundamental musical range of these receivers could not supply because of the inability to reconcile overtone reproduction with required selectivity, and the failure (except for purely local service, as high modulation frequencies are lost very rapidly at increasing distances from any transmitter) of broadcast stations to modulate above the fundamental musical range.

Quite obviously this cannot be done directly, for it is impossible to reproduce overtones that are not transmitted, and that if they were transmitted, must be rejected by any receiver which has any claims to selectivity and freedom from noise. This is because the noise in radio reception lies mostly in the high audio frequency range, and increasing the high frequency response of a receiver invariably increases noise out of all proportion to gain in reproduction fidelity.

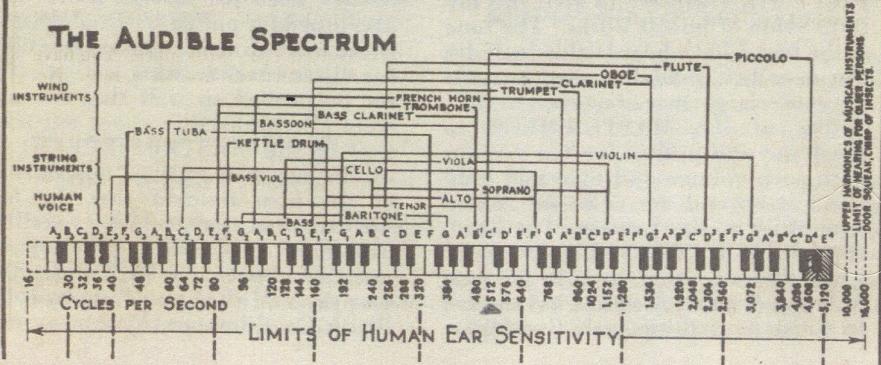
The means of obtaining high fidelity in a receiver lies in the fact that the ear is the most deceptive of all human organs, and can be most easily deceived. Much investigation has indicated that until such time as broadcast stations are given 20 kilocycle channels, are spaced 20 kilocycles apart, the missing overtones of high musical notes may be effectively and convincingly simulated to even well trained ears by placing emphasis on the upper register of fundamental tone. In the meantime, broadening the admittance curve (impairing the selectivity) cannot result in reproduction of high modulation frequencies which were not originally broadcast!

As a result of what the writer feels to be more investigation over a longer period of time on the subject of "high fidelity" reproduction in radio receivers, starting in 1929 with the first radio receiver which was not badly "down" at 4,000 cycles, it is his feeling that in terms of owner satisfaction high fidelity reproduction should preferably be obtained through accentuation of the higher audio frequencies of the fundamental musical range than by extension in the admittance band width of radio receivers since this latter course is certain to introduce adjacent channel interference or "monkey chatter" and very possibly carrier heterodyning, not to mention poor effective selectivity.

Time will prove the accuracy or lack thereof of this estimate, but the writer feels that it is a definite certainty that much dissatisfaction will result from placing in the hands of the public wide range receivers—a means of giving a black eye to radio reception, which can be avoided by careful analysis of the problems involved.

Finally there seems little point in extending the admittance band width of radio receivers for use in the majority of cases upon broadcast stations which are not modulating above 5,000 cycles, or if they are, whose side bands are increasingly attenuated at increasing distances from their transmitters.

Therefore in the MASTERPIECE III "high fidelity" reproduction is obtained at no loss of selectivity and no increase in noise by accentuation of the top of the fundamental musical range between 3000 and 4000 cycles. The results have been most favorably commented on by thoroughly competent musicians of international repute.



and I've always felt the 12-U-159 is the best looking and sounding radio for its \$179 price tag. I have my 16-A-61 study and play it weekly. My 12-U-159 is in my office and I pay it every day. The reason the 12-U-159 is in my office is performance and then looks. Outside the 1000-Z it's my favorite of the 1930's. I believe you are right in part about these great performing, less expensive models hurting the 16 tube Strat sales. The 1000Z was in whole prestige and price category of its own being 7 times the price of the average radio sold in America at the time. Your point here does illustrate how Zenith may have been using the 1000Z as more of a marketing instrument by tying in the looks and features like the big black dial into their 1936 and 1937 lines. This period is where Zenith really started to move big sales numbers in the industry and they ran advertising playing this point up. The WLW, according to a Thesis pa- Richard Majestic, President N MR CC The audio circuits are totally unique to the 1000Z Stratosphere and not found in any other Zenith radio, in that .. Additionally, looking at the poor to no production engineering of the 25 tube Stratosphere, I would estimate that not more than three electronic engineers were responsible for the design of the Stratosphere 1000Z. The Stratosphere's mechanical and electronic designs looks like an engineering prototype, that was put into production and built by very skilled people, and I bet every Stratosphere was checked, ~Richard Majestic from march 2009

. PAGE 4 N E W M E X I C O R A D I O C O L L E C T O R S C L U B David Wilson's restored Zenith 1000z Stratosphere Rear view of the Stratosphere, two Jensen A12 loudspeakers and 5" horn tweeter & amplifier My electronically restored Zenith 15U269 with the Jensen A12, hear the sweet sounds? per done on the WLW by an electrical engineering student in 1939, got it's start in the spring of 1936. Powell Crosley Jr. the President of Crosley Radio Corp. put out the order to develop the WLW. He was a friend of Zenith President Commander McDonald and Crosley held up to his engineers the Zenith Stratosphere as an example of quality in a radio receiver. —David Martin Blankinship wrote: David, it sounds like you are becoming a research hound like myself. Your citing of that thesis paper from 1939 is an interesting find. When looking back and finding that Zenith built roughly 100,000 units for all of the 800, 900, and the very rare 1100 series combined in fiscal year 1934-35 (5/1/34-4/30/35), it really is a major expansion of the market share for Zenith to nearly triple production to 270,000 units the following fiscal year. Another significant fact: Zenith increased their dealer network from 3,500 at the beginning of the 1935 season to over 12,000 by 1936, then to 20,000 at the beginning of the 1938 season. Some of the new dealers--I believe--were B.F. Goodrich Tire dealers. Others were gained through the closing of Atwater Kent towards the end of the 1936 season. Was this market expansion all due to the black magnavision dial, with the Stratosphere being the inaugural model? If Scott, Capehart, or McMurdo Silver had cheaper models to fill all price brackets for potential prospects (say, table models from \$19.95, consoles from \$39.95, etc), would that have drawn many prospects away from buying their fine models as may have possibly been the case with Zenith? —Martin And I responded: One issue overlook is the engineering difference between the 25 tube Stratosphere and the 16 and 12 tube Zenith's produced from 1933 to 1938. Your Stratosphere's engineering is a large departure from the lower priced radios produced during that period. Having designed many consumer and commercial products myself, I can tell you that engineers leave more than their circuit designs to their legacy. The Stratosphere has so many

different design features that I speculate that the commander hired a different group of engineers to design and put the Stratosphere 1000Z into production. The RF circuit was completely different than anything produced by Zenith from 1933 to 1939; they used a pentagrid convertor (6A7) local oscillator-mixer, not found in 1933 radios since RCA introduced it in 1933. The IF circuit, because of the variable bandwidth feature was only used in the 1000Z and was very unique in that they changed the coupling ratio to vary the bandwidth. The second detector was unique in that it was a full wave and followed by an AGC amplifier stage with delay and a long time constant. The use of only two IF amplifier stages were deliberate; two IF amplifiers minimized noise while reducing envelope modulation distortion, very clever for 1933 and very clever today. The audio circuits are totally unique to the Stratosphere and not found in any other Zenith radio, in that the engineer designed the audio system to reduce harmonic and intermodulation distortion to very low levels, this was very difficult to do in the 30s with the tubes available and without the use of global negative feedback, not used extensively until the 50s. Those Stratosphere audio circuits and the speaker system were done by a "golden ear" engineer who tuned the frequency response of the electronic circuits to both compensate and take advantage of those Jensen A12 felt coned loudspeakers. The engineer used a high level third order high pass filter with a separate output transformer to drive the Jensen "Q" tweeter, taking advantage of the second harmonic distortion found in the broadcast chain used in 30s this increased the perception of high frequency sounds. I doubt, having looked at the WLW schematic and speaker compliment that it sounded as good as the 1000Z Stratosphere, maybe it played louder but not better.



David Wilson's restored Zenith 1000z Stratosphere



Rear view of the Stratosphere, two Jensen A12 loudspeakers and 5" horn tweeter & amplifier

*The audio circuits are  
totally unique to the  
1000Z Stratosphere  
and not found in any  
other Zenith radio, in  
that ...*

Back in Feb 2009 I did a repair clinic see below and when we get physically together again we will do another clinic .I would like to demonstrate what goes on in an IF strip in a AM radio., maybe FM too.

*The Stratosphere's mechanical and electronic designs looks like an engineering prototype*



NMRCC Restoration Clinic for those Repair Impaired



NMRCC Restoration Clinic  
for those Repair Impaired



Clinic victims, two Wards Airline All-American-Five radios '46-'42



NEW MEXICO

RADIO  
COLLECTORS CLUB

NEW MEXICO RADIO  
COLLECTORS CLUB

New Mexico Radio Collectors Club

Richard Majestic (Membership inquiries)  
5460 Superstition Drive  
Las Cruces NM 88011

E-Mail: ronmonty@comcast.net

Phone: 505 281-5067

E-Mail: rmajestic@msn.com

Phone: 575 521-0018



FOR INFORMATION CHECK THE INTERNET  
<http://www.newmexicoradiocollectorsclub.com/>



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.

**NOTICE:** Due to COVID-19 State rules our regular NMRCC meetings are not currently being held the second Sunday of every month at The Quelab at 680 Haines, Ave.NW, Albuquerque, NM, with equipment auction starting at 1 PM, general meeting starting at 2 PM. Instead, we are having our currently holding meetings via Zoom over the internet, the second Sunday of the month striating at 1 PM. Members will be emailed the meeting invite links each meeting so they can attend online by Zoom. We will return to our regular Quelab, second Sunday of each month scheduled meetings once the State of New Mexico lifts their COVED-19 restrictions.

NMRCC NEWSLETTER

USPS Stamp

