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THE NEWSPAPER FOR
THE HOBBYIST OF VINTAGE
ELECTRONICS AND SOUND

THE HORN SPEAKER



JANUARY, 1922

RADIO 1921-1922

THE year 1921, just closed, was not a prolific one, as far as great inventions in radio are concerned. As a matter of fact, the reviewer would be hard put to pick out any radio invention of note made during 1921. To be sure, there have been many new inventions, and the year 1921 was not a poor one, if we consider the inventions actually made. As a matter of fact, there were almost three times as many radio patents issued by our Patent Office in 1921 as in 1920. Most of these patents, however, were improvements, few basic inventions being numbered among them.

This, however, does not mean that the art was retarded. Quite the contrary. It seems that 1921 will go down in radio history as the birth of the radio telephone, as far as its universal adoption, and its cognizance by the public are concerned. An art may be said to have "arrived" when it becomes universally known, and when the public begins to use it one way or another.

Thus the electric trolley car was known thoroughly for over 20 years before it came into universal use. The automobile, too, was well known for 25 years or more, before the public began buying it. The telephone invented in 1876 by Alexander Graham Bell was as good an instrument as we have to-day, and it may be questioned whether the original instrument that Bell made was ever much improved upon. Nevertheless, it took about 20 years before the telephone became a public necessity. The same story is repeated with the radio telephone.

Fessenden and Poulsen actually had a good radio telephone over 15 years ago, and the radio engineers, as well as the radio fraternity knew all about it, but the public refused to be interested until 1921. Thus, history is repeating itself, as usual. If anyone had told Alexander Graham Bell in 1876 that there would be 500,000 telephone instruments used in a single city, namely New York, he, the inventor, would probably have shown great impatience toward such a preposterous prophecy.

It would be foolish for us to guess at the number of radio telephone instruments that will be in use 10 years from now. If we predict that its number will run into the tens of millions for the United States alone, we believe that we are making a conservative statement. The reason is plain. The ordinary telephone serves a business purpose for which toll must be exacted. The radio telephone,—for the receiving part at least—costs not one penny. Once the public thoroughly awakens to the fact that it can hear grand opera, jazz, and news at home, free of charge at almost

every hour of the twenty-four during the day, there will be a stampede for instruments unparalleled, not only in the history of radio, but in the telephone business as well.

We will probably not use, in 1922, the radio telephone in the same sense that we use the wire telephone to-day. Probably the radio telephone will never displace the present telephone on account of interference, and if it does finally displace it, it surely will not happen in 1922. Perhaps 10 or 20 years from now, the radio telephone will displace the wire telephone, although even this we doubt very much. But it is not necessary that this should occur, just as the telegraph has not displaced the telephone, nor has radio telegraphy displaced the wire telegraph. Each has a function of its own; each covers its own field of utility.

In 1922, we may safely predict that millions of homes will have their radio receiving stations right in their parlors. The house aerial to a great extent will begin to wane in 1922, and this will be the year of the loop in preference to the outdoor aerial. The "radiotrola" of which we spoke last month, will come into its own. The latter for the time being will eclipse, or put into the shade, its predecessor, the Victrola and the like.

There will be an entirely new industry built right around the radiotrola in 1922, and the writer understands that already one of the largest electrical concerns in the country has started active plans for building these sets in 1922.

The radiophone will come into more general use on the automobile, the motor-boat, the yacht, and the airplane. Indeed, many of the things that were expected to happen "some day" will surely happen in 1922.

Even in France, where amateur radio is just beginning, there is going to be a radio broadcast from the Eiffel Tower, sending out news to all stations within a radius of about 800 miles. The same station will be used as a public radiophone service by Paris and London, so that any subscriber in one of these cities will be able to talk to someone in Paris, or other cities while far out at sea. Thus Marshall Foch and Premier Briand during their return from America talked to the French President while 600 miles at sea. All of these are accomplished facts.

In face of all this, who dares say what the year 1922 will not bring? We predict for one thing that every manufacturer of radio receiving instruments will be swamped with business beyond his fondest expectations, and those who read the future as it looks to us had better get an early start to keep up with the radio boom toward which we are surely headed.

H. GERNSBACK.

letters

Gentlemen:

Do you know the current correct address of the North American Radio Museum? I wrote to an address in Hawaii but the letter was returned.

Sincerely
Vernon R. Smith
Rt. 1 Box 149-A
Buhl, ID 83316

Dear Jim:

I have a three tube reflex receiver that has professionally inscribed on the front panel "KMR RADIO" in a lightning type script. Also inscribed is "MADE FOR MR. AND MRS. B. A. KEELER". I assume this set was made by radio station KMR for its receiving audience. I would appreciate any information anyone would have on radio station KMR as to its location, dates of operation and history. Thank you.

Robert Deuel
P.O. Box 1181
Medford, OR
97501

Dear Jim,

Customers have been pleased with my work and I have received repeat business from them.

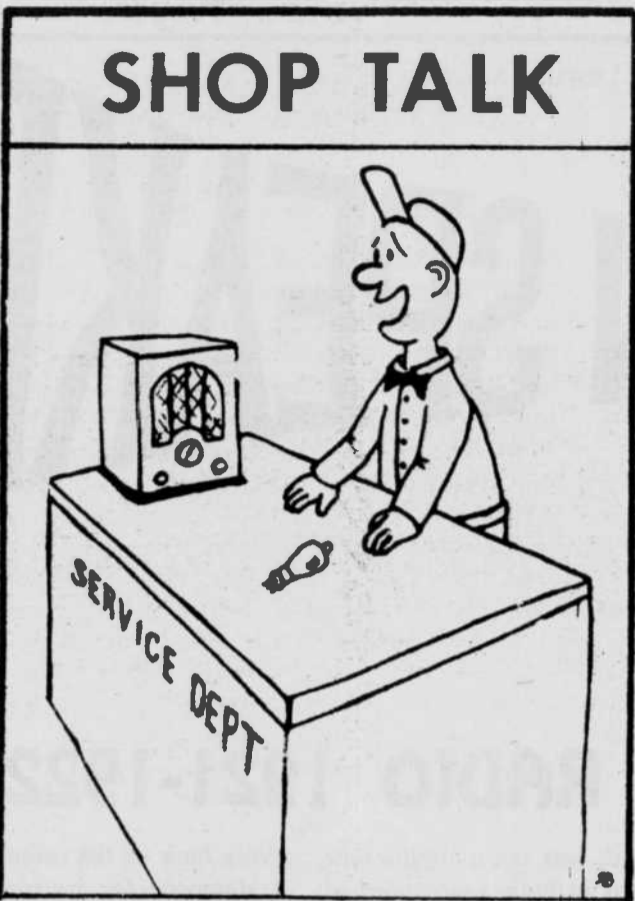
I also rewound a Scott Philharmonic power transformer that had been burned to a crisp. I am awaiting results from that job.

Inclosed is \$1.50 for the cost of the ad.

Sincerely yours,
Richard Fay
423 Orchard
Canon City, CO
81212

Dear Sir:-

Can you please, through the medium of your pages seek information from your subscribers. I have recently acquired a gramophone with an American unit fitted. The cabinet is obviously Australian,



being made by the furniture trade here. The motor has two double spring drums, is braked (stopped) by a governor brake. It has an indicator marked stop - continuous play - and 1 - 8, which indicates to me 8 records. The motor is marked Krascc, Chicago. The tone arm looks to be an early auto changer. It is marked, Brooks Klemm, patents. 1902-1923. It also has a long arm with a pointer on it, which suggests this is positioned for the soundbox to start at the edge of the records. The small goose-neck? of the arm is missing. I would be very obliged if anyone can throw light on this unit for me. Nobody here can remember the unit. It could be a "one off" here, being brought back from the U.S.A. to be built into a cabinet here. Any information or a photo of this arm would be very welcome, so that the missing part can be copied.

Yours faithfully,
A. Buxey (Mr.)
P.O. Box 25,
BERWICK, 3806,
Victoria, Australia

MODERN WAY TO TUNE AN OLDIE

by Ron Boucher

I seem to be attracted to the mid 30's AC multi-band radios and I do a lot of short wave listening with them. One thing that I didn't like about short wave listening with old receivers. It was hard to determine the exact frequency to which I was tuned. Also, if you tried to record the location of a station on the dial, it was not easy to find the station again because the dials are small.

For example, one of the radios that I short wave tune has an airplane dial on which the 31 meter band is only 3/10 of an inch wide on the dial. There are a lot of small stations in that small space. Important I think, is knowing the exact frequency in that it is an important clue in identifying a station, especially if one is using a frequency listening.

Well, there is a way to know exactly to which frequency you are listening. Caution. Those of you who are hard core antique radio purists, who don't even want to hear the words transistor or integrated circuit, might just as well stop reading here. I hope the rest of you proceed.

I used a small solid state frequency counter with digital readout, the kind that Radio Shack used to sell. My reason for having it was to perform receiver alignments. Some of you who are into amateur radio may already have similar units to use for frequency calibration of your transmitter. I discovered that these counters can be used as a digital frequency readout for just about any superhetrodyne receiver.

As you know, a superhet radio has an oscillator built in, and it is the frequency at which this oscillator is operating that will determine which frequency you receive on the radio. By determining the frequency of the oscillator, you will be able to determine the frequency to which you are listening, which has been valuable.

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THE HORN SPEAKER
P.O. BOX 53012
DALLAS TX 75253

The particular counter I have has 2 inputs. One has a phone jack and alligator clips are used to hook up the unit to whatever you would like to measure. It is not that simple with a radio receiver oscillator because any connection to the circuit will throw it off frequency and may even cause it to stop oscillating.

The second input consists of a screw in terminal into which a 4 inch rod is attached that acts as a receiving antenna, so that you can take frequency measurements on a transmitter at the transmitting antenna.

This antenna input is the one I used for measurements. I took a 1/4 inch diameter wooden dowel, wrapped about 10 turns of wire around it and attached one end of the wire to the antenna input in the counter. This coil acted as a good receiving antenna for the counter. I found that a convenient place to put it, was in the vicinity of the oscillator section of the tuning gang; the oscillator coil is even a better place if you can get to it. I think that making a fixture out of wood to secure the dowel to location that you have chosen is handy.

Once it is set up and you are getting good stable readings, tune to a station whose frequency you can verify (tune as close as possible since you are calibrating you read out.) You can then take this known frequency and subtract it from the reading you get, which will be the conversion frequency (it is actually the IF frequency to which your radio is tuned.) On other tunings this conversion frequency can be subtracted from the reading on the frequency counter, which will enable you to determine the frequency at which the radio is tuned.

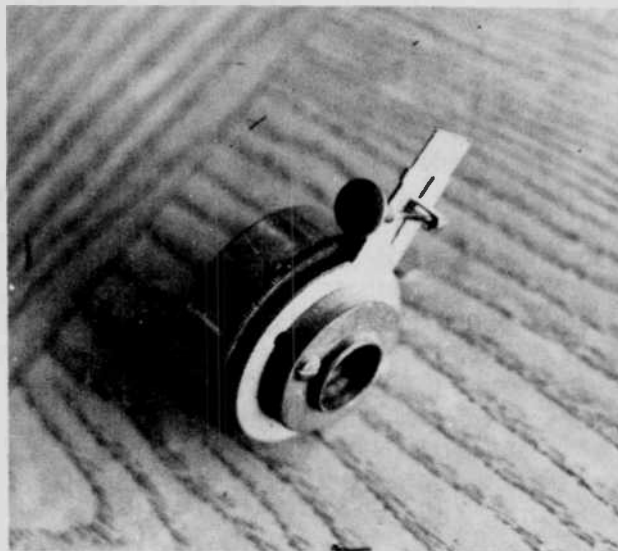
Radio Shack does not sell these units any more but I have a catalog from a company here that sells the same unit. It is: Albia Electronics; 24 Albia Street; P. O. Box 1833; New Haven, Connecticut 06508. It is a "Max 50 hand held frequency" and it goes for \$77.00, but I justified my buying one because it can be used to align receivers without a signal generator. After using it for short wave listening, I would have bought it even if that is all I could have it.

Phonograph.

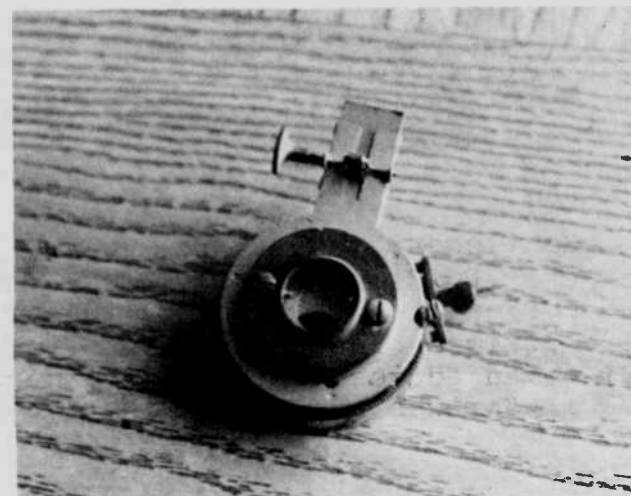
A VOLUME CONTROL FOR
OUTSIDE HORN PHONOGRAPHS

by
Walt Sanders
Terre Haute, Indiana

In the early days of phonograph, no volume controls were used. In fact, there was more concern for increasing the volume of the instruments, and the demand was for larger, louder horns and reproducers. As with the teenagers of today, the big thing was to see how loud the instrument would play. The only effective means of controlling the volume of sound was to vary the distance between oneself and the phonograph. Even the Edison Amberola machines with the inside horn had no means of controlling the volume.



Eventually there was a concern for volume, and it was controlled in one of two ways: through variations of the needle or by closing off the air column. Needles came in loud, medium, and soft according to their thickness, and, as Cheney recommended, could be inserted to various depths into the reproducer. The first popular American company to utilize a volume control on all their machines was Victor, with doors covering the end of the horn. The first of these machines was the Victrola VV-IV, introduced in 1906. Columbia closed off the end of the horn also, but with shutters rather than with doors. The most common method for other companies was to introduce a wooden slider with a hole in it across the throat of the horn just below where the tone arm joined the horn. Lateral movement of this slider would cut off varying amounts of the air column.



Although cutting off the air column is effective in controlling the volume, unfortunately the tonal quality suffered. In an attempt to retain more of the tonal quality at low volume, the Kimbal "Tone Amplifier" altered the shape of the horn so that the narrow end folded inward to close off larger portions of the air column.

The photographs show a device that closes off the air column at the reproducer. Made for the Victor Exhibition reproducer, it consists of two parts. The slider with the hole in it attaches between the frame and the rubber mount. The knob moves the slider to cut off varying amounts of the air column. The other part of the device is a cover for the front of the reproducer to reduce the sound produced at the front of the reproducer, so that the sound that is heard comes through the horn.

This device has no manufacturer's name on it, but it is stamped "Patented December 27, 1904." In comparison with other volume control methods that restrict the air column, it gives excellent tone quality at low volumes. This is because it permits full use of the tone arm and horn in shaping the tone. It is certainly preferable to adjustment of the needle since one can easily adjust it while a record is playing, and it gives a wider range of volumes.

The unit shown in the photographs was on a rear mount Victor E. It can be used with any phonograph that can utilize the Victor Exhibition reproducer, but, because of the patent date, was probably intended for use with outside horn Victor machines.

club news

MID-AMERICA AUCTION

"The Mid-America Antique Radio Club had its annual auction on April 12, 1981. Last year's auction brought \$4,000 but this year, it was only \$2,000. There were fewer items but mainly less desirable items -- many in poor condition -- which brought the total down. Good sets are becoming very difficult to find in the midwest -- the radio market is really drying up," wrote Bob Lane, 4031 W. 97 Ter., O.P., KS 66207.

Here are some of the prices brought at the auction: Radiola 3 -NT \$30; AK 40 \$18; Arborphone TRF \$50; AK 35 -NT \$18; Philco 20 -poor \$38; Crosley Bandbox -NT \$23; Operadio portable -NT \$35; Kolster 6D -NT \$19; Apex 28 with speaker \$76; AK 44 \$23; Magnavox R3 straight horn \$62; Radiola 33 no speaker \$17; AK 48 \$24; WE 7A -NT \$45; Erla TRF -NT \$21; Supreme 89 tube tester \$22; AK 42 \$25; AK L horn \$39; AK E speaker \$15; Crosley Musicone \$16; Airline battery console -NT \$20; Philco 44 \$22; Radiola 16 -NT \$22.

OLDIES AT HAMFEST

Howard Granoff, a radio collector with Olde Tyme Radio Company, was kind enough to send us the following good news. Starting with the expanded 1981 Gaithersburg, Maryland Hamfest, sponsored by the Foundation for Amateur Radio, an A.R.R.L. event, a new section will be devoted exclusively to the Antique Wireless Association. There will be activities featuring displays, equipment for sale, flea market and other activities. This new attraction has the endorsement of the A.W.A. and a good number of its members will be in attendance.

The Foundation, a non-profit organization, makes a number of scholarships available every year to worthy students from the proceeds of the Annual Hamfest. This annual event attracts over 5,000 people, who have an interest in communications and other electronics.

Those interested in this event, which will take place on September 13, 1981, contact Stewart Meyer, W2GH; 2417 Newton St.; Vienna, Virginia 22180 or you might want to call the radio collector, Howard Granoff at (301) 585-8776.

NIAGRA FRONTIER WIRELESS ASSOCIATION

I'm really writing to bring you up to date on the news of our club, NIAGRA FRONTIER WIRELESS ASSOCIATION (NFWA). In particular I thought your readers might like to hear about our last meet. It was our second annual winter meet and was held at my home on February 14, 1981. Our first winters meet drew a good crowd even though it was strictly social plus an opportunity to see one of the finest collections in the Buffalo, New York area at Dick and Ann Schambergers.

This year we decided to go a bit further and include an equipment contest. Because of limited space we chose contest categories where the entries would be small. They were (1) Advertising, (2) Small Receivers and (3) Tubes. One entry was permitted per category for each NFWA member.

To add a little interest we decided to make every attending club member receive a ballot and voted his or her choice for each category.

Picture No. 1 shows some of the judges viewing a few of the entries for tubes and small receivers. From left to right are shown Jim McGrath, Bud Bedker, Bruce Rawlins (from Canada), Jim Kreuzer, and Gary Parzy.

Picture No. 2 shows the winning entry in the small radio category. It is Art Albron's rare, 1 tube regenerative, model 4 Chelsea in beautiful condition. Art is a real Artisan and his restoration is tough to match. He once made a Crosley 50 from scratch & I couldn't tell it from an old one.

Second place went to Jim McGrath for his 1915 crystal set with buzzer and original batteries for the buzzer. Third went to me for a Radiola Special, shown on the right side of picture No. 3. This set was made for RCA by wireless Specialties Co. in about 1923. The front panel is a metal plate covering a bakelite panel. The

bakelite panel in engraved for the Radiola Crystal Set. It did not sell well so the front panel was covered and the set made into a one tube regen by the factory. Both sets are pictured on the top of page 107 in VINTAGE RADIO and show the similar front panel cut outs.

Photo no. 2 also shows the first prize for advertising. It is Jim and Felix Kreuzer's very fine AK display sign. It was a real standout and almost all of the judges (there were about 20 or 25) voted for this one. We were concerned that everyone might vote for their own stuff but not so.

The red ribbon went to Dick and Ann Schamberger for an interesting original business letter from Federal Telephone and Telegraph.

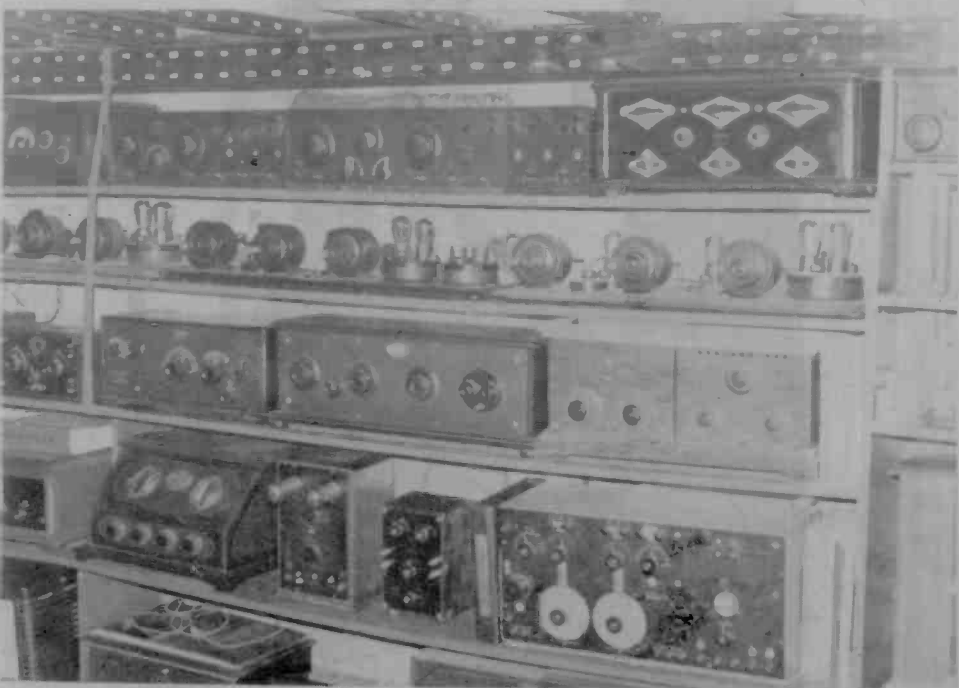
Some of the sets in the collection seen by members are shown in photo no. 4. On top of the Federal 61 on the right side they saw a Clapp Eastham HR and Aeriola Jr. crystal set. Just below the federal in the display case were seen Audiola and Federal Junior crystal sets. Next down was a Federal DX 58 and below that a Crosley 50 and Pup. The bottom shelf displayed a Western Electric 7A amplifier.

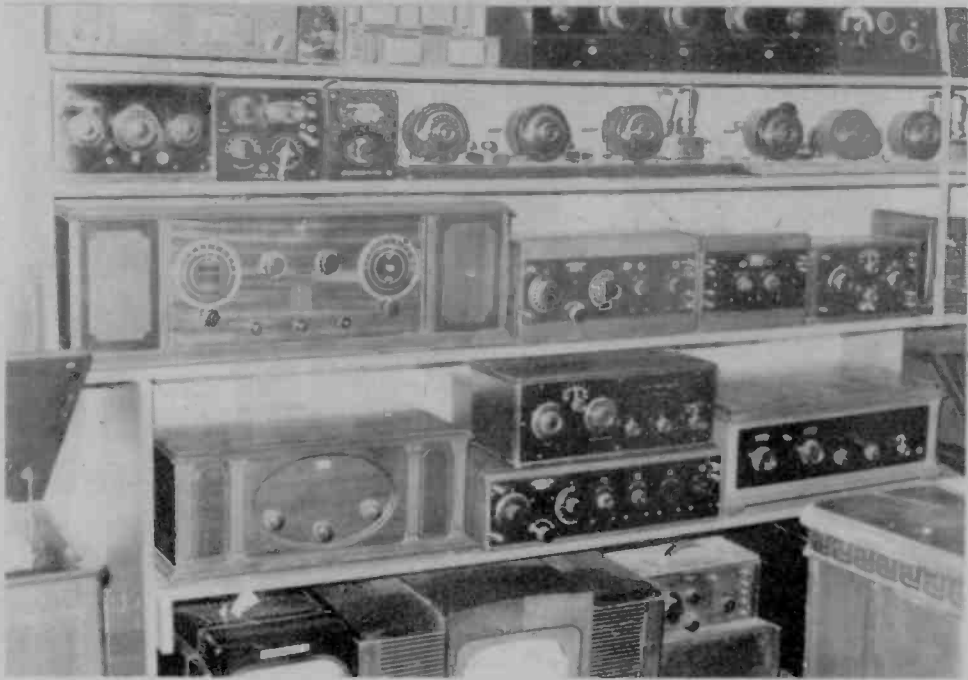
On the left starting from the top members at the winter meet saw a Daven 24 hole scanning disc, Federal 110, Radiola RS and a Westinghouse RC.

More of the collection seen by members is shown in photo no. 5. On the top shelf are a Grebe CR9, a Grebe CR8 with RORX 2-step amplifier and a Grebe Synchrophase. The next shelf down displayed AK breadboards. The one on the right was my father's first factory set. It is a rare AK no. 12. Below these sets were seen a Zenith 4R, an AK 20 and a Radiola V which has since been restored. Often someone "improved" his Radiola V by replacing the crystal detector with a fixed detector. This set now has an original type device.

On the bottom shelf visitors saw a Radiola 20, a rather rare DeForest P-200 amplifier from about 1919, the Radiola Special and an IP501A, which is a 1919/1920 wireless sets.

Photo no. 6 shows Warren and Lou Sterick viewing the collection. Lou is the one with





the beer. Behind Warren and almost hidden is Jim Ross, who is an important member of our club. He is Canadian, a member of our board and a past speaker on Canadian radio.

There are some more breadboards on the top shelf in photo no. 7. Next down are a Radiola VIII "portable" and to its right a Crosley VI special and amp. This is the one with porcelain tube sockets and wooden tuning condensers. Further right is the Tuska 224.

Any radio collector from Buffalo has to have at least one King. Mine is in the lower left corner. To the right are a Tuska 225 on top of a Crosley X. This one also has the porcelain sockets and wooden condensers. The Tuska 228 Superdyne is on the far right.

Photo no. 8 is me in front of some of the horn speakers in my collection. I'm holding a small brass horn speaker that I got at Canadaigua last fall. There is no identification on it. Can anyone identify it for me?

The show case in picture 9 was given to me free and is perfect for displaying my Kennedy 110 and 220 each with model 525 amplifiers, a Kennedy V, Radiola I and model 9 AK breadboard with variometer tuning.

Some of our club officers just had to have a business meeting even though we rarely clutter our meets with business. Shown in photo no. 10, left to right are Art Albion, historian and Crosley collector; Dick Schamberger, past president and assistant editor; Floyd Engles, treasurer; and Ed Lindberg, editor. The NFWA couldn't make it without these guys. They are all dedicated collectors and a real asset to our club.

Finally in photo no. 12 is the hostess of the event and my loving wife Dorothy showing her latest hand sewn patch work quilt to the girls.

NFWA publishes a periodical called the Chronicle and many of our members join our club just for the information that it provides for collectors. If any of the readers are interested in membership, the dues are still only \$5.00 per year. Write to: Larry Babcock, Box 68, Station H, Buffalo, New York 14214.

The Niagra Frontier Wireless Association Summer Meet will be noon till 4:30 p.m. on August 15, 1981. The fee is a

modest \$1.00 for anyone who wants to enter the grounds for the flea market or for the entire afternoon. The flea market will be first in the parking lot of the Old Amherst Colony Museum. Flea marketing will be from noon till about 1:30 p.m. Light lunches will also be available at the museum at this time.

Starting at 1:00 p.m. entries will be received for the equipment contest, which any NFWA member may enter. There will be three ribbons awarded in each of the 5 categories plus a best of the show ribbon. The categories are: crystal sets- factory; crystal sets-home brew; detectors; ugliest radio; floor model radios.

The theme of this meet is crystal sets and the talks will be related to crystal sets. First, Floyd Engles will tell us about the Quaker Oats oatmeal crystal set kit made in about 1921 on oatmeal boxes. Floyd has done a lot of research and has an exact duplicate of this set on the authentic 1920 oatmeal box. One thing he would like to know if anyone has the information. What is the proper headset to go with his set?

The second speaker is going to be a nationally known collector, who will talk about crystal sets or crystal set parts.

For judging this contest we are considering asking everyone to be a judge like we did at our winter meet. It worked out well then and everyone was interested and satisfied with the results.

There will be a pre-meet at Jim and Felix Kreuzers the evening before the meet on August 14, 1981 at 7:30 p.m. Sorry, but only NFWA members are invited-- this is really no problem. Come to Jim's home and bring your \$5.00-- and join when you get there. Jim has just moved into a new home and has probably the biggest collection of anyone in our club and his collection is outstanding. If you don't know how to get there, call him or Felix at (716) 835-9756. They will give you the information.

During the meet at the museum the wives are invited to the home of myself and my wife, Dot Babcock. The wives should ask about this at the museum's food counter.

After the whole thing is over at the museum, many of the club members go out to a local

restaurant for dinner to top off the day.

For our last meet at the O.A.C. Museum there were about 135 people from 10 states and of course, Canada. The flea market was good with a Federal 61, several early Grebes, a King (made in Buffalo) an early Crosley VI, and a DeForest D 10 available for purchase.

I should tell you that this museum is really easy to find and it is located out in the country, which is rural and nice. We generally get our best turn outs at this location. Hope to see you all there.

Cordially, Larry Babcock, president of NFWA, (716) 741-3082.

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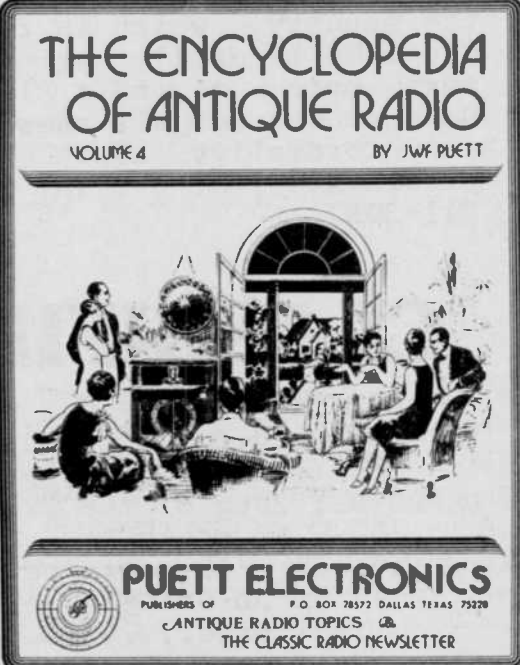
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(Continued on page 12)



NEW



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VOLUME 4 READY FOR SHIPMENT 30 June 1981.

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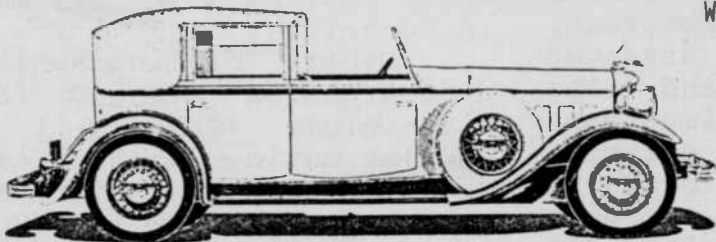
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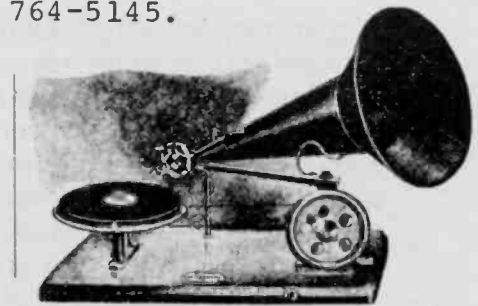
The second volume, compiled by Daniel Allen and to be published June 5, 1981, describes and locates over 3,800 jazz discographies (descriptive list of phonograph records) gleaned from both American and European (including Russian) journals between 1935 and 1980. Entries span such musical artists as Duke Ellington, Count Basie, Muddy Waters, Billie Holiday and Louis Armstrong. The discographies are arranged by subject's name, and the coverage includes all important musicians, singers, record labels, composers, and bands in the history of jazz, blues, gospel, rag-time and rhythm and blues music.

Bibliographic information includes name of compiler or author, title of article, name of journal or other source, date of article and page numbers. Indication is then given as to whether the discography contains the following data: non-commercial recordings; matrix numbers; index; release

dates; place and/or date of recording. An index is provided encompassing elements from the main citations; compilers, authors, editors, series, titles, and distinctive discography.

Daniel Allen received his Masters in Library Science from the University of Toronto in 1972. He is now business manager of Coda Publications, which publishes a jazz magazine in Toronto.

Other bibliographies of discographies planned for the five-volume series will survey popular music, ethnic and folk music, general discographies of music, as well as label lists, speech and animal sounds. For further information contact: Shirley J. Crawford -- (212) 764-5145.



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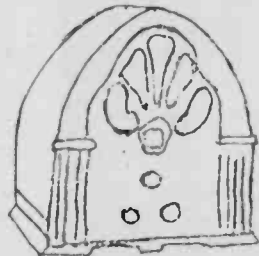
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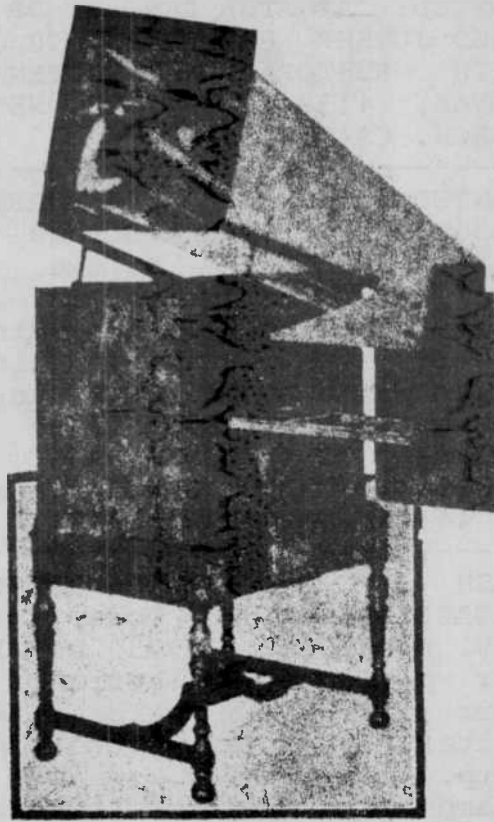
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used, plus shipping. I have
octals, loctals, 4,5,6,7, pin,
plus subminiature types, also TV
tubes. Send SASE for list-
state your wants. Rick Weibe-
zahl, 305 Belvidere Ave.,
Washington, NJ 07882.

SEND SASE FOR PICTURED LIST OF
1920's and 1930's radios. Also
tubes, transformers and sche-
matics, Jerry Finamore, RRD2,
P.O. Box 623, New Castle, PA
16101. (412) 656-0338.

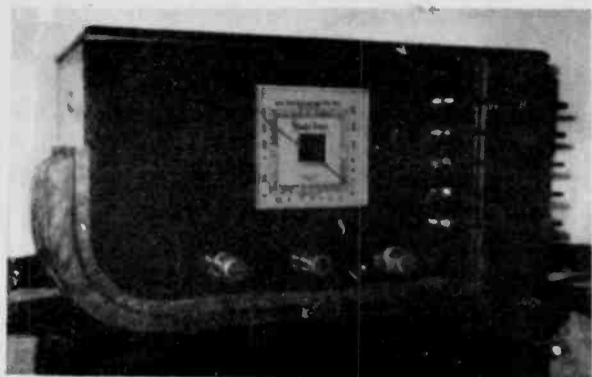
"SUPREME TV-RADIO DIAGRAM MAN-
UALS DISCOUNTED 60%. Free in-
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FOR SALE: FOUR DeForest tubes,
BRAND NEW... All four are DL5.
Best offer. GEORGE FRIEDRICH,
7162 JACQUELINE LANE, CUSTER,
WI 54423. TEL. (715) 592-4901.

FOR SALE: CATHEDRAL, BATTERY
and AC RADIOS from 1920's and
1930's. Please send self ad-
dress stamped envelope. J. Al-
bert Warren, Box 279, Church
St., Waverly, PA 18471.

NICKEL PLATED BRASS SWITCH
POINTS. 1/4" HEAD DIAMETER,
5/8" LONG, 6-32 THREAD. HEAD
THICKNESS 1/32" ; 1/8" ; 3/16".
\$15 PER HUNDRED, \$8 PER 50, \$5
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RIDERS 6 7 8 9 10 11 13 14 15.
\$50 PLUS SHIPPING. AUDIO MAGS.,
COMPLETE SET FROM MAY '47 TO
DATE. MAKE OFFER. MINGRONE,
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Wanted

PLEASE HELP. I LOVE MIRRORED GLASS RADIOS. IF YOU HAVE ONE OR KNOW WHERE THERE IS ONE, PLEASE LET ME KNOW. I'M ALSO INTERESTED IN ANY "WILD LOOKING" RADIOS FROM THE 1930'S LIKE COLORED CELLULOID RADIOS (FADA, EMERSON, ETC.) AND CHROME RADIOS. BARBARA GORTON, BOX 1252, DAYTON, OH 45401. (513) 253-5073.

WANTED: GRANDFATHER CLOCK RADIOS AND MIRRORED GLASS RADIOS (ESPECIALLY SPARTON). ALSO INTERESTED IN ACQUIRING A ZENITH STRATOSPHERE MODEL NO. 2501 PC. MAY SWAP DUPLICATE CROSLEY OR PHILCO GRANDFATHER CLOCK RADIO FOR WHAT HAVE YOU. ALL LETTERS ANSWERED. ED SAGE, 1781 HELANE COURT, BENICA, CALIFORNIA 94510. (707) 746-5659.

PARAGON DA-2 detector / amplifier, Paragon 10-R R.F. amplifier in any condition. Also looking for AK model 19 and 50 receivers. Will buy or swap tubes, or? for above items. Rick Weibezahl, 305 Belvidere Ave., Washington, NJ 07882.

WANTED: WOOD CABINET FOR AK-30, BAKELITE DETECTOR - AMPLIFIER TUBE SOCKET BOARD FOR AK-20 BIG BOX, DRIVER FOR BRANDES TABLE TALKER HORN. ROBERT DEUEL, P.O. BOX 1181, MEDFORD, OR 97501.

CASH - SEEKING GRANDMA'S old Zenith table model - 12-S-232, chassis 1204. Has rounded triangular dial surround and robot dial. Serious buyer. If you have it call collect - (206) 365-4956, evenings. Tom Bewley, 16557 21st NE, Seattle, WA 98155.

WANTED - COCKADAY 4 circuit tuner radio. This is a kit radio. J. Albert Warren, Box 279, Waverly, PA 18471.

MICROPHONES for broadcast archive. Early carbon, dynamic, condenser or ribbon types. Purchase or trade. James Steele, National Association of Broadcasters, 477 Madison Avenue, New York, NY 10022.

Wanted

WANTED: ATWATER KENT 82 OR 80. ALSO JUNKER PHILCO 20, 70 OR 90 WITH RESTORATION POTENTIAL. NOVAK, 4133 C PATRICE, NEWPORT BEACH, CA 92663.

WANTED: SCOTT PHILHARMONIC -special communications receiver - Phantom deluxe. Also early All-Wave series in original cabinets. Zenith Stratosphere also wanted. Highest cash price paid for any of these sets. Also have rare Federal 161 for trade. Dave Pierson, 635 E. Buchtel, Akron, OH 44304. (216) 762-5973.

CASH -- FOR RADIO RETAILING MAGAZINES, Radio Today, Radio T.V. Retailing, 1925 to 1955, for personal collection. Send your list and prices first letter. Also want Detrola Radio Corp. Advertising, yearly set pamphlets, factory literature, dealer signs, etc. Please no Rider or Supreme info. Or contact me and I will send you my want list. EDWARD BZOVY, 140 North Citrus Ave., Covina, CA 91723.

WANTED: STROMBERG CARLSON MODELS 180 and 260 console radios, circa 1936 and 1937. Arvin model 1427, 1427D circa 1938 console radio, uses 6L6 output tubes. E.H. Scott AC Symphony radio 1929, McMurdo silver Masterpiece I or III. Top cash or many sets to trade. Joe Halser, 2222 So. K.K. Ave., Milwaukee, WI 53207 or call collect 1-(414) 744-8825.

WANTED "ELECTRIC CLOCK" for Philco Grandfather clock/radio model 570, Bob Westrick, 702 Broadmoor Dr., Annapolis, MD 21401. Call collect (301) 757-5661.

WANTED: EARLY CEILING OR TABLE FANS. ESPECIALLY ODD OR UNUSUAL TYPES. RICHARD CANE, 8391 N.W. 21st ST., SUNRISE, FL 33322.

WANTED: SCOTT radio in Napier console (radio in open on top of console), Scott FM tuner, Scott FM converter, Scott Communications receiver, original Scott literature, Zenith Stratosphere 25 tube receiver. Steve Chapman, 419 Bird Lane, Waxahachie, TX 75165. (214) 937-2726 (home).

WANTED: GENERAL ELECTRIC NE-18 2 watt bulbs. Also scanning discs. 3 - stage resistance coupled amplifiers. Darcy Brownrigg, Chelsea, Quebec, J0X 1N0, Canada.

Wanted

WANTED: BREADBOARDS -- 4 TUBES OR LESS. ANYTHING PRE 1922. WHAT HAVE YOU GOT?? POSTAGE REFUNDED. RAY GARNER, RT. 10, BOX 645M-1, FT. WORTH, TX 76135.

RAYTHEON TELEVISOR LAMP FOR JENKINS Scanning Disc TV. Top price paid for scanners. Bill Russell, 6463 1/2 Fulton Ave. Van Nuys, CA 91401. (213) 989-4086.

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WANTED --- TWO GOOD 482 TUBES -- GEORGE FRIEDRICH, 7162 JACQUELINE LAKE LN. CUSTER WI 54423.

CROSLEY MODEL 31-S WITH SPEAKER. SPARTON JR. MODEL 410AC PREFER CHASSIS AND SPEAKER ONLY. MINGRONE, 15310 RAYNETA DR., SHERMAN OAKS, CA 91403.

PHILCO 14 OR 91, Chassis working or one with good coils, may take complete set. Also want complete Atwater Kent 228 or 567. Philco 20 cathedral with ornate front veneer and RADIOLA 62. Will buy above sets or TRADE restore Philco 70 for any above. Please write or call: John Thuring, 150 Highland Cross, Rutherford, NJ 07070. Phone (201) 935-0047.

WANTED TO BUY
HAVE CASH OR GOOD TRADES

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11. DeFOREST - pre - 1921
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ARS WAREHOUSE IS FULL OF EARLIER TUBES. MOST ARE BRAND NEW AND IN ORIGINAL FACTORY BOXES. ANY TUBE LISTED HERE IS JUST 22.50 POSTPAID. ORDER WHILE THE SUPPLY LASTS!

0A4	5A05	6AX5	6EJ7	6X4	12BA6	42
0B3	5B8	6BAC	6EM7	6X7	12BE6	50L6
0C3	5CLP	6BE0	6F5	6SL7	12BO6	57
0Z4	5R4	6BK7	6F6	6SN7	12CP	7CL7
1AF4	5TP	6BL7	6GHP	6SR7	12CO6	76
1KA3	5U4	6D4	6G6	6SQ7	12H6	77
1LC6	5V4	6E05	6GPH	6U7	12J5	78
1LH4	5W4	6R07	6HG	6UP	12L4	79
1LH5		6BWP	6HSR	6V6	12K7	84
1R4	5Y4	6BY6	6J5	6V6	12KP	VR105/30
1R5	5Z3	6Z7	6J6	6X4	12FA7	VR180
1E5	5Z4	6C4	6J7	6X5	12CF7	Amperite 316
1T4	6A5	6CC	6K5	6Z4	12FG7	854
1U4	6A7	6CP	6K6	7A4	12FJ7	
1U5	6AR	6CB6	6K7	7AG7	12K7	1005
1V	6AC7	6CBP	6K7	7CF	12SR7	1610
1X2B	6AF4	6CD6	6L6		12S7	1624
1ZC	6AG5	6CF6	6L7	7H7	12G7	
3AL6	6AK5	6CG7	6N6		12G7	
3B7	6AL5	6CM7	6PP	7F4	12AU4	
3BC5	6AL6	6CM9		10T1	24	
3CD6	6AGP	6C04	6P7	12A0	24CD6	
3DE	6AQ5	6D6	6SA7	12AP	25L6	
3EG4	6AGR	6DE4	6SC7	12AT7	25L6	
3EK6	6AUB	6D06	6ED7	12AU7	35Z4	
3GC	6AUP	6E5	6EF7	12AX4	35Z5	
3H4	6AV6	6E7	6EG7	12AX7	41	
3V4	6AX4	6E17	6EM7	12B6	41E1	

SPECIAL RADIO SUPPLEMENT from Dec. 2, 1928 San Francisco Chronicle. Ten HUGE pages of old radio ads, articles, programs, etc. The ORIGINAL, not a reprint! \$15 B-105

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- T-22 6' TAPE MEASURE, auto retract. \$2
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This big twenty-one page book lists most receiving tubes you will encounter in antique radios. All important data such as wiring diagram, function, voltages and currents, etc. are presented in easy-to-read chart format. TG-1 \$3.50.

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1981

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0A3	\$3	1N5	\$6	2A5	\$7	6A6	\$5	6B7	\$7	6K5	\$5	6S7	\$5	7B6	\$6	7AT6	\$4	7S27	\$5	7SA7	\$6	37	56	70A7	\$7	1203	\$6
0A4	\$3	1N6	\$6	2A6	\$7	6A7	\$4	6B8	\$7	6K6	\$5	6S77	\$5	7B7	\$7	7AT7	\$4	7S37	\$5	7SA8	\$6	38	56	70A7	\$7	1204	\$6
0B3	\$4	1J5	\$4	2A7	\$4	6A8	\$7	6B9	\$4	6K7	\$4	6S17	\$5	7B8	\$4	7AU4	\$3	7S47	\$5	7SA9	\$6	39	56	71A	\$9	1205	\$7
0C3	\$4	1J6	\$4	2B7	\$6	6A9	\$4	6B6	\$4	6K8	\$6	6S7	\$5	7C5	\$5	7AU7	\$3	7S6	\$6	7SA6	\$6	40	59	75	\$8	1206	\$6
0D3	\$4	1L4	\$6	2E5	\$10	6AB5	\$12	6B76	\$4	6L5	\$6	6S27	\$5	7C6	\$8	7AV6	\$4	7E23	\$4	7S16	\$6	40	55	76	\$5	1207	\$6
0Y4	\$4	1L6	\$12	2W3	\$4	6AB7	\$4	6C4	\$4	6L6	\$5	6T7	\$6	7C7	\$6	7AX7	\$4	7A44	\$6	7S5	\$6	41	56	77	\$7	1208	\$6
0Z4	\$5	1L44	\$7	2X2	\$5	6AC5	\$4	6C5	\$4	6L7	\$6	6T8	\$5	7C8	\$6	7AY7	\$4	7A5	\$6	7S25	\$6	42	56	78	\$4	1209	\$6
1A3	\$6	1L6	\$6	3C4	\$6	6AE6	\$4	6D4	\$7	6C7	\$6	6U5	\$11	7E7	\$6	7B7	\$6	7A47	\$6	7S26	\$6	43	79	56	1210	\$6	
1A4	\$6	1L84	\$7	3A5	\$5	6AD5	\$7	6C7	\$7	6N6	\$6	6U4	\$4	7F7	\$17	7B8	\$6	7A47	\$6	7S6	\$6	44	56	80	\$5	1211	\$9
1A5	\$5	1L5	\$6	3A8	\$6	6AD6	\$9	6C8	\$6	6M7	\$6	6U7	\$7	7F8	\$9	7BA6	\$6	7A85	\$6	7A66	\$6	45	610	81	89	1212	\$6
1A6	\$5	1L6	\$6	3B5	\$5	6AD7	\$6	6C6	\$3	6P5	\$5	6V6	\$3	7G7	\$7	7B6	\$4	7A86	\$6	7A7	\$6	45	63	82	\$7	1213	\$6
1A7	\$4	1L5	\$6	3B7	\$5	6AE5	\$5	6D4	\$5	6P7	\$6	6V7	\$5	7H7	\$6	7C5	\$5	7A8	\$6	7S7	\$7	45	53	87	\$8	1214	\$7
1B4	\$6	1L3	\$6	3C4	\$6	6AE6	\$4	6D4	\$7	6C7	\$6	6U4	\$4	7J7	\$7	7C7	\$6	7A45	\$6	7S7	\$6	46	83	87	\$7	1215	\$6
1B5	\$6	1L3	\$6	3L4	\$6	6AE7	\$4	6D7	\$7	6R7	\$6	6U4	\$4	7K7	\$8	7F5	\$5	7A47	\$6	7S7	\$6	47	84	86	\$6	1216	\$5
1B7	\$6	1L5	\$6	3Q4	\$5	6AF5	\$6	6D8	\$7	6S4	\$5	6X5	\$4	7L7	\$7	7H6	\$6	7A6	\$6	7S8	\$6	48	88	85	\$6	1217	\$5
1C5	\$4	1M4	\$6	3Q5	\$5	6AF6	\$9	6E5	\$12	6S7	\$6	6V6	\$5	7M7	\$10	7J5	\$6	7A87	\$6	7S9	\$6	49	88	89	\$6	1218	\$5
1C6	\$5	1M5	\$6	3S4	\$4	6AG5	\$4	6E6	\$5	6S8	\$7	6Z4	\$6	7O7	\$6	7L7	\$5	7A77	\$7	7S16	\$4	50	86	117L7	\$9	1219	\$6
1C7	\$4	1M4	\$6	3S4	\$4	6AG7	\$5	6E7	\$5	6S7	\$6	6Z5	\$6	7P7	\$6	7K7	\$6	7A48	\$4	7S17	\$4	50	85	117M7	\$9	1220	\$6
1D5	\$6	1M6	\$6	3A24	\$8	6AH5	\$5	6E8	\$7	6S87	\$6	6Z7	\$6	7S7	\$7	7K8	\$6	7A47	\$6	7S3	\$6	50	85	117N7	\$8	1221	\$4
1D7	\$6	1P5	\$5	3R4	\$5	6AH7	\$5	6F5	\$6	6S7	\$6	6Z5	\$6	7V7	\$6	7L6	\$4	7A77	\$7	7S4	\$6	50	85	117P7	\$8	1222	\$4
1D8	\$6	1Q5	\$5	3T4	\$5	6AK5	\$3	6F6	\$6	6S7	\$5	7A4	\$6	7W7	\$6	7Q7	\$6	7A47	\$6	7S5	\$6	51	87	117Q7	\$8	1223	\$4
1E4	\$5	1R4	\$6	3U4	\$4	6AL5	\$4	6F7	\$7	6S7	\$5	7A5	\$5	7X7	\$7	7S7	\$7	7A47	\$6	7S6	\$6	51	87	117R7	\$8	1224	\$4
1E5	\$4	1R5	\$5	3U4	\$4	6AL7	\$6	6F8	\$5	6S7	\$5	7A6	\$6	7Y7	\$6	7S87	\$6	7A47	\$6	7S7	\$6	52	86	117S7	\$8	1225	\$4
1E7	\$6	1S4	\$4	3U4	\$4	6AQ5	\$4	6G5	\$12	6S7	\$5	7A7	\$6	7Y4	\$6	7S7	\$6	7A47	\$6	7S7	\$6	53	86	117T7	\$8	1226	\$4
1F4	\$6	1S5	\$4	3X4	\$5	6A27	\$5	6G6	\$5	6S7	\$5	7A8	\$6	7Z4	\$6	7S7	\$5	7A47	\$6	7S7	\$6	53	86	117U7	\$8	1227	\$4
1F5	\$6	1T4	\$5	3Y4	\$4	6A76	\$4	6H4	\$5	6S7	\$5	7A7	\$6	10	\$9	7S7	\$5	7A47	\$6	7S7	\$6	54	87	117V7	\$8	1228	\$4
1F6	\$6	1T5	\$5	3Y4	\$4	6A78	\$3	6H6	\$5	6S7	\$5	7A8	\$6	11	\$6	7S7	\$5	7A47	\$6	7S7	\$6	55	87	117W7	\$8	1229	\$4
1F7	\$6	1U4	\$5	3Z4	\$5	6A86	\$3	6J4	\$5	6S7	\$5	7A7	\$6	12A5	\$6	7S7	\$5	7A47	\$6	7S7	\$6	55	87	117X7	\$8	1230	\$4
1G4	\$6	1U5	\$5	3Z4	\$5	6A86	\$4	6J5	\$4	6S17	\$5	7A7	\$6	12A6	\$6	7S7	\$5	7A47	\$6	7S7	\$6	56	87	117Y7	\$8	1231	\$4
1G5	\$6	1V	\$6	3A3	\$6	6A84	\$6	6J6	\$3	6S7	\$5	7A7	\$6	12A7	\$7	7S7	\$5	7A47	\$6	7S7	\$6	57	87	117Z7	\$8	1232	\$4
1G6	\$6	2A3	\$10	3A4	\$7	6B5	\$7	6J7	\$6	6S7	\$5	7B4	\$6	12A8	\$6	7S7	\$5	7A4	\$7	7S26	\$6	58	88	118	\$7	1233	\$7

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