1953 coming up.
There is something depressing about a year drawing to a close. What have we accomplished in the last year? Hmm, let's see now. Twelve issues of the Bulletin gotten out; six CQ columns. Lost a heap of Bulletin subscribers by putting a price on it. No time for a vacation this year. Sure miss New Hampshire.

I wonder what the new year will bring? A new car? New suit? Marriage? Or will it be the same as this year? War? Low frequency authorization for teletype?

Perry and I recently heard a talk by FCC Commissioner Sterling to a local amateur club and got the feeling that somehow teletype may have become equated with an increase in third party traffic by the amateurs, a source of worry to the FCC apparently. True, the use of teletype could speed up message handling, but I don't think there will be any radical changes in the present set-up since it seems to take something pretty strong to get the TT gang to handle traffic; something like a chance to publicize ham radio or an emergency.

As you may remember, there is a continuous struggle between myself and most of the other amateurs when it comes to the subject matter of CQ's. Many of the local rubber stamp QSO'ers have been sorely distressed in trying to pry from me the vital secrets of my station such as the type of tube used in the final amplifier, my power, receiver, and other personal matters. Have you ever tried to make a QSO with a new station and not tell him anything about either your equipment or his report? Watch yourself sit spellbound in front of the mike and mumble about the weather, past-present-future. The more I listen in to the ham bands, listening for one single interesting QSO, the less hope I have for my campaign.

In line with this idea I have pressed my tape recorder into use to record interesting things that I have read in some of the books recently. These tapes are being sent around to anyone who wants to hear them. Tape number one, subject of submarines, went out to W6UJS last week and will go to W6BAJ, W6TD, W7MWZ, and a few others before coming back to me. Let me know if you would like to be a party to this sort of thing. Or are you a hopeless radio addict?

I suppose I should explain somewhere what the story is on the Teletype Column in the January CQ, lest you get the foolish notion that the column has gone monthly. It hasn't. What happened was this: Perry hinted around for a week or so that since the February CQ is going to be a special DX issue there wouldn't be room for the RTTY column. Since Perry usually calls me on the phone shortly after each issue goes to press and announces that he had to leave my column out, or at least cut half of it, just to hear my screams of anguish, I paid little heed to such mumblings. Then, last week I happened to stop by the office to introduce Johnny Williams to Perry. As I was about to leave, Perry casually mentioned that he had four blank pages in the January issue, how about me writing a column that day for it? I rushed home and did it. I hope it doesn't look too much like the rush job it was.

Then there is that miserable picture of me on the cover. Who would ever think that an old TV cameraman would get caught with a silly grin like that on his face in a picture? Ouch! Fortunately few will notice me there since I have very attractive company. Paye Emerson is sitting at the teletypewriter, with Skitch, me, and Bill Mulligan looking over her shoulder. She was busy typing to W2BFD when the picture was taken. John was flabbergasted.
Mayhaps you are curious as to how all this came about. So the local RTTY gang, namely John Williams, set up his equipment in the VIM store on 12th Street with the help of Hallcrafters. The idea is to get messages from the general public and send them to whoever and anywhere in the world via ham radio. Hallcrafters and VIM spent several thousand dollars getting publicity for the message center and many well known people came up to be photographed. Ham radio and teletype were well mentioned over the radio on several big programs, including a special 15 minute broadcast from the center over WNSC on the opening night. All of the messages are punched into tape and then fed via two meter RTTY to W2EE, W2PAT, W2VNJ, W2GH, W2NXJ, or W2ED, depending upon the destination of the message. From there the messages went into the regular traffic nets. Traffic has been high, but no saturation has occurred so far. The hundred to two hundred messages that go out each day take less than an hour to send.

Lo these many months I have kept my nose clean from crass commercialism and no advertisements have appeared in the Bulletin. Now, at last, I have succumbed to the waving of the green and have established an appallingly low space rate. I am not sure whether it will be easier to get the money to come in or to get people to subscribe for the Bulletin, and I am forced to have them send it to an advertiser first and then have him send it to me. Rates available on request ($12 a page; $6 a half page).

Up until about an hour before the start of the Sweepstakes contest this year I had little intention of bothering. With the stroke of six p.m. the malevolent maelstrom broke loose and I was trapped. With the exception of meals, television, and the Sunday papers, I spent most of the weekend on the 75 meter band. Oh yes, I did sleep a bit too. As has happened to me in years past, the results of this first weekend of the contest were so encouraging that I made preparations for entering the second weekend. Mostly, these preparations consisted of getting my 20 meter antenna up, installing TVI filters in the exciter of the 20 meter rig, and giving it a short test. This hassle turned out not to be worth the trouble for I was only able to get through a QRM about ten times, and only got one section on that band that I hadn’t worked on 75 meters. My final score of 45,242 points (267 contacts in 63 sections) should make me the phone winner for my section.

Pogo keeps popping up in this Bulletin from time to time. In addition to the two dollar books "Pogo" and "I Go Pogo", there is a comic book edition which comes out quarterly for 15¢ a throw. The latest issue of this came the other day and just about collapsed me. If for some reason your sense of humor has either atrophied or just not developed to allow you to enjoy Pogo, you should work on the problem, for the world is not all bad and Pogo certainly is a high spot.

It would seem to me that after two years of waiting for the FCC to take action on the Burp, with no tangible results, that it might be a good time to start that the pressure on. As most of you know, the Burp is a complete two meter station which John installed at the Municipal Building over two years ago. This station can be turned on automatically by any RTTY station that can pick up and will re-broadcast the "m" signals on the opposite end of the two meter band. All sorts of precautions were taken in the design so that only the RTTY gang could turn on the rig and so that it would turn off automatically when not in use. This unit was tested for a few days after its first installation and was just to be sure that no bugs were inherent. For a few days all of the RTTY stations around New York City were able to contact all of the others. Without the Burp the Long Island stations are unable to contact the New Jersey stations and the Brooklyn stations can’t work anybody. Teletype loses a lot of its charm when there is no one to talk to and the dormancy of the Burp has resulted in one or two stations dropping out. The problem involved is that the FCC regs say that a remote controlled station must be controlled on 1420 mc. We want to control the station on two meters. As long as satisfactory precautions are taken in the design there can be no technical reason for not using 2M for the control functions. A Burp isn’t difficult to build and I am sure that there would be plenty of use for such a contraption in other large cities if we should get the FCC to open the legal door. With proper precautions this principle could be used even on the lower frequencies.
One more sales point worth mentioning with regard the model 21A machines is that they might be very handy when we get on the low frequencies since they are tape printers and therefore cannot pile up at the end of a line as the page printers do whenever they start to get poor copy. The missing of a carriage return or line feed will not stop a tape printer.

W2VDM, in spite of his new #26, still is not on the air. Hmmm.

W6NRM: "I have reworked my model 12 using a vacuum tube keyer, with 6SL7 tubes as keyer tubes, built right into the printer unit. I rewound the printer magnets with smaller wire: number 36 for the "start" and "operate" magnets, and number 40 for the selector magnets. This gives about a thousand ohms d.c. resistance, a much better figure to use with tubes. (The current drain is much less and makes it unnecessary to use such high current tubes as the 6M6, etc.) The 6SL7 is a twin triode, and it takes four. This leaves a spare to operate the tape advance magnet on the 1A multiplex tape transmitter. The machine now operates with no noise and I can use it as a mill to copy 40 meter c.w. The keyer is otherwise very similar to the W6NRM version, AR2T 4006. (Labeled AR2T 5004 in the April 1952 C Q Teletype Column) The terminal unit is very similar to the W6ADE version (AR2T 4037) (see December 1952 column in C Q). One modification I used to advantage was a pair of .006 condensers from grid to opposite plate, multivibrator style, on the 6V6's. This seems to help prevent chatter in the polar relay and gives more positive contact from mark to space, and cuts down on the noise."

W7THE, Kleinschmidt Labs, is looking for someone to QSO with him via 40 meter m/b. He writes: "Incidentally, our engineering department is interested in producing a teletypewriter for amateur use. Please send us your opinion on what an amateur would be willing to pay for such a unit and what its requirements should be." Wow! I wrote and suggested something around $350, and not more than $500. Their new model 100A is terrific, used it at the message center on 42nd Street.

ADVERTISMENT

WANTED!!

War Surplus Electronic Equipment of ANY KIND, particularly that listed below. Also any teletype equipment, accessories, or parts. Also any Technical Manuals, but especially reference type manuals such as Signal Corps etc.

We want to BUY or TRADE for new or used ham equipment the following equipments, or any parts, cables, controls, power supplies, loading coils, or accessories that are basic components (BC) of these sets:

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<th>Equipment</th>
<th>AN/APA-10</th>
<th>AN-9</th>
<th>ANR-14</th>
<th>ANP-5</th>
<th>ARG-1</th>
<th>ARC-3</th>
<th>ART-13</th>
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<td>DY-12</td>
<td>DY-17</td>
<td>GN-65</td>
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<td>PE-103</td>
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<td>RA-34</td>
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<td>SCR-694</td>
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<td>Test Equipment with TS or I prefix</td>
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Please describe your equipment carefully and, if possible, tell us what you think is a fair price for it.

ARROW APPLIANCE COMPANY - TOM HOWARD: W1AFN
BOX 19
BOSTON 1, MASS.

PHONE: LYNN 8-3100

RICHMON D 2-0916
W2DXD has all of his equipment now and should be joining us on 2M before long. The last letter from him was typed on the TT machine.

W1APN has a model 15 (TG7B) keyboard with a.c. motor that he would like to swap for a #15 printer since he has two such keyboards. Tom also has a printed schematic of the 21A wiring available for 25c.

W6NRM suggests using the ARC-5 surplus receivers (190-500 kc) with crystal controlled converters to give you the equivalent to a Collins 75A2 (almost).

W6KYY is interested in setting up a make/break test on 7 mc with someone here in the east. Dave reports that K2US, Yokohama, is getting set up on RTTY. It looks as if the two of them will be handling the bulk of the far eastern traffic via RTTY when we get 40 meters.

Doane writes a warning re ARTT 4039, the motor conversion in bulletin 15, that some motors have cast steel pole pieces and are not suitable for a.c. due to heat losses. Joe also points out that if the wires are tagged right they go 1-3 and 2-4 for 110 a.c.

W3IUZ, John Peterson, 314 95th Street, Brooklyn 9, N.Y. has some polar relays that he would like to sell: 21 of the Siemens Halsho multiple winding (7) - two 110 ohm, two 160 ohm, two 20 ohm, and one 1000 ohm windings. Price $3.50 each. He also has 29 Siemens Halsho dual 80 ohm winding polar relays, open frame type, for $3 each. The first relays are complete with aluminum cases. Whole works for $125.00.

W6EP, bless his heart, wrote in and championed the social notes and book reviews. I'm glad of that, I hate to have to keep putting them in without encouragement. True, ham radio and teletype are a mutual interest of ours, but then is that a reason to have no other interests?

W6EP has been getting more and more impatient with the FCC over this FSK deal and would like to ask someone on 3.5 mc m/b. He and W6HZR are all set to go anytime. Will you QSO him? Listen, send, or?

W2TDV wants to sell out. He has the original W2EPD panel, less the power supply which burned out, all switches for controlling, model 12 teletype machine complete, motor generator, and a center zero Weston meter, all for $127.

K38AA, Guam, sent me a letter recently and is interested in RTTY.

W6OZE is putting in a new final: L-1000A, in case we get thrown in with the Novices on 40M. A few 4 kw rigs there will have the ARRL petitioning the FCC to get those poor Novices out from under the QRM.

W6EP: "Procrastinating, I have found, is the thief of RTTY Bulletins, as well as of time... Rod (W6BYA) and I are working quite nicely, either on 11 meters with AM tone, or on 10 meters with PM tone. Most of our work lately has been on ten meters. We are some 16 miles apart...100% QSO's anytime...the model 26 machines really click the stuff off...Am making a new selective amplifier built around some super-duper 20 mh torroids which came into my possession. Have a batch of these and in a couple weeks will be in there with a real amplifier."

W6ZNU, Chico, Cal., has registered his interest. Another 6NRM convert.

W2MYL has installed the FSK circuit in the Collins 32V2 per ARTT 4007. Graham informs me that there is a mistake in the diagram, though not a serious one: C-103 goes from RF to ground instead of the B plus. Either way, it should be removed. Collins sent Graham the same conversion circuit and it, too, had C-103 misplaced. Graham says he is able to get plenty of shift with the circuit.

There are still a few of the model 21A printers around. Why don't you buy one while they are available so you will be able to have a remote repeater printer sometime in the future when you want it? On the west coast W6CLW has them, and here in the east see W1APN.
A Teletype Converter for FSK, AFSK, and Make/Break operation by WØHZR.

"I have just finished initial tests of a teletype converter for use with on-off keyers, and the results were so gratifying that I thought it might be a good idea to make the circuit public.

As one might suppose, push-pull detection using separate filters for the marking and spacing frequencies is to be preferred. However, in order to permit operation on the low frequencies one must at present employ on-off keying. On-off (make/break: m/b) keying has been unpopular for two good reasons: First, the use of only one filter network introduces objectionable baud distortion because of ringing in the resonant circuit, and this ringing is particularly objectionable when the signal level is changing because the bias point of the amplifier(s) following the filter remains constant as the signal level goes up and down. Second, the use of only one filter chain (single frequency) doesn't permit optimum discrimination against noise because one cannot take advantage of push-push cancellation as is possible in the W20BD filtering scheme.

Keyed tone after filtering:

Note that when the bias of the following amplifier is just half the peak voltage of the filtered signal baud, this amplifier (at cutoff) will pass that portion of the signal above the bias cutoff line, and that the portion of the signal above the bias line is exactly the same length (22 ms) as the original unfiltered baud. All that is necessary is to insure that the cutoff point of the amplifier following the filter is always at half the peak amplitude of the filtered signal, regardless of its amplitude.

The converter was then constructed to utilize this theory and worked quite well on either FSK or m/b signals, and with widely varying signal levels. Noise reduction was the greatest when high-Q filters were used, but a limiting level of Q was found where the filter rang for 22 ms after the excitation was removed. A single, series tuned L/C circuit can be used with good results if the receiver is carefully tuned. An R/C filter might work well here.

Block diagram:

Receiver → \(\frac{1}{6}6S7\) Input Amplifier → 6SL7 Clipper or 6H6 Limiter → \(\frac{1}{6}6S7\) Cathode Follower

Pull Wave Rectifier → Xfmr. Phase Splitter → \(\frac{1}{6}6S7\) Cathode Follower

Clamp Diode → "Schmidt" Trigger → Relay Amplifier → Model 12 Printer

Mark Filter 2125 cps

Note that the setup does not include provisions for polar operation of the relay. This allows the converter to operate any machine, even though it is set up for wire line operation.

The input stage is a conventional class A triode amplifier and is therefore glossed over in the schematic. The following stage is a dynamic type audio limiter which tends to follow slow changes in signal level. This 6H6 is followed by a cathode follower. This type of limiter works fairly well but a clipper or compressor might give improved results when the signal level goes sky-high.
The filter circuit L1-C1 has no actual values given since each is dependent upon the other. This circuit should be tuned to peak at 2125 cycles. L2-C2 was added only to widen the pass-band of the filter and is not essential for proper printing. The value of C2A used was 100 mfd. The wider pass-band allows greater leeway for drift of the receiver. Note waveforms.

Here is the gizmo that stabilizes the slicing point on the waveform. The diode "clamp" reads the signal peak at all times and delivers a negative bias to the trigger stage which cuts it off during signal voltage discursions below zero volts. During the marking period.

| Signal | Normal | To Polar Relay
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<tr>
<td>Normal</td>
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<td>Lines Coils</td>
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<tr>
<td>0 V</td>
<td>Cutoff</td>
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Relay Amplifier

Set to 60 ma on steady mark
when a positive going half-cycle of the signal appears in the output of the rectifier, a positive peak voltage occurs, say for example, 10 volts. This same signal peak charges the 0.5 mfd capacitor by rectification in the clamp diode and the charge is stored. During the marking period, then, the voltage at the cathodes of the rectifiers is varying between zero and plus ten, while the voltage at the clamp tube plate is varying in phase, between minus ten and zero volts. Thus the grid of the trigger tends to vary between minus five and plus five volts, stabilizing the time of the marking waveform at 22 milliseconds regardless of signal amplitude. Naturally the trigger grid can't go very far positive, but it doesn't matter since there is no capacitor present that can charge up to disturb things.

Well, there it is. In view of the several letters recently asking about m/b on the low frequencies there may be a need for this data. Bruce claims that this converter works well with m/b, fsk, and afsk. He will be glad to answer questions and run tests with those desiring. QTH: Bruce Meyer, 9410 Blaisdell Ave So., Minneapolis 20, Minnesota.

Those fellows who worry about getting into some of the inaccessible corners of the Model 12 typing units will be surprised to see how simple they look with the top plate removed. To remove the top plate merely take out the four screws in the top plate which are directly over the corner posts of the cast iron frame. The top then can be lifted right off without disconnecting anything. Be careful in replacing the top to see that the line-feed fork in the lower casting, right side, engages the lever on the line feed shaft in the upper portion. Watch it in removing the top and there will be no difficulty.

Hope that some of you happened to be watching CBS-TV on Saturday, December 20th, when I appeared on the 11 AM program: "There's One In Every Family." Plugged amateur radio and teletype too.

Seasons greetings, and I hope that I will be able to work every one of you on RTTY during 1953.
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