THE MICROPHONE

DEVOTED EXCLUSIVELY TO

AMATEUR RADIOPHONE

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ODE BY AN S.W.L.

THERE'S surely one blessing
We have on this earth—
A short-wave receiver,
And hams full of mirth!

Tho just short-wave listeners,
We have lots of fun
As we tune 'cross the dial,
Picking no 'special one.

And all the ham stations
Are so much alike
To the poor short-wave listener
As heard thru their mikes.

We listen to this one,
We listen to that,
Here one who calls CQ
And there one who chats.

We write them all letters
And hand them a line
About how they come rolling
In, mostly R9.

Whenever we listen,
By day or by night,
We count on a smile and
We're sure to be right.

—Marjorie Northern,
Silverado Sanatorium
Calistoga, California

THE MICROPHONE

"THE MOUTHPIECE OF AMATEUR RADIOPHONE"
Published Monthly at 738 San Pablo Ave., El Cerrito, Calif.
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MUCH as we feared the danger to the weak hearts of our old subscribers— here we are again! You might have known a good thing won't stay down.

So, we emerge from a couple of years' hibernation, full of wim and wigor— to say nothing of witality. Note the new subscription price.

As we stated in early issues, we repeat for those who came in late, that our purpose is to keep in touch with one another the growing number of amateurs everywhere who are interested in radiophone.

WE and the rest of the gang want to know what you're using, and anything else interesting you know of. Never mind the literary style— just make it legible.

Radiophone is rapidly growing popular with such an increasing number of amateurs, and so many become amateurs thru an interest in phone, that soon this branch will be the most important of all amateur activity. Maybe then we can get something like the frequencies we need. Let's hope we'll see the day when that portion of the 160 band will be restored which is now denied to us and consequently lies almost entirely idle, while our tongues hang out for lack of space. And the 75- 85 meter band— Well, we'll keep you informed of developments.

N.C.B.C.

AFTER A PERIOD of inactivity, the Northern California Breakfast Club has again come to life. For those unfamiliar with its activities we explain this is a group of 160 meter phone operators who "get up before breakfast" as the saying goes—and get on the air for a round-robin QSO before taking up the day's work.

On July 23rd, W6JTQ sent out a CQ that started the ball rolling at 7:50 a.m., according to W6KHW. W6KAY of San Francisco, W6JTQ of Santa Clara, W6IHH of Willits, with W6KHW of Albany, W6FWS of Oakland, W6JRU of Pacific Grove and W6JCI of Pebble Beach were all in on the contact and W6EOV of El Cerrito joined for a few minutes before the sign-off at 8:45.

THE SIX QUEENS

MARJORIE NORTHERN, who furnished the bit of verse on our inside front cover this month, is one of a group of short-wave listeners at Silverado Sanatorium. We gather that they spend a great deal of time listening in to the phones on 160 meters. They have made friends of a number of hams, sending them QSL letters and cards, so in carrying on their QSO's, the gang always take time to say a word of greeting to the "Six Queens" of Silverado.

The others, Josephine, Margaret, Verna, Alice and 'Goldie' join 'Margie' in publishing monthly a typewritten leaflet of friendly jokes and comment with humorous sketches. They call it "The Ham and Egg Omelet, and send it to a limited list of amateurs and short wave listeners of their acquaintance. We can see that the "Omelet" represents much hard work by the "Eggs", as they style themselves.

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REMOTE CONTROL

AS WE go to press, the finishing touches are being put to a small 56 mc. transmitter by W6EOV, for controlling from a remote point, either his 20, 75 or 160 meter phone transmitter. The noise level is generally so high at the main station as to make it very hard to carry on a QSO over any distance, from that point, so the plan is to take the control transmitter to another location where conditions are better, and relay the voice from there thru the main station.

In tests the control apparatus has worked very well. From Albany, W6KHW, using his own 56 mc. transmitter, can operate a buzzer at W6EOV's. The control operates a relay by a special amplifier driven by the 56 mc. receiver; this works a selector which can turn on the filaments and the heater type speech amplifier and can turn on and off the carrier, besides feeding the incoming voice to whichever transmitter it is desired to use to go on the air. As stated, receiving is then done at the control point. With half a mile or more separating transmitter and receiver, duplex work is much facilitated. No operator is necessary at the main station.

The 56 mc. transmitter used consists of a 53 tube in the familiar TNT circuit, 250 volts on the plates, the microphone in the center-tap of the grid coil to ground. Peculiarities of this tube, the fact that it draws large grid current, will not permit using the high resistance of a microphone transformer in this lead, as the resulting voltage drop would cut off all output from the tube. The microphone is inserted directly in this lead. Thus no battery and no transformer are needed. The set works surprisingly well, is very stable and clearly modulated.

W6EOV will be glad to answer questions about the transmitter, if addressed in care of the "Microphone."

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WHO'S WHO

—W6GFY—

NUMBERED among the active stations on the 160 meter band is W6GFY of El Cerrito, California. A charter member of the Northern California Breakfast Club, and prominent in the 7:15 p.m. gang, he formerly figured in the 4:40 afternoon QSO's, but business affairs now prevent that.

The "God- Forsaken Youngster" stands around six feet in his socks, but he much prefers a reclining position. To this end he has lately provided for control of the station from his very comfortable easychair. The chair can be adjusted so its occupant is almost horizontal.

The transmitter so lazily controlled has just been rebuilt into a rack-and-panel job, and with the Sargent 9-33 receiver, covers most of two racks, six feet high by 21 inches wide. Everything possible is fastened to the front panels, which are screwed to 1x4 uprights, and each rack may be separately removed from the assembly. Nearly every stage is removable with its panel, from its rack, for access for repairs or changes.

The driving stage and buffer constitute a "peewee" transmitter in themselves, power supplies, speech amplifier and modulator being built in. With the '47 crystal stage driving the 46 as modulated amplifier, this unit is a self- contained portable phone transmitter.

In the present arrangement, however, the 46 serves as a buffer to drive a 210 class C amplifier, modulated by a pair of UX250's. The Universal Model X microphone feeds a 57 tube driving a 2A5, impedance coupled to the modulators. Jack is getting ready to install a pair of 203A's as a linear amplifier, to top it off.

A 24- HOUR BAND

MANY OF US have been giving little attention to the 20 meter band of late, remembering how freaky it has proven in the past. For some time now, it has more than redeemed itself. A casual survey from time to time here in California, during each day of the past several weeks has very seldom failed to disclose at least a 9 or a 5 to be heard, whether the time be 9:00 a.m. or as late as midnight. Up until 11:30 p.m., K6's are the rule rather than the exception-- and how they do roll in! K6BAZ, K6CNC and K6FJF are apparently the most active stations in the land of the grass skirt. The best part of it is that, from station descriptions overheard, the average input to their transmitter final stages is 40 watts.

W6KY of Albany just launched his job on 20 meters, and has been knocking them off "right regular." Tho he has 600 watts input to a small water-cooled final tube, the current in feeders to his parallel-tuned Zep is 100 mills. Yep, he measures it with a thermo-milliammeter! And he gets r7 in Hawaii.

The most popular arrangement for using crystal control on this band is the famous tri-tet with the 59 tube, followed variously by a '47, 46 or '10 tube as doubler. W6KY uses a '10; W6EOV favors a '47. Chokes play a very important part in exciting the final sufficiently. Shielding is especially important on this band. Also shielding grid chokes has been known to add as much as 15 per cent to the output in some cases. The final touch in results is obtained by using a 60 meter rock, tripling out of the 59, and running the next tube as a buffer on 20 meters. This drives the final with the best punch of any arrangement using a similar number of tubes, for driving a Class C modulated amplifier.

PHONE AND THE CRYSTAL FILTER

AFTER having perused many radio article in several years, we notice there is none pertaining to the use of the crystal filter in the I.F. stage of a superhet receiver, which does not tend to discourage this feature for use in phone reception. Particularly in point is the one describing the Single- Signal Super, this one going so far as to bring out the variable- selectivity feature for phone reception.

It is possible to enjoy the full 50 cycle selectivity of which these filters are capable, even for phone, by the introduction of a simple audio compensating stage.

While not actally inventing it, the man who brought out the Stenode receiver was the first to make practical use of the crystal filter, and his use was entirely for phone reception. 50 cycle selectivity was actually obtained without sacrificing any fidelity of tone, in receiving from large broadcast stations, in a test made by the English inventor before the staff of a large Eastern radio magazine.

The technical reason for needing audio correction is a bit long for use here; suffice it to say that, when using only the rise and fall of carrier amplitude to receive modulated signals, without admitting their side bands— the latter being cut off by the filter in the receiver— the various frequencies of audio have a decreasing amout of power with increasing frequency, due to the differing ratios of the audio frequencies to the fixed carrier frequency. Modulation consists in changing the carrier amplitude thru successive periods of time depending on the audio frequency of the modulation. With the carrier putting out a certain numbes of waves per second, and the modulator

repeatedly changing the amplitude of these waves, the audio signal whose one cycle extends over the longest time, containing the most carrier cycles, will come in loudest in the very sharp receiver. The 60 cycle tones will last for a period of time during which a large number of carrier cycles are generated, while a higher audio tone such as 1000 cycles will extend over a period of fewer carrier cycles per cycle of audio, and will appear as a weaker signal in a receiver sharp enough to cut off side-bands. Hence the audio distortion of very sharp receivers.

All that is necessary, therefore, to reproduce audio signals faithfully with a receiver employing the crystal filter, is to use a compensating audio stage which discriminates between audio signals, passing them with a strength directly proportional to their frequency. The r.f. portion of the receiver brings them to the detector with a strength inversely proportional to their frequency, so between the two discriminations they emerge from the speaker with correct proportional volume. Such a compensating audio system is not difficult to construct. A condenser offers an impedance inversely proportional to the frequency. A resistance- coupled stage with a coupling condenser thru which the audio must pass, is all that is needed, if the values are correctly chosen. A '27 or 56 stage with a plate coupling resistor of 50,000 ohms and a coupling condenser of .0005 microfarads, inserted between the second detector and the following audio, will do the trick.

You'd be amazed at the results such a receiver will produce when properly handled. Stations never before heard, will appear as if by magic, and all reception remarkably relieved of interference. It is possible even to split off the heterodyne of an interfering phone, bringing in the desired signal all by itself, in one of our narrow, congested phone bands!

CLASS B AUDIO

EVERY TIME a new development appears in the radio field, there is a great rush to make use of it, in the first few months, followed by a diminishing interest which gradually results, in some cases, in the development being completely forgotten. In the case of Class B, of course, it's far from forgotten, but it's no longer regarded as the God- sent panacea for all modulation ills that it used to be.

Class B audio is capable of as great fidelity, for all practical purposes, as Class A. It must be handled according to the rules, however. Input and output transformers of skimpy construction, with which the market is flooded, tend to bring the system into disrepute. Power supplies that can't "stand and take it", don't help any, either. Driver tubes for the Class B stage, which have to be overloaded to do their work, are not much help. And we have seen some systems which gave a perfect performance when used on storage B supply, to sound hollow and "single-button" when operated on r.a.c. of none too perfect regulation.

If you have a Class B modulator which does not sound as good as a Class A tube of similar rating, try running some simple voltage tests on the power supply, while supplying a signal to the microphone. You may be surprised!

In some cases, the added load to the 110 volt line, when the modulators are at their peak swing, drops the input to both the modulator and r.f. amplifier plate supplies enough greatly to change all values, distorting tone and preventing complete modulation. High resistance chokes and poorly regulated power transformers don't help conditions any, either. A 10 per cent drop in transformer output is all that is permissible for good results. Try the voltmeter test.

WE ACKNOWLEDGE

with thanks, the very valuable assistance rendered by W6GFY, Jack van Groos in making it possible to resume publication of the Microphone.

ANNOUNCEMENT

J. E. van Groos, W6GFY, announces his business association with Radio Supply Company, 2085 Broadway, Oakland, California. He can supply your needs from a full line of broadcast receiver parts and amateur transmitting supplies at trade discounts.

INTRODUCING
THE MICROPHONE

THE MOUTHPIECE OF AMATEUR RADIOPHONE

THIS, the only publication devoted purely to amateur radiophone, is not entirely new; it was established in 1929. Forced by economic conditions to suspend publication in 1931, it now reappears with renewed vigor in the present greater field of amateur phone activity. Its aims are to supply technical information and to keep the gang touch all over the world, and as it has proven in the past, will be of increasing interest as time goes on.

JOIN US NOW

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City State

THE MICROPHONE
738 San Pablo Avenue, El Cerrito, Calif.