

THE JANUARY MODULAR



Official Order
Executive Radio
Council
Second District

1923

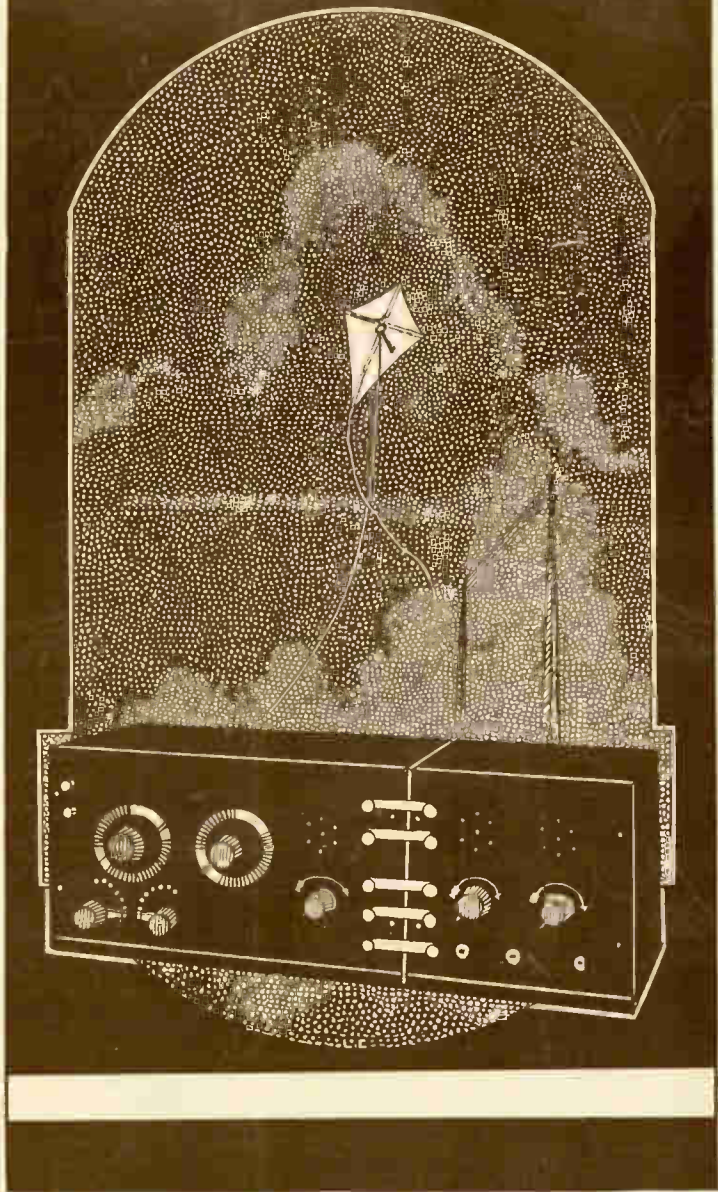
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THE MODULATOR

THE REAL AMATEUR RADIO MAGAZINE

Official Organ of the Executive Radio Council, 2nd District, Incorporated

Volume 2

for JANUARY, 1923

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THE MODULATOR

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EDITORIAL

THE situation, from the standpoint of the broadcast listener, seems to have cleared up a great deal, thanks to the efforts of certain tireless amateurs and the fact that there has been in effect, what is called "The Voluntary Lid."

This Lid has been self imposed by operating amateurs pretty well all over the country and, according to the majority of operators, it shows that Citizen Radio has once more stepped to the front in the spirit of cooperation and made it possible for the broadcasting public to listen to the concerts without the least excuse for blaming amateur transmission for interference with these concerts.

However, there is still a great deal of interference caused by commercial and ship stations which are operating on wave lengths very close to four hundred or are on a higher wave with a terrific decrement. Undoubtedly there are a great many letters being received by the radio inspectors complaining about these very necessary messages, and probably in most cases, the blame is laid on the amateur. The broadcasting public MUST learn the code in order to tell the difference between these stations, and so that they will know about whom to complain.

A visit to some of the better class of amateur stations in and about New York may prove a surprise to some of these people. Instead of a young fiend sitting there pounding a key, will be found a very decent sort of a chap, leaning back in his chair, the tubes brightly glowing, and the loud speaker sending forth the strains of the music broadcasted from some station. This may be denied by some people, but in the majority of cases it is absolutely what happens.

This fellow knows that if he presses his key, there will be a flood of complaints, people will ring him up, if they can read the code at all, and that he will be breaking up somebody elses concert. He has to sit at the set anyway, so the best thing that he can do is to listen to the broadcasting.

He has a perfect right to operate, under the law, but this almost complete stoppage of amateur transmission until ten thirty at night, seems to have taken hold of nearly all amateurs and the air around two hundred meters is certainly deserted until the time is up. The Radio Inspector knows this also, but the majority of broadcast listeners do not, and therefore when Mr. Inspector receives an irate letter from someone in the advanced stages of "Concertitis," he is inclined to blame the broadcaster for lack of knowledge, rather than blanie some innocent amateur, whose name has been taken at random from some call book. In short, if a complaint is received about an amateur, the thing is looked up very carefully before any action is taken. If the amateur is legally on two hundred meters, usually the broadcaster gets a good stiff call from headquarters and the amateur is allowed to go on transmitting as long as he wants to.

Now, Mr. Broadcast Listener, we amateurs are with you. We do not want to see any wilful interference by anyone, especially by a licensed amateur, we are standing by in order that you may have a fair deal and incidentally, by standing by, in this way, it will be a rather difficult thing for anyone to actually find any amateur who has done any thing out of the way.

You must remember, Mr. Broadcast Listener, that the amateur has made possible radio telephony, hence your broadcasting. An amateur is the inventor of regeneration and super regeneration that you use in your receiving set. In fact, nearly all of the really great strides made in radio can be traced to some painstaking amateur operator, and generally speaking, the amateur knows radio from A to Z. If you go into a radio store, the chances are that an amateur will wait on you, an amateur will do all of the buying and in a great many cases, an amateur will be the manager of the store. Radio articles in the daily papers are written, a great many times, by amateurs, the technical articles in the magazines are usually written by amateurs and so on. In short the amateur operator is probably better versed in practical radio today, than any other class of men. He is willing to impart his information to you, he is willing to help you in every way and will, in a great many cases, give his time, free of charge, in order to help you get the best from your set. Practically every really successful receiving set has been developed and built along the lines laid down by some amateur.

Now, Mr. Broadcast Listener, remember these things the next time you start to pen a letter to the Department of Commerce. If you have trouble with your set, consult an amateur, for he will help you to the limit of his ability. The amateur is here to help you, not hinder you, his clubs are at your disposal and he will lend you a hand over the rough spots and probably save you many hard earned dollars in the selection of your outfit.

W. F. C.

A Tuned Impedance DX Receiver

By Brainard Foote, 2NP

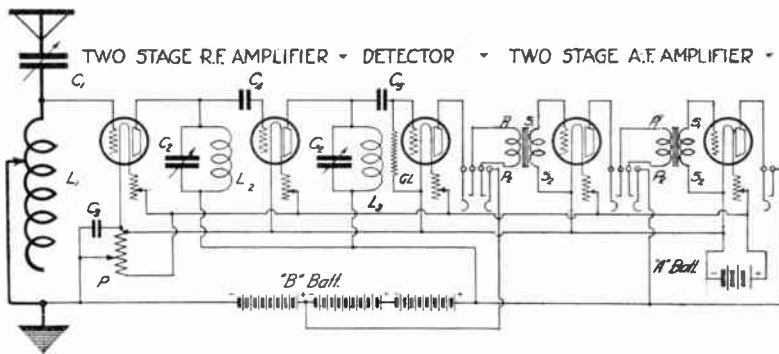
Photos by courtesy N. Y. Evening Mail

Here is some "dope" on radio frequency amplification which will be new to many amateurs. The tuned impedance circuit is one little known, and still less experimented with in this country... Radio frequency has proved its worth for distance, and there is no doubt but that the tuned impedance amplifier will make good on DX—Editor's Note.

It is a matter of experience that transformer coupled radio frequency amplification has not met with much success on 200 meters. This is evidently due to the fact that best amplification is obtained on one wave length only, that wave length at which the primary acts as an inductance in the plate circuit. Oscillation at this wave may be controlled by a biasing potentiometer, but on other waves the amplification is not very satisfactory. Hence resistance coupled R.F. has been most in favor. This requires a formidable array of tubes with consequent high current to be supplied by the battery.

Of course, several transformers may be ar-

pendance coils L2 and L3 have 25 turns each, also on 4 inch tubing. C1 is a .001 variable, and the other two .0005 mfd. each. The fixed condenser connected before the grid of the second tube is necessary to keep the B battery voltage off the grid. Connections should be made with self supporting bus connector, and all joints thoroughly soldered to eliminate all possibility of QRM from poor connections. The three coils should not be mounted in inductive relation to each other. It is important that the grid condenser is not equipped with a leak, for this will short circuit the condenser as far as the B battery voltage is concerned. The leak should be connected



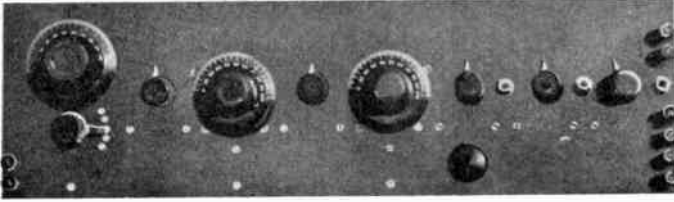
The Complete Circuit

ranged with condensers for simultaneous tuning by a common shaft, but it is practically impossible to arrange the circuits so that wave lengths will progress uniformly. Since in radio frequency, the transformers are not called upon for voltage amplification, there is no advantages in their use excepting an increased sharpness of tuning. But with two tuned stages of R.F. the tuning is so much sharper than with the ordinary regenerative receiver that one coil may replace the transformer with entire success. Tuned impedance coupling is used in the circuit shown, with inter-tube coupling provided by a coil and shunt condenser.

It is advisable to shield the panel with brass or aluminum, and connect to the shielding the ground and audio transformer cores. L1 is the antenna inductance, consisting of 60 turns on a 4 inch tube, with taps at the 15th, 20th, 30th, 45th, and 60th turns. The two tuned im-

as shown in the circuit. Detector or one audio stage is sufficient for ordinary reception.

Nowadays there is so much traffic being handled on 200 meters that the critical amateur is in search of a receiver with capabilities of sharpest tuning. Sharp tuning is a necessity, with so many C.W. stations in operation. The tuned impedance circuit is ideal for both spark and C.W. reception, and with the values given will tune between 150 and about 500 meters. The first operation of the set will give forth one grand blast of squeals and howls. After the correct tuning procedure is understood, these may be eliminated, and it will be found that a change of three or four degrees on one condenser should be accompanied by a similar and simultaneous variation of the other two. For 200 meter work, the R.F. condensers should be nearly at zero scale, with the condenser on the first stage having a



Front View

slightly higher reading than the other one. With about half the antenna inductance in circuit, the series condenser is varied, and at the same time the second R.F. condenser increased slightly in capacity. Oscillations will commence and a point will be found where the antenna condenser will bring the aerial circuit into resonance. This is indicated by a cessation of oscillations over a short range, say five or six degrees on the antenna condenser. If the capacity of the second stage condenser is increased the oscillations will persist. For any material change of wave length, it will be necessary to adjust all three condensers again, using the first radio stage condenser as the reference for wave length adjustment, and tuning the other condensers to it. It is possible to calibrate this condenser with a wavemeter, setting the other condensers at zero during the process. Regeneration is produced when the second stage is tuned nearly to the same wave as the first stage. For best spark reception the "dead spot" at resonance should be sought, but for C.W. the antenna may be thrown slightly out of resonance and the tubes allowed to oscillate.

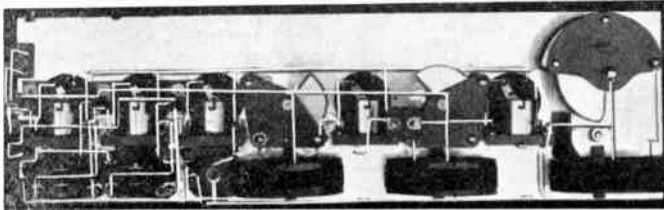
On the broadcast wave lengths, tuning will not be quite so critical as on 200 meters, and

lencies, its main advantage lies in its extremely sharp tuning. The principle of this type of coupling between tubes is easily understood.

Instead of the familiar radio frequency amplifier, with primary and secondary windings, an inductance, shunted with a variable condenser is placed in the plate-filament circuit of the amplifier tube, and also in the grid-filament circuit of the next tube.

Thus, in a series circuit, the impedance is zero at resonance. However, with a parallel circuit, such as is here used, the impedance to alternating currents is infinite at resonance. But the actual ohmic resistance on direct current is only that of the coil in parallel to the condenser, and is rarely more than a few ohms. This permits the application of the full plate battery voltage on the plate. As each step must be tuned to resonance, a great deal of work is involved, which is well compensated, however, by the exactness and sharpness of tuning. A wavemeter will prove of considerable help in tuning the various steps of tuned radio frequency amplification.

C3 acts as an R.F. by-pass over the portion of the potentiometer between the arm and the negative "A" battery. For those interested in greater selectivity it is suggested that the pri-



Rear View

the dead spot is sought for clear speech and music. There is no "standby" adjustment on this circuit, but the extreme sharpness of tuning will be found very valuable to the A.R.R.L. man, especially with C.W. work. This receiver has been used with unusual success at 2NP, and a number of five watt C.W. stations over 1000 miles distant were logged and confirmed during the Transatlantic Preliminaries. The best receiving records with a 100 foot single wire antenna 15 feet high located in Brooklyn are 6EN and 6XAD, besides a flock of fifth and ninth district stations.

The tuned impedance circuit needs a word of introduction. Although it has many diffic-

mary condenser may be used to shunt the tuning inductance, which then becomes the secondary. This change may be easily made by connecting the antenna and ground posts together. A coupling coil of about five or six turns of wire may then be coupled to the secondary, and connected in series with a 35 turn coil and .0005 mfd. variable condenser, for tuning the primary.

A small variable condenser in series with a variometer and the coupling coil also is useful for tuning the primary circuit. The tuning is quite complicated with such a change, but no WNY interference is noted and volume of DX is just as great.—L. J.

Local Interference With DX Reception And a Possible Solution

THE Transatlantic Preliminary tests started with a roar on the 25th of October as anyone can attest who chanced to be listening. The main trouble seems to lie in the fact that the Second District ops don't know enough to shut up for a while and let the other fellows have a chance.

A careful log was kept of the different districts and especially of this one and if it should be printed, there would probably be a riot. Spark stations seemed to be the worst offenders. By this is meant that they continued to test and carry on traffic with each other, during the periods when we were supposed to be listening to the other districts. This is done either from selfishness or thoughtlessness and in most of the cases noted we are inclined to believe that is was the latter.

When your A.R.R.L. allots different times for transmission it means that the other districts are supposed to keep quiet and listen. How it is possible to do this with some noisy spark set a few miles away testing all during the period allotted to the Canadians or the fourth district, is a whole lot more than we can see. There were plenty of C.W. sets doing this also and we only wish it was possible to actually give the call letters of these offending stations.

Fellows, don't you know that we are supposed to listen to the other districts during the periods when the twos aren't operating? Supposing all of the other districts kept right on transmitting all of the time that YOU were transmitting. Your report cards would fall off considerably wouldn't they? We have a national organization known as the A.R.R.L., that gives out all of the data relative to these tests, but the majority of you do not seem to know when to quiet down and, sad to say, we really think that a whole lot of you do not even know of the A.R.R.L., and the work that they are trying to do. Don't think that this is aimed at everybody, because it isn't. Most of the fellows do the right thing every time, but there will always be a certain few who will create more damage in a few minutes than the decent fellows will be able to live down for a year.

We will have to get together and form some sort of a "KIBOSH KLUB" to make these out-laws come up to the mark. One of the best ways to do this is to shun them completely. If they call you do not answer them, if you have to pass traffic to some one, give it to anyone but them, if there are any special relays that come up, leave them out, then if they get sore about it and cause intentional interference, make out an affidavit and send it in to the Radio Inspector. Amateur radio is to big a thing to allow a few misguided brass poun-

ders to spoil it for the great majority. Let's get together, fellows and squash these birds good and hard. Log them, keep track of every time they hit the key and if they pull over any intentional "bad manners," you know what to do. Remember, though, that you must have a specific time and just what happened.

There is one more type of amateur that is also going to get it. All during the Preliminary Tests, there was a certain gentleman, operating an A.C. phone set, right in New York City. No one could understand what he said, because the hum was so bad, but he kept right on testing with his friend around the corner. He had enough power to cause real trouble in receiving DX, and his wave was rather broad. Here was a nian who positively never heard of the A.R.R.L., and he probably wouldn't know what was meant even if someone told him to QRT. They say that New York is a poor DX town, but certain parts of it, at least, are not so poor when it comes down to receiving DX. The only reason that it is poor for good reception is because of a few fellows like these who want to hog the air all of the time. You fellows who read this, who have been doing this sort of work, don't blame it on the other fellow, look to your own key or microphone, as the case may be.

There is a body of amateurs in the city, who have banded together to form sort of an aerial police force. Careful Log Books are kept and these offenders are well known to them. A comparison of the different logs soon shows the most flagrant cases of this kind and it will not be very long before there will be enough evidence to cause these fellows to lose their licenses.

This Radio Klu Klux Klan is made up of all the better class of amateur, and some of the most influential men in the game are members. They are scattered all over New York, The Bronx, Brooklyn and Jersey, and can well check up offenders. You may be transmitting only around the corner, but the chances are that your signals will be picked up by one of these men, and unless you mind what you are doing, there is very apt to be some trouble—for you. Don't think that these men are trying to own the air, because they are not. Their sole object is to make the Second District a decent place to own a radio set in. Unlicensed stations, CQ hounds and other trouble makers will get all of the trouble that is coming to them. Most of the members of this club are the best known DX men in this section, and they know radio and want to see it improved in the Second District. Undoubtedly there will be some hard feeling caused, when things begin to move, but if a fellow isn't big enough to take his medicine for the good of amateur radio, he isn't a real amateur.

Super Regeneration for DX C. W.

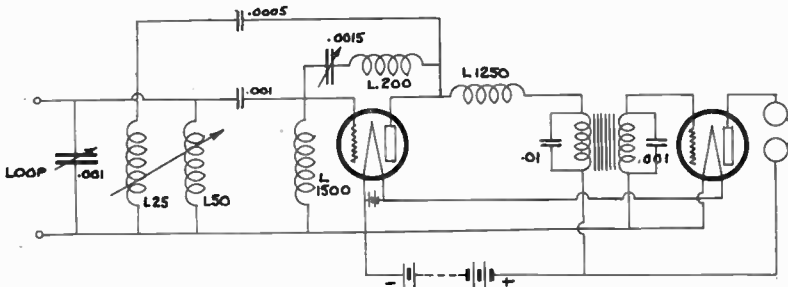
by H. Reifel

A Paper Delivered Before the Hudson Radio Club

THE usual method of explaining the action of super-regeneration is by the use of the term "negative resistance." While this may be understood by those fairly well advanced in the use of the vacuum tube in regenerative and oscillating circuits it is usually far above the average amateur. It would be well if the operation is explained in some other way than that which makes use of negative resistance. Let us consider the tube in its various operations.

When using the tube as a detector or rectifier it must be operated on one of the knee's or bends in the characteristic curve, that is, below the point C or above A. At these points

quite some time to build up its oscillation if no signal is present. If, however, a signal is present the impressed oscillation will build up to enormous strength in a much shorter length of time depending on the strength of signal. It is important to remember that regeneration can only take place when the tube is in the amplifying condition, hence no regeneration can take place at the top or bottom of the curve. If a tube could be operated at the middle portion of the curve only for a length of time that would prevent it from reaching the point of self-oscillation and then be changed to a detecting part of the curve a tremendous signal would result. This is exactly what hap-



The Circuit Used

any impressed E. M. F. will be repeated in the plate in one direction only. As example—Assume that we are working at the bottom of the curve E. Any negative E. M. F. impressed on the grid will have no effect on the plate current as it is already as far negative as it can possibly go. A positive E. M. F. will drive the operating point up the curve resulting in an increase of current in the plate circuit. As can be seen, only the positive half of the cycle is made of any use. By working at the top of the curve negative current will be passed and the positive stopped.

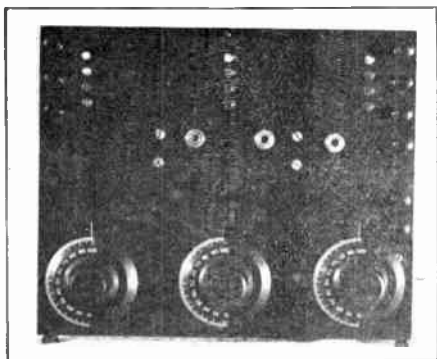
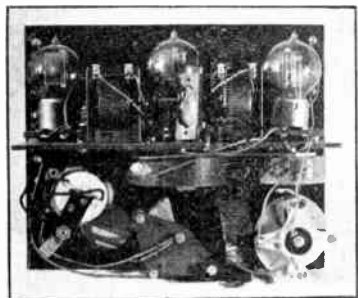
If the tube is worked at any point between A and C any E. M. F. that is impressed on the grid will cause a current of approximately the same wave form to flow in the plate circuit. This current, however will be greatly amplified. It will be seen then, that if we take some of the amplified energy and feed it back into the grid of the same tube it could be amplified again resulting in a further increase of current. This is made of use in the ordinary regenerative circuit. If the feedback is too strong the tube will "spill over" and oscillate of its own accord rendering it useless for reception of spark or telephone signals. This "spilling over" is not instantaneous but takes

pens in the super-regenerative circuit which is simply a time limiting regenerator.

In practical operation this is done by an alternating current of 500 to 20000 cycles which is continually shifting the working point of the tube.

From the amateurs point of view this would apparently leave a lot to be desired as at first glance it would probably be said that it would not be practical to receive C.W. and hence be of no value to the amateur. This is not so however, as the system can be allowed to oscillate by an adjustment of the super-frequency to one of less strength which will not allow the point of operation to be driven all the way to the ends of the curve. It will then be found that C.W. can be autodyned very easily and makes the entire arrangement a remarkable one for its sensitiveness. A set, made with these points in view was constructed and some really remarkable results obtained. This set was a one tube super-regenerator with a two stage amplifier. The local broadcasting stations could usually be heard over a thousand feet away with a plate voltage of 90 and signal strength is enough on one tube to work a loud speaker. As for DX the following stations were all copied on one tube

using a two foot loop of twelve turns. 1API, 1HL, 1XU, 1PD, 1XF, 1BKQ, 1YK, 1XM, 1HL, 1AR, 1CPN, 1RD, 1BYT, 1ZE, 1AYQ, 3FS, 3BVP, 3BNU, 3BUY, 3HD, 3BG, 3AJD, 3AQR.



Front and Rear Views of Set

3LP, 4GL, 4FT, 5EK, 8KG, 8BPL, 8CUR, 8ZE, 8FT, 8XAE, 8AIM, 8QM, 8CTP, 8AIW, 8ATU, 8XE, 8ATS, 8CEL, 8ZV, 8AES, 8AHR, 8IB, 8ACF, 8AWP, 8BO, 8ADH, 8ZD, 8BTR, 8UE, 8ASY, 8HL, 8XU, 8ASC, 8UK, 8AVL, 8BFX, 8CGP, 9BCB, 9KP, 9AIM, 9UU, 9AJH and Canadian 9AL. This covered a period of five days with a total of about seven hours on watch.

See Page 124

200 METERS

By a Second District Amateur

"Dah-Dit-Dah-Dit-Dah- Dit-Dit-Dah-Dah-Dah, etc." Business of tuning in. That's Bill all right. He must be ambitious tonight; haven't heard him on in long time. There, he raised his party all right.

"OK, OM, HW r n?"

Same old stuff, Bill!

"Everything working FB, QRH?"

"260".

Good Lord, he's on 260 if he's on anything. No wonder he can do DX; not only do it but talk about it too! As though anyone can't do it on 260! 'Scinch.

"Wait a minute... QSY OM. Hw nw?"

"OK, OM. Not so good. About 210 but sigs much more QRZ, OM."

Bbbzzzzzzzzzzzz

"Tks, OM, W1. I guess I'll stay where I am then. QRU, OM."

And the answer is that he operates on 260 meters because he can raise 1... or 8... after one call. Why all the advice about getting down to 200? In January QST we read of 2 — getting across in the Trans-Oceanics, wave 230 or 300. Or 2 — on 240 or so!!! MIM. Some encouragement to drop to 200. Anyway, where are all these 200 meter stations, anyway? D'ye ever hear many of them? Soon as Jim finds out that there is a hellava big difference in his reaching out on 200 — up goes the aerial tap and he's at it again on 240. We are told that DX is possible on 200. But where are they and who are they? Take any QST Calls Heard list, and opposite calls heard place the genuine wave length. Then exclude from the lists all on a wave above 200. What a sick list you'd have! I've listened in on DX and local work for several months and I would really hate to have the job of warning all those above 200. I would need a stenog and reams of paper and index cards that would keep tabs on the hundreds needing advice. Much has been written about getting down to 200 but not much encouragement has reached those ambitious amateurs from the Second District Executive Radio Council or the A.R.R.L. All that the A.R.R.L. apparently wants is that a station that gets stuff through. And if they are above 200, well of course its 2 — — and he's a reliable traffic man so lets say nothing about it. The 200 meter man CANT get out as well. He'd not as QSA, therefore the listener on the other end shrugs his shoulders and passes him up for someone else he can receive QSA. Now after a few weeks of trying, your 200 meter DX station gives it up and gradually there is a scarcity of men who will have the patience to work DX. And that is exactly the situation in the Second District today in regard to traffic. Another thing, traffic is work that entails an hour or so at the set three or four times a week. Therefore more apt to QRM. So why try traffic in the early evening hours—the rush hours? All the above is written without one serious thought for anyone in particular. I have endeavored and hope I have succeeded in being general, for that is what I intended. Just a jotting down of some ideas that have possessed me from hearing comment from other amateurs and reading our representative magazines.

And so, QST, MODULATOR, Second District Council, and A.R.R.L., encourage your amateur who tries to (and if they try hard enough IT CAN BE DONE) and does operate on 200. For when the regulations are enforced to the letter, he will be your standby, and NOT the amateur on 260 who naturally can do better work on that wave but eventually will be firmly yet politely asked to QRT till he hits 200. 'Nuf sed!!!

**Second District
Convention
HOTEL PENNSYLVANIA
March 1, 2 and 3, 1923**

The Construction of an Edison Storage B Battery

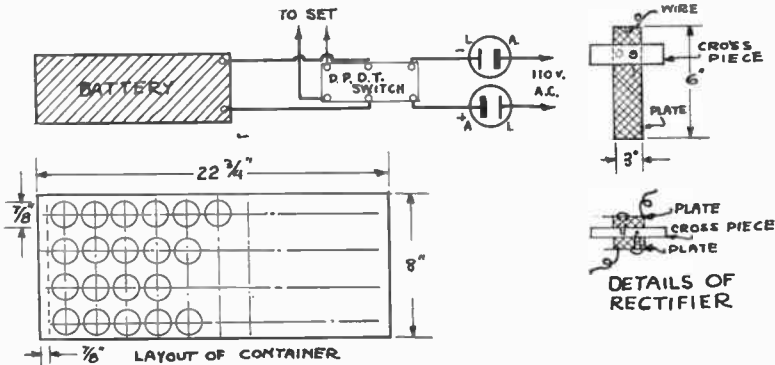
By John McDevitt

AS amateurs, we have often felt the need of a storage "B" battery that works. The ideal battery must have the following characteristics:—

1. It must be reasonable in price.
2. It must be comparatively simple to make.
3. One charge must last more than two or three nights.

52 Goffe St., New Haven, Conn. It is possible that some of the readers have the elements or have a source of procuring them. If so, the solution may be obtained from the Edison Works in Orange, N. J.

The separators must be pieces of thin hard rubber cut to the specified size. The pierced rubber sheets used as separators in some storage batteries make excellent separators, and



Miscellaneous Details of the Battery

The battery about to be described has met these tests better than any I have yet seen, and it even surpasses all the lead batteries in the fact that shorting, overcharging and undercharging does not affect it. At the most this battery and rectifier will not exceed \$8.00 in cost. The battery we will consider is one that has a capacity of seventy-five volts. An Edison cell only gives but $1\frac{1}{2}$ volts, therefore fifty cells will be required.

The first consideration will be the materials. They are as follows:—

- These include rectifier parts.
- 50 positive and negative Edison elements.
- 15 ft. of No. 20 pure nickle or iron wire.
- 50 1 oz. Homepath vials (or test tubes $1'' \times 5''$).
- 50 rubber separators $\frac{5}{8}'' \times 5''$.
- 1 piece of soft wood $22\frac{3}{4}'' \times 8'' \times 3''$.
- 2 pieces of Aluminum $2'' \times 6'' \times \frac{1}{8}''$ (these plates should be as pure as possible).
- 2 pieces of Lead $2'' \times 6'' \times \frac{1}{8}''$.
- 1 double pole double throw switch.
- $1\frac{1}{2}$ quarts Edison solution.
- 5c Borax.

The positive element is the round one and if not already cut, it must be cut to the length of the negative one. The writer obtained his elements ready cut, 50 separators and the necessary solution, for \$8.00 from Harry Morrell,

old ones may be had for the asking at battery stations. They should be cleaned in water and cut to fit the cells.

The first step is to lay out the container.

The vials used by the writer were $\frac{7}{8}''$ in diameter. The board was divided into four spaces and the center of each space was used as the line on which the holes were drilled. The cells were spaced $\frac{7}{8}''$ apart. Four rows of 13 holes each were drilled and the whole thing was given a coat of paraffin.

The next step is to punch a thin hole in the end of each one of the elements. This should be done with a thin nail that has a sharp point. It is useless to try and drill the elements as one drill will be broken to every three or four elements. This would run into needless expense for drills.

Cut the wire into three inch strips and fasten each set of elements by passing the wire through the punched hole and twisting it around itself tightly. Keep one set unwired to be used in the first and last cells.

Do not try to solder the connections, as the solution will eat the solder in a short time.

Place the vials in their respective holes and put the elements in them.

Next slip the separators in the cells and fasten long leads to each of the two elements kented over and place them in their respective cells.

Now we will turn our attention to the rectifier.

Take two pieces of wood about 4"x1"x1" and to each side of them screw one aluminum and one lead plate.

Before screwing the plates to the suspension piece punch a hole in the top of each plate to make a connection in, and the plates must be sandpapered to assure a clean surface.

Caution must be taken in the use of the screws. They must not protrude through the piece of wood and touch the opposite plate, as this will short the jar.

Place the two sets in two 1 qt. Mason jars, $\frac{7}{8}$ full of a thin Borax solution (Borax & water) and connect as shown in the diagram.

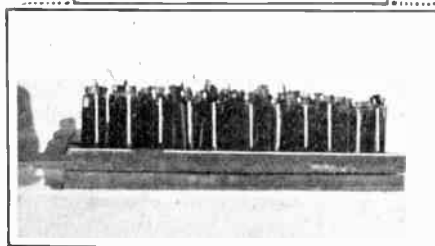
With a small syringe partly fill the battery cells with acid and put a thin film of thin oil on the top of the solution to prevent evaporation.

Connect the whole thing as illustrated in the diagram, and the battery will be ready for the first charge.

Throw the switch so that the battery is connected with the rectifier and a low buzzing noise will be heard. The battery is now charging. When the rectifier is working perfectly it will give off a bluish white glow in the dark. If sparking occurs, it is a sign that the rectifier is not working to its highest efficiency and either the aluminum plates are impure or the solution is too thick. Add a little water to thin the solution. Sparking will not hurt the storage battery, but in a short time it will ruin the aluminum plates.

Charge the battery for three hours, or until rectifier becomes heated.

Experience only will tell how long the rectifier will operate without heating and the 110 volts must be shut off when heating begins and the jars should be allowed to cool. A two hour charge will last three or four weeks on three bulbs.



Above, the Rectifier and Battery Units...Below, the Completed Battery.

The plates in the rectifier will be formed by the end of the first or second charge.

In conclusion, the writer would like to state that the aluminum plates in the rectifier will have to be renewed occasionally and the Borax solution should be changed about every three months.

The "B" battery will take care of itself, but it may become necessary after long intervals to replace some of the solution that has escaped from the cells. This, however, will only be necessary every year or so.

With proper care the battery will last almost a lifetime.

Anyone desiring further information on this battery or rectifier may obtain same by writing to John McDevitt, 48 Howe Ave., Passaic, N. J.

From Our Readers

REAL DX BROADCASTING

Gentlemen:

Using one of your blue prints of the honey comb coil set, I have received the following broadcasting stations beside the locals: WGY, Schenectady; WLW, Cincinnati; WHAS, Louisville; WBZ, Springfield; WHD, Kansas City; WGL, Atlanta, Ga.; WOC, Davenport; WDAP, Chicago; WNAK, Plattsburgh, N. Y.; WJZ, Newark; WSB, Atlanta; WOR, Newark; WIP, Philadelphia; WOH, Indianapolis; WNAC, Boston; WWJ, Detroit; WLAG, Minneapolis; WBAP, Fort Worth, Texas; WEAJ, N. Y. City; KSD, St. Louis; KYW, Chicago; WIAO, Milwaukee; WAAC, New Orleans. Received all of these on the first step of amplification only.

Sincerely yours,
Robert Moll.

Carrick, Mt Oliver, P. O.
Pittsburgh, Penna.

ONE FROM 6GY

The Modulator,
N. Y. C.

Gentlemen:

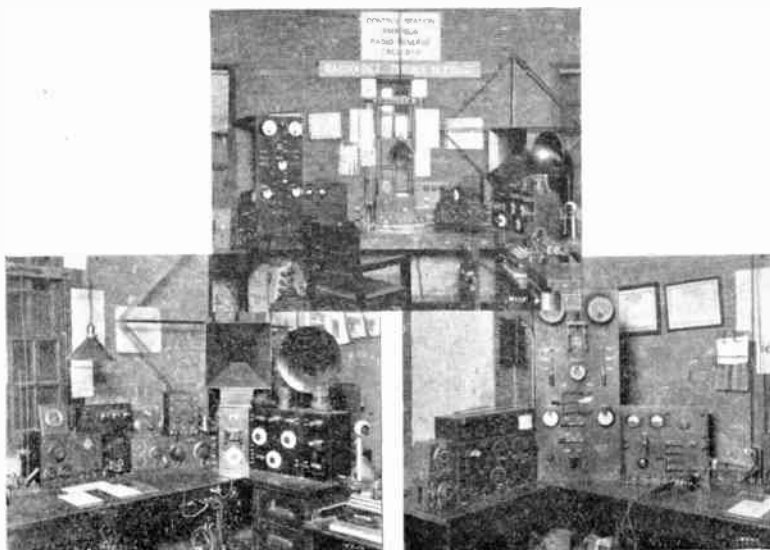
I enjoy reading your publication very much. The articles giving constructional data surely have the "dope." Although the 6th is a long way from the 2nd, we are interested in your activities.

During the A.R.R.L. tests, nearly 50 stations over 1500 miles were logged at my station in 4 nites. I haven't heard any ones or twos yet, but I hope to some day. With best wishes for the future success of the Modulator, I am,

Sincerely yours,
Ira E. Wood

P. S. I am enclosing money order for \$1.00 Please enter my subscription for another year. 73's de 6GY.

Radio Station BY4, New York City



THE Headquarters Company of the 71st Infantry N. Y. N. G. at Park Avenue & 34th Street, has taken over the control and operation of the Amateur Radio Reserve net of the Second Corp. Area U. S. A.

This net consists of Amateur Stations, who are members of the Reserve and provides a means of communication via amateurs, with all the important military centers in the eastern States.

The center photo shows the complete transmitting and receiving station as installed by the Headquarters Company of the 71st Regiment. The feature of the station is that it runs from storage batteries independent of the city mains, and can operate for ten hours intermittently, both transmitting and receiving, in the event of the city power being interrupted.

The photo on the left is the detail of the receiving end which consists of three sets that can be switched on, at will, from the phone terminal block in the foreground. The first set is the "R.C." Westinghouse, unit next is the "Western Electric" Power Amplifier, then a "Paragon" short wave unit, next to that is a long wave honeycomb set, designed and built by the Headquarters Company. In the rear is shown a loop antenna used for directional receiving, and two loud speakers, a "Callophone" and "Western Electric."

The other photo is the transmitting set. In the extreme left are two wave meters for C.W. which have a wave range of from 180 to

1100 meters. The first set is a complete transmitting and receiving set having two five watt power tubes and a detector, and three stage amplifier for receiving. The set has a wave range of from 500 to 1100 meters. It derives its plate voltage from a dynamotor running from 12 volts of storage battery and gives 350 volts on the high side. Next is the power and charging panel built and designed by the Headquarters Company. It takes care of changing the storage battery banks and throws the transmitting antenna and power to either of the two transmitting sets. The set to the right is the short wave set having a wave length range of from 250 to 500 meters inclusive. It consists of a five watt voice amplifier, a 50 watt modulator, and a 50 watt oscillator, W.E. tubes. A switch throws on either C.W. I.C.W. or phone. The plate voltage of 750 is obtained from a dynamotor running from a twelve volt storage battery. The transmitting antenna is a cage 100 feet long suspended from the armory tower. Signals have been reported Q.S.A. throughout the Eastern half of the United States.

At the present time, there are still a few vacancies in the ranks of the Headquarters Company for radio men. Those operators or prospective operators who are interested in the opportunity to work the station on various evenings in the week are requested to communicate with Lt. Layng of the 71st Regiment, or to call at the Armory personally on a Tuesday or Friday night.

More About the Voluntary Lid

WE have been regaled, during the past few months, with some rather severe articles, all dealing with that terrible radio amateur. One tells us that, unless there is discovered some use for the radio amateur, that we are doomed and as a natural consequence our faithful old QST gives them the HI HI. An offer is made, in all probability sincere enough, of cash prizes for any one who will submit a scheme or working basis, or even an idea, that will lead to a scheme that will have for its purpose that of keeping the radio amateur on the map.

QST, in regard to this, says something about, "going over the matter in 1921," but fails to be explicit. One may only infer that the matter gone is what occurs in the succeeding editorial, The Voluntary Lid. In this editorial, QST strikes a keynote which deserves the attention of every operating amateur. It says, "unlicensed and improperly tuned stations must be hunted down and turned in." Continuing QST says, "after being warned, he should be turned in to the inspector, without mercy—we have too much at stake."

The remainder of the article reveals a self imposed lid on transmitting up to 10:30 P. M.—a plan which is given in great detail and occupies more than half of the editorial. Now then, amateurs, the fact is that with a self imposed lid, we, as amateurs, admit the need of something that will stave off the howls of the listeners. We admit, that, as amateurs, old and new, we must consider the broadcast listener. QST advises a neighborly conference between amateurs and listeners in, every conference of this sort, tending to soothe over the QRMing of the broadcasting, and some of the conferences tending towards a fight right then and there! Now, amateurs, why all of the forgoing and what is the purpose thereof?

Well, QST, as I said before, gives the keynote. Go back and read that article in QST again, and then sit down and ask yourself if your set is properly tuned. If you own a ½ or 1 K.W. spark, consider your radio knowledge? Can you conscientiously keep on using it, knowing that you are going to cause local and even ten mile QRM? Even if your decrement is as low as 1.1.

If you are using a C.W., set are you rectifying your supply, or do you shoot a rough, broad C.W. squeal? If rectified, have you your set in resonance, and are you sure that your chokes are of proper size? QST states that "filtered D.C. C.W. is the thing," and let me tell you they are right.

So much for the sets themselves. Now how about your wave, O.M.? Yes, that makes a lot of radio amateurs squirm and makes a great many more grin since there have been

dozens of radio amateurs busy, and they are all now within the law. Yet there are many who are still without the law. Why in all common sense do they do it when they know they are killing amateur radio? There seems to be small encouragement to one amateur, who after many changes, gets down to legal wave length, finding that he cannot do the distance that he used to, because of his changes. Particularly is this true when he hears his friend 2—still pounding in on 230 meters, and boasting of his DX at the next meeting of the local club.

Now, radio amateurs, all of the foregoing is included in that thought first expressed as to whether the radio amateur is doomed or not. If he is doomed, it will be his own fault and no one else's. Just because your license is as good as any broadcasting station's license do not think that it cannot be revoked. It is a legal document that gives you privilege and you may transmit any time you want to, if you conform to those privileges. Otherwise you are harming amateur radio and are one of those who will kill the game for all of us. If you conform to your license, you will not QRM any broadcast listener, and if he complains, refer him to Secretary Hoover or any one else you may think of. Don't beat about the bush and argue for you will only ruffle a local listener to no good purpose. If the existing laws are complained of and are found wanting, they will have to be changed, but in any event, the rights of the radio amateur must appear in black and white so we know just where we stand.

Overstepping your legal rights, gives you no leg to stand on, and QST tells you that it will not back such an amateur. MORE POWER TO THEM. In conclusion let me state that this is written in good faith, with the sincere hope that the radio amateur himself will see to it that he is not doomed. On the contrary, with the hope that the radio amateur will contrive, as before, to show the way to better radio and so bring forth developments and results that will make these 250 watt broadcasting stations look like tyros at the grand old game. The air is free to you, brother amateurs—GO TO IT.

Editor's note: This splendid article comes from the pen of a prominent amateur in New York City, one who has been through the mill and knows whereof he speaks. We sincerely hope that our brother amateurs will take it in the right spirit and try to do better than they have been doing. The amateur who wrote the article prefers to remain in seclusion and so we are not privileged to divulge his name.

Traffic Notes

BY F. B. OSTMAN, 2OM

TRAFFIC Figures for the Northern Section of the Atlantic Division took an increase. Despite the fact that no report was received from Western New York.

We now have an Assistant Division Manager for Southern New Jersey who is whipping things in shape down around the popular summer stamping ground. Mr. Marcus Frye, 3NB is an old A.R.R.L. man who has always handled reports from Southern New Jersey. Pressing business has kept him from being active. Recently Mr. Frye found time to continue with this great old game and we welcome him back again. Mr. Frye took hold of things too late

us hear a single word from your section. You fellows know who you are—you promised to cooperate when your Assistant Division Manager picked you for the position, if you are rushed at the particular time the report has to go in, get your nearest pal to write it out for you. If you find you can not give the necessary time to the position return your appointment certificate with your resignation—otherwise your Assistant Div. Mgr, will request it anyhow. We've got to have 100% from the various officers. That's final.

2AJF, VanRiper, is back again, with his generator repaired and hopes to stay on the air.

NOVEMBER MESSAGE REPORT

	Stns.	C.W.		SPK		Stns.	TOTAL	
		Msgs.	M.P.S.	Stns.	Msgs.		M.P.S.	Msgs.	M.P.S.
Northern N. J.	40	1985		17	1586	57	3571	
Southern N. J.				8	300	39	1333	
Eastern N. Y.	31	1033		1	14	2	57	
Western N. Y.	1	43						
TOTAL	72	3061		26	1900	98	4961	

Total Messages 4961

Spark 2OM, 562, 2AJE, 366

C.W. 2NZ, 215, 3XM, 164, 2ALY, 156.

to get his territory organized so we are omitting the publication this month of the map showing the various District Supts in charge throughout the Southern N. J. This will be published at a later date when traffic officers for Southern N. J. have been appointed.

Above are the five leading stations for the month with messages handled.

The following new appointments have been made.

Eastern New York—City Managers

2AVE—Queens County, J. V. Cunningham, 44 Kingston Road, Jamaica, N. Y.

2BQD—Schenectady, N. Y., H. S. Conaughty, 172 Furman St., Schenectady, N. Y.

2CNI—Kingston, N. Y., A. A. Johnson, Kingston, N. Y.

Mr. R. W. E. Decker, 2UA Supt. 2nd N. Y. Dist. is acting Supt for the 4th N. Y. Dist.—which includes the counties of Sullivan, Ulster, Greene, Orange and Rockland. Stations in these counties are requested to send their traffic reports to him.

Western New York City Managers.

8BEO—Watertown, N. Y., N. S. Sherman, 418 Sherman St., Watertown, New York.

A number of Dist. Supts. and city Managers are falling down on the job not only by not getting in a full report, but not even letting

He reports traffic moving in good shape throughout the district. Also that a number of high power C.W. stations are jamming and he is trying to arrange some solution.

2EX, Jackson, although not working his set very much, is showing the right spirit, by hopping around, tuning up sets that need it. We'll say he ought to be busy.

2CJX that noisy spark man in New Jersey, is shut up for a couple of weeks, no not by the R.I.—just some power line trouble. Trying to get 30 amps out of a 5 amp house meter, understand?

Fellows who miss 2BG on the air, might be glad to know that he is pounding brass at 3YO, Lafayette College, Easton, Pa.

We have some information from Staten Island which leads us to believe that it is some hot bed of radio activities. If the stations there continue to push out as they did during the Transatlantic Prelims—all of 'em are due to get over in the finals.

We are starting a series of Radio personalities of active leaders throughout the Northern Section of the Atlantic Division of the A.R.R.I. Operating Department. The first to grace these pages is the well known Assistant Division Manager of Northern New Jersey. Name

Robert S. Johnson, Nicker, "BOB", Owner of station 2AWL, Red Bank, N. J. Age 30, Born June 18th, 1892 in Long Branch, N. J. Messenger for Postal Telegraph in Long Branch, 1904; Operator for same company, 1906, 1908 to 1915 Operator, Manager, Line Foreman and Trouble Shooter at different places.



Robert S. Johnson, 2AWL

City Engineer, Electrical and Mechanical Department for Red Bank Fire Department. Started radio career in 1905. Hangeron at Dr. DeForest's United Wireless station at Galilee, N. J., "G." Kept in game starting with a needle across two pieces of carbon for a detector and when licenses took effect, found himself a loser with a 2K.W., Clapp Eastham transmitter. This outfit was installed in the Postal office at Red Bank and many times was used to get reports to the Postal main office through old OHX, when the storms cut all land communication. Receiving set was a loose coupler with a DeForest. First vacuum tube in 1912.

The war stopped all work but as soon as it was over started to make phone set from data supplied by friends in the Signal Corps. Kept at it until able to communicate with 2ZL.

Has stuck to bottles ever since and is using, at present, 4 fifty watters as oscillators for C.W. and for phone two modulators and two oscillators. Use both D.C. and rectified A.C.

Records for this year are England, Pacific Coast, 6 stations and 42 states and every district. In 1921 was heard in France and Day-

lite to Chicago on two fifty watters, Azore Islands and by ship on way to Alaska.

Is the owner of the Monmouth Radio Service a successful radio establishment in Red Bank and is also a hard booster for the A.R.R.L.

Operating System

Perhaps many of you have wondered at the system used and how the whole country and its various divisions and net work of stations, traffic officers, reports, affiliated clubs and endless correspondence, keeps from getting into a big, hopeless mess.

THE OPERATING DEP'T SCHEME

Eighteen divisions, each under the supervision of a Division Manager. There are twelve divisions in the U. S. one in Alaska and five in Canada.

Each Division Manager has one or two Executive Assistants.

There is one Ass't Div. Manager for each state or two Assistant Division Managers for some of the larger states, but no more.

There are as many District Superintendents for each state as are necessary to carry out the work efficiently. A City Manager for each city of 25,000 or more population. In cities that have a population of 50,000 or over, one or more City Managers may, at the discretion of the Division Manager, be appointed, each having jurisdiction over League activities in a designated portion of the city.

DUTIES OF OFFICERS.

DIVISION Managers are in charge of their particular divisions and it is their duty to appoint assistants, selecting their assistants from the ranks of the A.R.R.L. and choosing men who will meet with the approval of the majority of the amateurs in the section. The Division Manager may have as many assistants as he may deem necessary to carry on the work with the greatest ease and efficiency. All division appointments are made directly by the Division Manager upon recommendation of his assistants. The Division Manager receives detailed reports from his assistants every month, from which he prepares and forwards a summarized report each month to headquarters. This must be in not later than the first day of every month.

Executive Assistants. In the Atlantic Division there are two; one in charge of the Northern Section, comprising the states of New York and New Jersey, the other in charge of the Southern Section, comprising the states of Pennsylvania, Delaware, Maryland and the District of Columbia.

The Executive Assistant acts for the Division Manager in the territory assigned to him, and carries out all instructions of the Division Manager.

The Executive Assistant collects monthly reports from the several Assistant Division Managers in his assigned territory, writes up a

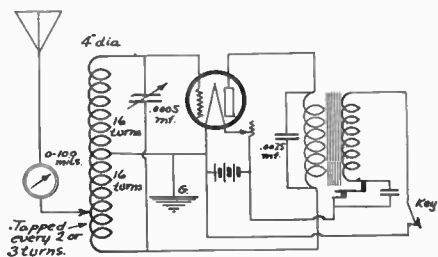
Continued on Page 130

More on Spark Coil C. W.

By M. Joffe, 2BYO

AFTER trying the spark coil C.W. set, described in the October Modulator, I decided that I might as well get this off my chest. I found that this set would not work on the lower wave lengths, and therefore it is not suitable for amateur work.

During the course of my experience with spark coil C.W., I came across a sure fire circuit. The circuit seems to work very well, the only objection against it, as far as I can see, is the critical adjustment that it requires. The inductance consists of a 4" tube wound with No. 18 bell wire, 16 turns are wound then a tap, 2 or 3 turns more and a tap again for the antenna. Thereafter continue to wind until the 32nd turn is reached. The spark coil may consist of anything from $\frac{1}{2}$ " up. The tube may be any hard tube that the builder may have in stock. Do not use J tubes because they will get blue as soon as you try to



The Circuit

work them with a spark coil C.W. set. Either a Radiotron U.V. 201 or a 202 will work very well in the circuit.

The condenser across the secondary may be any kind, because it is there to step down the voltage, and to by pass the radio frequency. Any transmitting condenser will do the trick. One Murdock section will do very well. The builder may also make a glass plate condenser for the same purpose and it will also do the work with satisfaction.

At any particular station a $\frac{1}{2}$ " coil, small Dubilier Condenser and a U.V. 201 gave satisfactory results.

A word as to how to tune the set may not be amiss. When the set is ready to be tried out, light both the transmitting and receiving tubes. After getting the receiver oscillating set the tuning dial as near 200 meters as you can guess. Connect the aerial and the ground to the transmitter and tune around with the transmitting condenser slowly. If the transmitter is working properly a loud squeal will be heard on the spot of the dial. However if the set is not working right, no signal will be heard and then the builder should go over the circuit to see that it is

right. Try reversing the primary leads of the spark coil.

Anyone hearing spark coil C.W. sigs., drop the fellow a card and let him know how he comes in. I would appreciate any reports on my sigs. All cards will be answered. My QRA is 52 West 117th Street, New York City.

The next time you work an 8 or a 3 or a 1 or a 9, or any other district, take a look at a map of the U. S., and see how far away he really is. Some of those "DX" stations, in another district, may be just about in your back yard. If you don't believe it, get a big map of the country and divide it off into the nine districts. You will see how small the second is, much smaller than you ever dreamed of. Note the expanse of the ninth. Notice that there are 5s stuck in the upper corner of Tennessee that can be heard very much more easily than many 4s down the coast to Florida; the former are as near as some 3s. The 8s and 1s that surround the second district are practically local stations. There is one section up along the Hudson valley, right in the center of the district, where one hears a great many more 1s, 3s, 8s, and 9s than he does 2s. This is an actual experience. On the other hand, gaze at the impressive breadth of the ninth district. A fellow marooned in Nebraska or one of the Dakotas is several hundred miles from another district. When he works DX, he duzzit! When you hear some 5, don't jump to the sky; you can hear mere 9s that are about 2000 miles further away.

This may sound rather radical, but it has been the experience of one of the editors that a set will work better without a cabinet around it than with one. A nicely finished and varnished box adds a very appreciable capacity to the set. For example, a Grebe CR3 was removed from its handsome case and supported on the edges of its variometers; the minimum wave length to which the set would now tune was 15 meters lower than before. This is an actual fact! While local signals were of about the same strength as usual, DX stations were heard with a decidedly noticeable increase in audibility. The same effect was had with several Reinartz tuners, capacity tuned model. It was interesting to note that an unvarnished cabinet gave no trouble, but when finished off with varnish, wax, etc., the wave length jumped immediately.

The increased distributed capacity of inductances that have been shellaced is an old story, but the influence of an apparently electrically "dead" wood cabinet certainly was astonishing. Have any of the readers of THE MODULATOR had any similar experiences?

Just Listenin' In

Well, fellows, plans are progressing nicely toward the Third Annual Second District Convention, to be held March 1st, 2nd and 3rd at the Hotel Pennsylvania.

So far, out of twenty five booths for manufacturers, on the main floor, there are just ten left, the following exhibitors having signed up or signified their willingness to participate. Radio Service and Manufacturing Co., Novo Batteries, Jewell Instrument Co., Exide Storage Batteries, General Radio Co., Marko Batteries, DeForest, Grebe, Federal Tel. and Tel. Co., F. A. D. Andrea, A.R.R.L., Cutting and Washington, W. J. Murdock and Acme Apparatus. Probably by the time that this gets into print nearly all of the booths will have been disposed of, and we think that you will have to admit that those listed above present quite an imposing lineup.

Now fellows, how about tickets for this Convention and also for the Banquet on the last night? Better make you reservations as soon as possible in order to insure your getting them. Simply write to this office, care of the Secretary, and you will be taken care of. Tickets for the Banquet will be \$4.00 each, and the tickets for the Convention will be twenty-five cents for single admission and fifty cents for the whole three days. These tickets will be distributed and paid for when they are presented at the door. The safest and best way to insure getting them is through your local club. If this club is not a member of the Council, have the Secretary write in anyway and the club will be supplied. Please state just how many tickets are wanted.

Now, fellows, here is a splendid opportunity to get the general public interested in your club. Here is an inducement that you may hold out to them for joining your club. The tickets will be distributed through the clubs to their members and friends, and the best way to get them is by being a member of a club. Now, lets all get together on this and make it the biggest and best ever held anywhere. Any of you fellows outside of the Second District that read this will be as welcome as any one else, all that you have to do is to write in for the tickets—they won't cost you a cent unless presented at the door.

Clubs affiliated with the Council will be permitted to have free booths of small size in the Butterfly Room, but they will have to make reservations. Don't wait until the last minute—do it now. Send in a letter stating your wishes in the matter, if you wait you may get left out altogether so have your secretary get busy at once.

We see, and also hear, that 2ACT is back on the air with a beautiful 50 watt bottle. Howard is a nice boy and we personally like him very much—BUT—for the Luvamike, Howard, lay off that A.C.C.W. It blankets everything for miles around and can be heard as well on 600 meters as on 200. A few more stations like this around the city will raise a storm of protest from certain people who like to listen the "moosic."

In the early days of C.W. some wise sage predicted that the gang would be able to get a broad wave sooner or later and also something about decrement was said. The prophet spoke the truth, all right, witness the number of A.C.C.W. sets in operation, and try to work DX through them. It can't be done. Gess the old spk set isn't so bad after all.

The Radio Association of Greater New York is looking for a new club room back on the Bronx side of the historic Harlem River. Most of the bunch are from the Fordham side of the river anyway, the ops up around 181st Street have failed to join the club with the consequence that all of the members come from the Bronx or Fordham. Anyone knowing of suitable quarters will be conferring a favor on the club by letting them know about the matter.

Hot off the cable, 2KL of Red Bank, N. J. reported by Deloy from France. 2KL used 2-250 watt tubes, self rectified, putting 9 amps into an aerial 65 feet high, built according to the specifications of the Radio Corp.

Don't forget to have your club send in its news each month. We have recently set the closing date ahead, on account of the increased size of the magazine. In order to get anything in the February issue it will have to be in this office not later than January 8th and for the March issue it will have to be here on the first day of February. Don't kick if its left out, get it in, in time, and it will appear.

Super regeneration seems to have taken more or less of a back seat, hereabouts, in favor of radio frequency amplification. However the good old regenerative receiver with two stage audio frequency will be with us for many a moon to come.

Some day we are going to break out with some real inside information relative to radio

frequency. It seems that the same transformer for each stage is not the best arrangement by a long shot. We have the real dope promised to us, but will have to wait until certain patent litigation is over, before it can be publicly announced.

Between single circuit receivers and A.C.C. W., sets, these nights will be spent to better advantage in some convenient movie house, rather than trying to unscramble the atmosphere adjacent to N. Y. Didja ever hear so many funny sounds? As far as we can see the single circuit set hasn't a leg to stand on. It transmits all of the time that it is in operation, and apparently it cannot tune sharply. If these sets could be eliminated, there would be a whole lot less of this continual complaint to the Department of Commerce about these "code hounds." Let's start a campaign against these sets, fellows. If you can catch one in operation, gently but firmly remove it from the owner and rebuild it for him into a regular set. Sumtngmstbdunabtl.

Clubs are daily flocking into the fold of the Executive Radio Council. How about your club, OM? Remember, the more clubs that join, the stronger will be our organization and



the stronger we are the more say we will have in the doings in this district. Every amateur should be a member of some club that is affiliated with the Council, and every amateur in the District should be a subscriber to the Council's magazine, The Modulator.

The publication committee for this magazine are still considering whether or not to publish the calls of the high wave fellows, also the CQ hounds. At present there is a strong sentiment in favor of this move. You violators had better watch your step. The Council is trying to save the Second District from itself and yet it is surprising how many fellows call up here and ask us to "lay off" this proposed feature. We might mention, in passing, that if a fellow gets sore about it or calls up the Council, it is a pretty good sign that he is a violator of some sort. Naturally these fellows

do not want this to happen but the men who are on 200 meters, where they belong, and the birds who don't CQ until the inductance starts to smoke, are all for it, because they are the REAL AMATEURS who operate their sets within the law. If amateur radio is going to exist, crowded as it is, it is absolutely necessary that everyone conform to the law—if not we may just as well quit now before it is too late and amateur radio is stopped altogether.

CALL CHANGED

The Modulator,
New York City.
Gentlemen:

Kindly notify your readers that the call 2ND is the official call of Charles Younger, 247 Neal Dow Ave., Westerleigh, Staten Island, N. Y.

Yours truly,
Charles Younger.

2KV has been recently put on the air again with a new and better counter poise and antenna system and in the past two weeks has worked as far west as Illinois. Because of poor location J. A. Maher, 2AXP, and L. F. Absolon have decided to pool their apparatus at 2KV. A 100 watt C.W. set and a half K.W. spark set will be in operation in a few weeks. At present the old 10 watt self rectified set of last year is being used.

RADIO CLUB OF BROOKLYN NOTES

During the recent preliminaries for the Transatlantic tests, station 2BRB was heard in every district. This station uses 250 watts with rectified 2500 volts on the plate, and radiates 8 amperes.

With one 50-Watter, station 2 PF was heard by 6 BQG, Los Angeles. Some of the other boys who were successful in getting over the 1200 miles limit are 2 AUZ, 2WB, 2 COL, 2 RM, and 2 FP.

Among the prominent "CQ" hounds may be mentioned the following, heard during the past month: 2 COL, 2 AUZ, 2 CQP, 2 BEG, 2 CFE. "CQ" is as forbidden in Brooklyn skies as the signal "SOS", so beware.

Lloyd Jacquet, associated with the Evening Mail Radio Review, and the Modulator, is getting the amateur bug bad again. He has been reassigned call 2 OZ, and will operate a fifty watt 1000-cycles-on-the-plate business. Gordon Peck, 2 HC is also coming back to normal life after an absence of two years at sea.

Mel. Greene, 2 KE, and also our Honorable Chairman feels very sore. He came within 10 miles of qualifying for the finals. That's alright Mel, there'll be Transats daily in a few months, and you wont need to qualify.

THE PASSIAC HIGH SCHOOL RADIO CLUB

This radio club was organized in September 1921 with the idea of advancing the cause of radio through mutual suggestions. At the

first meeting officers were elected and a committee chosen to draw up a suitable constitution. At a later meeting the constitution was adopted and various committees formed. Since all high school clubs must have faculty advisers our two physics teachers were chosen, and Mr. D. Dahl and Mr. R. Spinning were chosen.

The officers for this year are as follows: President, Jurian VanRiper, 2AJF; Vice President, Alexander Havasy, 2AUA; Treasurer, Demarest Allen, and Mr. Ackerman is the Secretary.

Mr. VanRiper is our District Superintendent and has the most active radio station in the vicinity. He is also our chief representative at the Executive Radio Council, the other delegate being Mr. Gilbert Holloway, 2ALR.

Owing to the fact that code practice is given at each meeting, several of the members have been able to pass the Government examination successfully. The local Board of Education has appropriated money for a club set and consequently a short wave regenerative set with two stages of audio frequency was built by the members of the club. Several entertainments have been given to members of the student body and members of the faculty, with the aid of this set.

Hackensack Radio Club

There is but little doubt that the Hackensack Radio Club is one of the fastest growing and liveliest organizations of its kind and one which sticks closest to its object, radio in the county and perhaps the state.

At its inception it was but a myth, just as radio itself was and to a certain degree, still is, but since the heart and soul of each of its members seems to be in the club and its object, rapid strides have been made in its membership and its operations.

One feature of its existence is its power to bring together the different members on one common base and there is no class, age or ability distinction felt or shown between them.

\$1.50 Radio at your Finger Tips

Nine of the men most closely connected with the tremendous development of Radio have combined to give you the result of their experience in the simplest possible manner.

Among them are J. V. Hogan, Ex-President of the Radio Institute; A. N. Goldsmith, of the Radio Corporation of America; M. I. Pupin, Professor at Columbia; Dr. Hausmann, of Brooklyn Polytechnic Institute, and L. A. Hazeltine, of Stevens Institute.

In Simple non-technical language they tell you how to receive messages of any wave length, how to select and operate your apparatus—in fact, all the details you need to know.

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8 Warren St
New York



ful affair and the probability of many more, increasing in their interestingness and wonders.

Surprises for the rest of the members of the organization are secretly being planned and the general public is certain to learn much that will interest them.

As executives, the club has been fortunate enough to have, as President, Harry Leonard, 2AKO of Hackensack, vice president, A. Henss, 2ANZ of Maywood, secretary H. Cadmus, 2CGW of Teaneck, and as the Traffic Manager, P. Oscanyan, 2AZA of Bogota, N. J.



The youngest boy to the oldest man member is but a brother in this great organization.

On December 11 there will be held the second exhibit that this club has staged and the interest in the coming event fortells a wonder-

The clubs receiving set (a Paragon) with its two step has been installed in their quarters at the Hackensack Y. M. C. A. and the members having the use of this set on meeting nights do not feel that they are missing any-

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EVERYTHING FOR RADIO

thing by leaving their homes to attend the meetings.

Code practice and a radio course in lectures given every Monday evening at the meetings seem to have a drawing power as well as the desired effect in broadening the scope of the members work.

Harry Leonard, 2AKO.

IT seems that we have a great many different radio clubs in the Second District, especially in the Metropolitan area. Some of these clubs have been very successful in the past, and an analysis of why they have prospered while others have failed, will not be out of place at this point.

To start off with the average small radio club seems to be in a constant state of turmoil, caused by the really petty arguments among the various members. It must be remembered that any club, to really succeed must be run along lines that are of interest to everyone. Interesting talks must be given at frequent intervals to keep up the interest, and it is well to remember that all of the members are not necessarily inclined to pugnacity.

In every club there are always a certain number of the members who will sit there meeting after meeting and never make a remark, but after the meeting is over they will make a few critical remarks among themselves, and usually these few remarks will sum up the whole situation. This sort of talk gradually spreads and sooner or later the membership will start to fall off a little and after a while there won't be anyone left but the few members who are doing all of the talking.

If these fellows would only get right up in the meeting and express their feelings it would probably do a lot of good, and the other fellows must remember to ask them what they think. This is especially true of the chairman. He should ask different members just what they think about the subject under discussion especially the members who very seldom say anything. These quiet fellows are really the backbone of any club and it is up to the chairman to see that they have a part in the affairs of the club.

Then there is the subject of the committees. The chairman usually chooses these fellows from among the ranks of a few of the fellows

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who have the most to say. Why not give some of these other fellows a chance once in a while. Usually they feel rather slighted because they are left out of these affairs, and it frequently happens that a good worker is overlooked and some mediocre man put on in his place.

Here is an idea that is about to be tried out in the Radio Association of Greater New York. In order to always have a live standing committee on the arrangements for a coming meeting, the members names will be arranged alphabetically and each month four men will be taken from this list in the order in which they appear. These four men will be a committee for making arrangements for lectures or other forms of entertainment and interest, and will serve for one month. Each man will be notified of his appointment in plenty of time and will be supposed to do his bit.

In other words there will be four men and each man will take charge of one night, so that it really simmers down to only about one night in every year. If the man fails in his duty he will be fined a small sum, but usually the particular fellow will find it more convenient to attend the meeting and make the necessary arrangements. By doing this there is a constant variety of subjects brought up. Interesting lectures will be arranged well in advance and novelties will be introduced. Incidentally it makes every one have a really active part in the club life, and makes it possi-

ble for the more diffident members to present to the club, just what their idea of a club meeting should be like.

In every organization, whether it be a radio club or not, there will always be found a certain percentage of members who will do all of the work. This state of affairs cannot be very well remedied, but it is possible to make the other members take more of an active interest, by having the meetings interesting, avoiding all squabbling and petty argument and to hold the meetings in a good location.

In closing it may be well to cite an instance that has recently come to the writer's attention. An amateur had a receiving set that was of particular interest and he offered to give demonstrations before three well known clubs. In order to be strictly impartial it may be set down right here and now, that something happened at every one of these meetings that either made the speaker appear ridiculous or otherwise embarrassed him. At the first meeting one of the leads in an amplifying transformer was loose and the set would not work. His audience, instead of doing the right thing, started to criticise among themselves until the whole room was a buzz of conversation.

At the second club the set worked beautifully, but when the talk was all over, some of the members started to question the speaker, and one man in particular tried his best to mix the speaker up and to ask him all sorts of

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Rheostat—six ohm resistance element capable of withstanding a continuous current flow of 1½ amp. without heating. Adjustable to fit any size panel from ⅛ inch to ⅞ inch. Highly polished knob of moulded insulating material conforming to the latest advances in apparatus design.

Dial—3 inch dial of moulded insulating material polished to a beautiful finish. Graduations are clean cut, filled with pure white enamel. Furnished with 3-16 inch or ¼ inch holes.



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New York, N. Y.

questions in such a domineering way that the speaker was absolutely disgusted. At the third, and last meeting, the set was lugged in with the batteries and set up in its place. The meeting was called to order and at once an argument was started by some of the leading members that was not finished until it was too late to have the talk. Finally the speaker gained the floor and told the club members exactly what he thought of them, and we do not blame him in the least.

Now fellows, if there are among you some aspiring lecturers, for the sake of good manners, at least, give him your attention. If a fellow is good enough to arrange a talk, which does not cost you a single cent, at least have the decency to hear him and when he does talk give him your undivided attention. The particular case in question has caused several other fellows, who were planning to do the same thing, to cancel the whole affair, and for the sake of a few members in each club, all of the other members have been prevented from delivering highly interesting lectures. Try to put yourself in the other fellows shoes.

Radio and the Beginner

THESE days of fast moving radio, we hear all sorts of talk about radio frequency, super regeneration and many other "improved" circuits. Dealers who do not know much about the game, are getting very nervous about stocking up on parts because the game "changes so fast." One dealer in par-

ticular, was worried very much because he had stocked up with an enormous lot of crystal detectors and he was afraid that he would be unable to sell them.

Such a situation is ridiculous, on the face of it, and these dealers are only showing their ignorance of the radio business. Radio will not change in a day or in a month or even a year, and we are willing to wager that the good old regenerative receiver as used today will still be in use a good many years hence.

The public has gone crazy about these new circuits, but how many people are able to make them work. Some very experienced radio men have fallen down very badly on radio frequency amplifiers, and others on the super regenerative outfit. If you are about to build a receiver and have not made up your mind just which one to use, you will find that for the money invested, you will get the very best results from the good old regenerator and two stage audio frequency amplifier.

The outdoor aerial will have to be used with a set of this kind, but do you realize that in order to do away with this cheap means of receiving signals, you will have to spend a great many more dollars for tubes, transformers and so on? Incidentally, do you know that when such a set is used it is absolutely necessary to have a battery charger of some sort. The storage battery will not last very long when the set has five or more tubes in use.

One of the hardest things for the beginner to understand is the fact that the storage battery will not last forever. One particular case that we have observed is in a set where four

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vacuum tubes are used. The last stage of amplification makes use of a five watt tube and naturally the drain on the storage battery is terrific. The set is used almost continually, and yet the operators keep complaining every day or so, that the set is no good because it refuses to work. Examination always tells the same story, the storage battery is dead. They seem to think that because the tubes light up, that the set should work all right. The fact has been pointed out to them repeatedly that the battery is dead, and yet it is almost impossible for them to understand why the set does not work. The storage battery is put on charge for a few hours and then it is supposed to be all right again. Naturally a very short time later the battery is dead again and the operators are naturally disgusted with the outfit.

In a case of this kind the best possible thing to do is to have two or even three storage batteries with at least one of them on charge all of the time. A battery will only hold so much electricity and will only give so much of it out. When this is gone the only thing to do is to have a charger handy and hook the battery in the circuit. Then another freshly charged battery may be placed in the radio circuit and the set used again.

Do not think that because the battery lights up the tubes that it is all right. There has got to be a certain amount of "kick" behind it. If you are going to build a receiving outfit, and haven't got a battery charger, avoid the complicated many stage amplifier. It will cost you quite a sum to keep the battery charged

up, and the smaller the number of vacuum tubes used the longer the battery will last.

Another way to save money in the set is the use of rheostats and not automatic filament jacks. If the filament of a vacuum tube is turned on suddenly by a switch or automatic filament jack, it will very materially shorten the life of the tube, as they are not built to take the sudden flow of current. Certain sets employ a switching device that snaps on the current all at once. Needless to say this is just as bad as the automatic filament jack and its use is to be very strongly condemned.

Have you every given any thought to the matter of mounting the set? Do you know that it is a whole lot handier to have the two stage amplifier built into a separate cabinet? If this is done it is possible to move the set about easily and at the same time will permit the trying of different circuits with the same amplifier. It may be possible that some day you will want to sell your receiving set without the amplifiers. The set will usually sell a whole lot easier in separate units. Someone may want the tuner and detector part, but not have the price for the whole amplifier and all. This person will buy the part that he wants while someone who has a tuning unit may be easily found and the amplifier sold without any trouble. Make the two cabinets identical, if possible, and have the binding posts on the panel in such a way that the connections may be easily bridged.

There are a great many more other features that may help the beginner along, but they cannot all be taken up here. At a later date this discussion will be continued.

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Radio "A" Batteries

6-HR-5—6 volts, 54 amp. hrs.	20.00
6-HR-9—6 volts, 108 amp. hrs.	27.75
6-HR-13—6 volts, 162 amp. hrs.	37.20
8-HR-5—8 volts, 54 amp. hrs.	26.90
8-HR-9—8 volts, 108 amp. hrs.	39.80
8-HR-13—8 volts, 162 amp. hrs.	48.50

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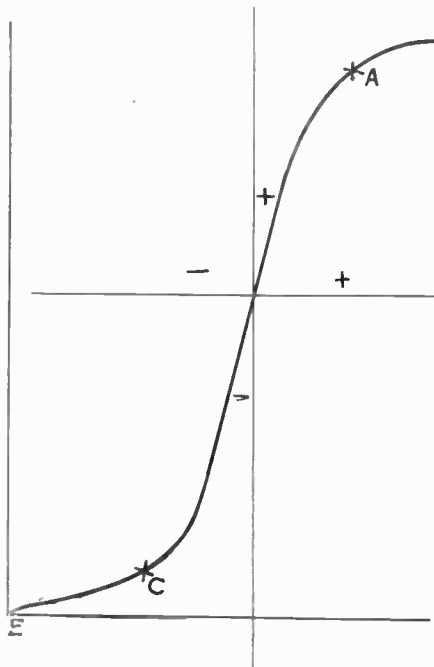
Sold by good radio supply stores and Westinghouse
Battery Service Stations everywhere.

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DISTRIBUTORS

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Continued from Page 109

Success in the Club

This is going to be a parable or fable, which ever you choose to call it, and it has to do with radio clubs.

The first club to be taken up is the one that meets regularly, has a good attendance, and generally live meetings, until some of the members believe that they will be able to start things going by stirring up arguments. Meetings degenerate into scraps between the club's two or three factions, everyone seems to be pulling in an opposite direction and some of the members are having a fine time. However, there are some members who joined the club primarily to hear lectures and see demonstrations of various sets, and in time they get disgusted and drift away. Finally what is left of the opposing factions begin to realize that they have about ruined the club with their constant arguments and the club gradually dissolves into nothing.

The second club, around the corner, though, has appointed a live entertainment committee and the meetings are thronged with members and new applications keep pouring in. Each meeting is conducted in a businesslike way, first the club business, both new and old, and always winding up with a good talk by one of the members who is versed in some particular branch of radio. In time the meetings are so well attended that it is easy to get really big speakers and from this time on the club is a positive success. In time the club find itself

Continued on Page 126

The Superiority of the Thornton Transformer is Due to Careful Design



All coils are baked before being impregnated by a special sealing compound. Then they are put through another special process. The ratio is approx. 4 to 1. No. 40 B & S enamel wire is used. The steel is of same quality used in power transformers and is of the highest quality made for that

purpose. The steel is inserted in the coil with great care so that the coil and steel are thoroughly insulated. The frame of the mounted type is of cast aluminum, the terminal board which is of hard rubber being mounted on the top, the whole presenting a neat compact appearance.

The Supreme Test Transformer

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30 Church Street

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Radio Supplies of a Standard Make

AT STANDARD PRICES

Members of Radio Clubs are invited to
inspect our line.

LEO SCHLEIN

640 Newark Ave.

Jersey City, N. J.



Here is a photo of station 2CTQ, the property of Leo Johnson, located on Monroe Avenue in the Bronx. The "Chief Opp" and owner is shown seated at the left of the picture while on the right will be seen "Maggie and Jiggs", the well known mascots of the station.

On the left hand side of the operating table will be seen the transmitting set using four 5 watt tubes with either voice, straight C.W. or I. C. W. The electrolytic rectifier is shown on

the lower shelf of the table. The receiving equipment is located on the right hand side of the table and consists of a honey coil set using the popular single layer inductances in place of the regulation honeycombs, with a Reinartz tuner directly above it. Both sets are equipped with two stages of audio frequency amplification and either set may be used at will.

Haynes Precision Variable Condensers

For the man who appreciates a REAL condenser.

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629 Lexington Ave. N. Y. C.
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Salesmen that have been or are calling on electric or radio trade, write

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EAGAN RADIO SCHOOL

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TUITION

Payable in Advance

AMATEUR'S COURSE

Afternoons 4 to 6 o'clock, or
Evenings 7.30 to 9.30 o'clock

Mondays, Tuesdays,
Thursdays and Fridays

	One Month	Four Months
Code and Theory Instruction	\$10	\$35
Code only (3 sessions a week)	8	30
Text Book and Radio Supplies for Course, \$5 (optional).		

We also have a complete Radio Supply Service where all standard makes of Radio Apparatus may be purchased. This line includes the celebrated DeForest instruments. Immediate delivery can be made on all of the better makes of Radio Outfits.



“B” Batteries

The result of fifteen years experience in the manufacture of batteries.

All Standard Sizes Plain and Variable
22½ and 45 Volts

Special batteries made up on order

VOLTON BATTERY CO.

15 Lispenard Street
New York City

Continued from Page 124

in a position to have permanent quarters with a complete set for transmitting and receiving. Success is assured and with it come prestige and the attainment of its objective.

It seems hardly necessary to point out the moral of all this, but some fellows may be good operators and very poor moralists, so here goes. Make your club worthy of the name. Have the meetings of interest. Encourage new members, and above all do not hesitate to welcome the broadcast listener. If you do not do this, the club will not last long, and always remember that the entertainment committee is the most important part of the club. Even more so than the officers, and it is up to every member to see that this committee is chosen with care.

Radio Advertising

I Often wonder if the radio bug ever thinks of the commercial side of his hobby. Does he realize the enormous amount of unscrupulous business methods employed by some of the merchants with whom he deals? Does he know that every time he buys a standard make of merchandise at a low price he is committing larceny, and that he is helping the “gyp” merchant to put the legitimate dealer out business? In all probability he never stops to think of this because he is so intent upon his hobby that it matters not to him whom he hurts.

The biggest curse today to the radio game is the man who cuts his prices in order to beat

SERVICE

to both Amateurs and Broadcast
Listeners is the object of

Radio Accessories Products

We have a complete stock of **Real Radio Apparatus** including Ship-owners Radio Corp., Meyers, DeForest, Murdock, Paragon, Acme, Amrad and many others.

New Catalog now ready--

Twelve cents brings it to you

Radio Accessory Products

DEPT. A.

*219 Greenwich Street, New York City
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his competitor and thus enrich his own pocket. But this does not stop here; I know of one concern downtown which deliberately reproduced a blue print of well known make under their own name, without permission of the originators. But wait—some go as far as to take patented articles of national fame, and in some back room, manufacture that article, and then retail it at a price that the rightful manufacturers cannot possibly beat. Now, Mr. Radio Fan, this article is written both for your protection and help. Let us all help to drive out the “gyp” merchant, who is “gypping” us by selling inferior goods, often stolen goods, and who is besmirching a good clean game that has room only for clean men.

THE MODULATOR, in securing its advertising copy, will try to keep a careful watch on all material entering its columns, so that our readers can be protected, and so that we in turn will have their full confidence. We will go one step further; if the fan intends to buy some apparatus and is afraid to trust himself, we shall consider it a favor if he will come to this office, or write us, and we will direct him to places where we know the merchant to be honest with his customers.

Some of the trade papers and dailies issue what they call testing certificates to dealers and manufacturers, but upon investigation it was found that only firms who used the advertising columns of the periodical could obtain these certificates. THE MODULATOR does not and will not issue written guarantees of any kind; our mission is to publish a magazine and to protect our members and readers.



VERNIER DIAL
ATTACHMENT



SINGLE CLOSED JACK
(Made in All Types)



BATTERY
SWITCH

The above Jacks and Battery Switch manufactured by the Radio Improvement Co. and the Vernier Dial Attachment manufactured by us are essential parts for the perfect operation of a Radio Receiving Set.

As manufacturers and manufacturers' representatives we have a complete line of Radio Apparatus, each part of which is backed up by our guarantee.

Many advancements in design and sales features will be found in all of our apparatus.

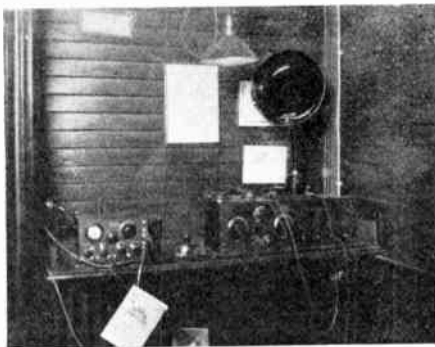
Write for new Catalogue

BROUN RADIO COMPANY

Sales Office, 552 Seventh Avenue, New York City

I hope that this article will not have been written in vain, and that in the next few months a change for the better will have taken place, so that the man who is in the radio business for an honest living will not have to hang his head in shame when he admits that he is in the radio business.

L. L. H.



Radio 2 CMG

This photo will give a very good idea of the transmitting and receiving equipment as used in station 2CMG, which is located in the club

house of the Hudson River Yacht Club on the Hudson River at New York City.

The yacht club has organized a radio club within itself, known as the Radio Division of the Hudson River Yacht Club. This club is not only open to members but any one interested in radio may join it.

The receiver is located on the right hand side of the picture, while the small C.W. and phone transmitter, is located on the left hand side. The receiver consists of a detector and three stage amplifier connected up to the usual two variometer and variocoupler circuit. It is a home made affair. The transmitter is of well known make and needs no introduction to our readers.

This club is one of the many active ones in the city and regular code classes are held and sixteen students may be taken care of at one time. The club has a few vacancies at the present time, and any one interested is requested to get in touch. The qualifications for membership are, that the applicant shall have a sincere interest in radio and be over twenty-one years of age. Owing to lack of space, this month, a very interesting photograph of the code class in session had to be left out, but it will appear in a later issue.

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AMATEURS

You are known to be men who desire the best there is in Radio Sets.

In making sets you must see that the tools you work with are of the best.

For 30 years we have been supplying tools to the most exact of mechanics.

It will pay you to visit us

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Be sure and visit Booth No. 1
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Where we will be pleased to
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The Radio Service & Mfg. Co.

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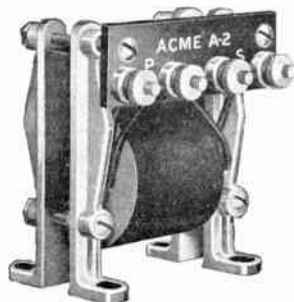
The Best Way To Hear The Distant Station Clearly



Radio for Distance

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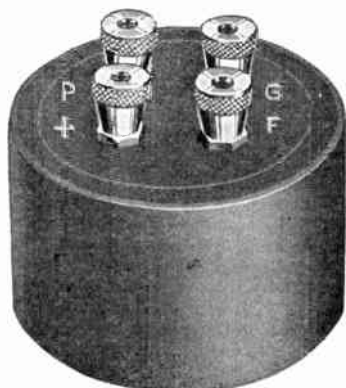
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Radio Amateurs

We carry a complete line of the better grade of radio parts and sets. We have given complete satisfaction to amateurs in years past and we are still giving satisfaction to discriminating people.

*Our Store is easily accessible
for Long Island customers*

Owl Transformer Radio Frequency 150-500 Meters



List \$3.00 Each

A good transformer at the right price

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Attention! DX Men

For DX work on spark and CW with a loop or antenna we now offer the Types RT-5 and RT-5a R. F. Transformers.

The only completely shielded iron core

These are special transformers of high radio frequency amplification for the amateur range only (150-300 meters).

Type RT-5 especially selected for first stage..... \$6.00

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Every transformer put through R. S. L. famous TRIPLE TEST

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of New York City

**A stock that consists of only
Standard, Tested, Reliable
Radio Apparatus**

Experienced engineers will assist you in our shop, where you have free use of tools and machines. The sole condition is that all parts are purchased from our tested stock, in order to insure perfect reception.

If it's Radio—YES!

We Have It. Try Us

**ELECTRIC SERVICE
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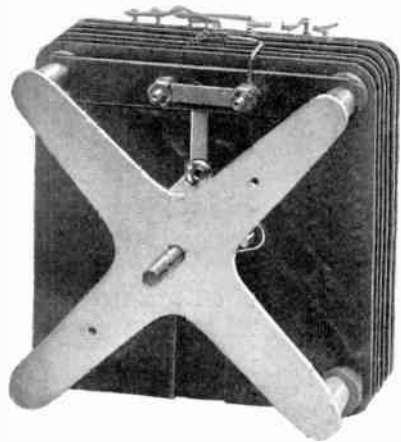
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Bryant 2743-2744 2030

Broadcasting Stations

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The TELOS Tuned Transformer

For tuned radio frequency amplification in any number of stages, with all standard tubes over a wave length range of 160-480 meters. Minimizes local oscillations.

Shipped P. P. C. O. D. on order.
Give your dealers name

Type TA4 List \$6.50

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Manufacturers of TELOS apparatus
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Authentic BLUE PRINTS

SERIES B	Two Variometers and Variocoupler50
SERIES C	Honey Comb Coil Set with Two Stage Amplifier50
SERIES D	Radio Frequency Hookups.....	.50
SERIES E	Crystal Detector and Two Slide Tuner .....	.25
SERIES F	Crystal Detector and Loose Coupler .....	.25
SERIES H	Two Variometer and Variocoupler, with two Stage Amplifier .....	.25
SERIES I	Special Receiver with Three Stage Amplifier .....	.25
	(See Note Below)	
SERIES J	Single Circuit Receiver.....	.25

NOTE. Series I is a very advanced type of set and the beginner is advised not to build it unless proficient. A full description of the set, with photos, appeared in the August MODULATOR.

All of these are genuine blue prints, the first three being 17 inch by 22 inch, and the others being just half the size.

All of the circuits are proven and are correct in every way and if the sets are built according to the plans will work excellently.

THE MODULATOR

12 Liberty Street New York City, N. Y.

Continued from Page 115

complete monthly traffic report in the prescribed form, appoints all official relay stations in his section, subject to issue of appointment certificate by the Division Manager. He instructs all official stations through the Assistant Division Managers, regarding special relays and tests undertaken by the league, and has complete charge of such tests.

The Executive Assistant has charge of all club affiliations and makes due investigation through the several Assistant Division Managers, of all clubs applying for affiliation. He conducts all correspondence for the District Manager, with the clubs, official stations and league members in his section.

The Assistant Division Manager is in charge of league activities in one state or a portion of a state, as designated by a Division Manager. He shall recommend the appointment of as many District Superintendents as are required by the plan of organization and shall pass upon the recommendations of all District Superintendents for appointment of all City Managers. He collects a monthly report from the Dist. Superintendents and City Managers in his territory, with such remarks on the progress and traffic conditions in his territory, which report must be in the hands of the Executive Assistant not later than the 22nd day of each month. The Assistant Division Manager shall direct the activities of the several District Superintendents and City Managers in his territory and coordinate their efforts in



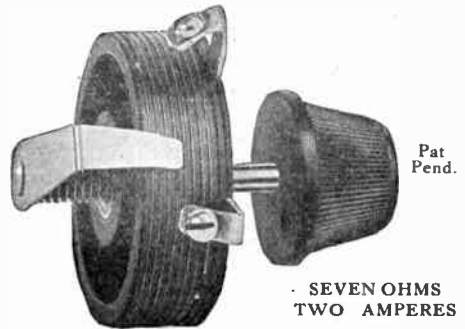
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"MICROSTAT"

A Vernier throughout its range

An instrument of merit—indispensable for new Armstrong Super-Regenerative Circuit. It will eliminate noises usually mistaken for static. Stepless filament control.

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Write for discounts and list of radio parts we manufacture

WALD ELECTRIC CO.

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List Price

\$1.50

every possible way. He shall recommend to the Executive Assistant, for appointment as official relay station, such stations of league members in his territory as merit such appointment. He shall have general supervision of his territory on any special tests or relays and instruct the Dist. Supts., and City Managers under him, regarding same.

The Assistant Division Manager is the direct representative of the Div. Manager in the territory assigned to him and is responsible for the results achieved.

District Superintendents shall make recommendation to the Ass't Div. Mgr. for the appointment of city managers in cities of 25,000 or over population, which are located in the territory assigned to him. These City Managers are not under the direction of the Dist Supts and should report directly to the Ass't Div. Mgr. It is important, however, that the Dist. Supt., shall cooperate fully with the city Managers in the advancement of the interests of the League.

The Dist. Supt., shall investigate applications for club affiliations. He shall collect monthly reports from official relay stations in his district and compile them on form 2, with a summary of reports from relay stations and such remarks as he may wish to add. This must be mailed to his Ass't Div. Mgr. not later than the 19th of each month.

He shall recommend to his Ass't Div. Mgr. for appointment as official relay stations such

stations of league members in his district as merit such appointment, based upon their ability to conduct relay work in a satisfactory manner.

City Managers are appointed for cities having a population of 25,000 or over, and at the discretion of the Division of the Division Manager. Cities having a population of over 500,000 may possibly have two City Managers, each having jurisdiction over League activities in a designated portion of such city.

The City Manager is not under the direction of the Dist Supt of the district of which his city is a part, but will report directly to the Ass't Div. Mgr. It is expected, however, that the City Managers will cooperate fully with their Dist. Supts in the advancement of the interests of the League.

Continued on Page 132

Executive Radio Council
120 Liberty Street, N. Y. C.

Enclosed herewith find one dollar and a half (\$1.50) for which please send me The Modulator for one year (12 numbers), commencing with the..
.....

Name

Street

City State.....

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**\$1.50 TUSKA 4 IN. DIALS 29 CENTS
VARIOCOUPERS 65c**

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Just Attach to Electric Light Socket.
Guaranteed—49c

"WOODEHORN" LOUD SPEAKER

Maximum Amplification—
No Metallic Sound—
No Distorted Tones—

Stand 26 inches high, has 10 inches bell, beautiful finish in black crystal. Complete with special attachment for use with any phone.
If you would have tones of a rare violin—then do not hesitate to try a "WOODEHORN" Loud Speaker.

Its results will astound you.

LIST PRICE \$7.50

WESTINGHOUSE R. C. SET

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**Mt. Clemens Concentrated
Salt Baths**

Brought Into Your Own Home

Write to

**Carlsbad Anti-Rheumatic
Society**

201 East 102nd St. New York City

Continued from Page 131

He collects monthly reports from official relay stations in his city, or the portion assigned to him, and compiles these reports on the regular Form 2, a summary of such reports and whatever remarks he may wish to add. This report must be mailed to his Ass't Div. Mgr., not later than the 19th of each month.

He recommends for appointment, official relay stations. The City Manager is the direct representative of the League in the territory assigned to him, and he is expected to use his best efforts in the advancement of amateur radio telegraphy and endeavor to promote harmony among amateur organizations and individual amateurs as will be for the best interests of all concerned. He should see that the telegraphing amateur and the radio phone listener, both get a fair deal and an equitable division of the working hours, as these conditions are multiplied many times in certain congested sections. In the event of difficulties arising from this cause he should make appropriate recommendations to his Ass't Div. Mgr., submitting if possible a concrete plan of operation in an endeavor to promote better working conditions.

Referring back to the October issue of The Modulator, a complete organization chart will be found on Page 16. This is the Atlantic Division of the A.R.R.L. This chart, together with the maps that have appeared in The Modulator added to this general resume will give any operator a good understanding of just what operating conditions are.

Radio Up To a Standard But Down To a Price

You Will Have to Mention This Magazine To Get These Prices

All Goods New, in Original Packages

\$130.00 Grebe CR 9, 150 to 3,000 meters	\$100.00	35.00 Tuska Detector Set.....	25.00
132.50 Westinghouse RC.....	90.00	36.00 De Forest Detector Set.....	21.00
112.00 De Forest MR 6.....	84.00	35.00 De Forest Two-Stage Amplifier	75.00
25.00 Federal J Set, complete with phones	10.00	125.00 General Electric Two-Stage Amplifier	75.00

TUBES

UV 200	\$4.00
UV 201	5.00
Navy VT 1.....	5.00
Navy VT 2.....	7.50
WD-11 1½-Volt	5.00
UV 202	7.00

PHONES

Baldwin, Type C.....	\$9.50
Baldwin, single	5.00
Holtzer Cabot	4.50
Murdock, 3,000 Ohms.....	4.50
Murdock, 3,000 Ohms, single.....	2.00
Murdock, 2,000 Ohms.....	3.90
Murdock, 2,000 Ohms, single.....	1.50
Brandes	5.50
Federal, 2,200 Ohms.....	5.50
Federal, 3,000 Ohms.....	7.50
Western Electric	7.50
French Brunet, 4,000 Ohms.....	7.75

VARIABLE CONDENSERS

23-plate Vernier	\$5.25
43-plate Vernier	5.75
.001 Balanced Vernier.....	6.00
.0005 Balanced Vernier.....	4.80
.0008 Balanced Vernier.....	5.20
.0015 Balanced De Forest.....	5.00
.0005 Balanced De Forest.....	4.75
23-plate Moulded Ends.....	1.25
23-plate Plain	1.00

VARIOCOUPLERS

Baldwin	\$3.80
All Range	6.00
All Wave	7.00
Atwater-Kent	5.75
Emco	4.75
Tuska	3.50

BATTERY CHARGERS

Westinghouse 2 Amp.....	\$14.00
Westinghouse, large 6 Amp..	22.00

RHEOSTATS

Radio Corp.	\$2.40
Star .....	.60
Cutler Hammer .....	.80
Murdock .....	.75
Paragon	1.20

POTENTIOMETERS

Radio Corp. ..	\$1.50
Paragon	1.50
Graphite	1.20
Amsco	1.15

LOUD SPEAKERS

Magnavox (New Horn).....	\$29.75
King Horn	5.00
Dietograph	13.25
Autovox	17.50
Western Electric	120.00
Baldwin Clarophone	14.00
Bristol Audiophone	18.00

VARIOMETERS

Pathe	\$3.50
Emco	5.25
Baldwin	3.50
Ttwater-Kent	5.75

TRANSFORMERS

UV. 712	\$5.05
Acme	3.50
Federal	5.25
Paragon	4.00
Meyers' Coil	3.00
Marle	3.00
Thordarsen	2.50

RADIO FREQUENCY TRANSFORMERS

UV 716	\$7.60
UV 714	4.10
Radio Service	4.75
Baldwin	2.25
Acme	3.50

SOCKETS

Paragon	\$.80
Turney .....	.30
De Forest .....	.60
Triple	1.25
WD-11 .....	.35

JACKS AND PLUGS

Federal	\$.50
Sun Grip .....	.65
Firth Single .....	.35
Firth, Double .....	.40

STORAGE B BATTERIES

\$3.00 Eveready 22½ B Battery	\$2.10
5.50 Eveready 45 B Battery..	3.85
1.75 Eveready 22½ B Battery	1.20
2.50 Franco 22½ B Battery..	1.50
5.50 Franco 45 B Battery...	3.50
80-hour Westinghouse Storage	15.00
120-hour Westinghouse Storage	19.50
90-hour Eveready Storage...	16.00
110-hour Eveready Storage...	17.00
80-hour Exide Storage.....	16.00

No deliveries—Mail orders—Cash and carry plan.

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extends an opportunity to the readers of the Modulator to purchase standard Radio parts at greatly reduced prices.

List Our Price Price		List Our Price Price		List Our Price Price	
PLUGS		TRANSFORMERS		VARIABLE CONDENSERS	
Bulldog Grip, round tele- phone	\$1.50 \$.75	Acme, Type A-2S.....	\$5.00 \$3.95	43-Plate	\$3.25 \$1.10
Freed-Eisemann	1.00 .45	Atwater-Kent, Radio fre- quency	5.50 4.95	23-Plate	2.75 .95
Torpedo	1.25 .65	DeForest, Model No. 120	5.00 3.45	3-Plate	1.25 .65
Flat	1.25 .40	General Radio, Type 231-A	5.00 3.95	A. B. C. 23 Plate.....	3.00 2.00
POTENTIOMETERS		CRYSTAL DETECTORS		CRYSTAL DETECTORS	
Amsco	\$1.25 \$.95	Mu-Rad, Radio Fre- quency	6.00 2.95	Glass-enclosed, dust-proof	\$1.75 .85
Paragon, 300-ohms, for "A" Battery	1.75 1.45	Thorardson	4.50 2.95	Glass-enclosed, dust-proof	1.50 .65
RCA, for "A" Battery..	2.00 1.75	UV-712, RCA, Amplify- ing	7.00 5.45	DIALS	
RHEOSTATS		CONDENSERS		American Hard Rubber Company 4-in.	
Amsco	\$1.25 \$.65	Dubilier, Type 600, .0001, .00025, .0005, .001 and .002 mfd .....	.75 \$.65	Composition, 3-in .....	.90 .25
Bradleystat	1.85 1.55	Dubilier, Type 600, .0025, .003, .004 and .005 mfd	1.00 .90	Composition, 3-in .....	.50 .19
Cutler-Hammer Co.	1.00 .75	Dubilier Micadon, Type 601, .001, .002 and .0025 mfd .....	.40 .35	2-in., for rheostat.....	.75 .35
Fada Type	1.00 .45	Dubilier Micadon, Type 601, .0001, .00025 and .0005 mfd.....	.30 .30	4-in., with knob, 180 de- grees	1.75 .85
Klosner	1.50 .75	Dubilier Ducon (substi- tute for aerial)	1.50 .95	SAF-T. GRID LEAKS	
Paragon, new type.....	1.50 1.15	Plunger	1.00 .40	Tubular enclosed in glass	
Reeps, 10-ohm, 6 to 8-volt	1.80 1.45	Morehouse Tested .00025, .0005, .001 .....	.40 .20	1/2, 3/4, 1, 2, 3, 4, and 5 megohm.....	
Plunger	1.20 .40	Morehouse Tested .002..	.50 .25	.65 \$.50	
SOCKETS		Morehouse Tested .006..	.60 .30	JACKS	
Bakelite	\$1.50 \$.60	GRID CONDENSERS		Federal, double	
China .....	.60 .15	.0025 mfd .....	.35 \$.10	Federal, single	
F. E.	1.00 .30	.0005 mfd., with grid leak	.50 .25	Firth Type, single....	
Moulded	1.25 .45	SOLDER		Firth Type, double....	
W. D. 11.....	1.00 .55	Solderall, easy to use, tube, 2-oz		Liberty, single	
TELEPHONE HEAD-SETS		TELEPHONE CORDS		Liberty, double	
Brandes, Superior, 2000- ohm	\$8.00 \$5.95	5-ft., single	\$.75 \$.25	Panels	
Brown, adjustable, 4000- ohm	22.00 14.00	6-ft., single .....	.90 .35	Hard rubber, navy specifications, none better.	
Brown, 4000-ohm	20.00 12.00	6-ft., double	1.25 .45	7x10	
Federal, 2200-ohm	8.00 5.20				
Turney, 3000-ohm	6.50 3.75				
Stromberg-Carlson, 2000- ohm	10.00 5.95				
Dr Seibt	12.00 6.00				
"SPAGHETTI" OR TUBING					
3-ft. lengths	\$.30 \$.09				

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6 Volt 60 Amp.....	12.00
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Above Batteries Are Fully Charged when Shipped.

We Do Not Charge For Crating

**We Sell
Standard
Makes of
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Supplies
at
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Skinderviken transmitter buttons.....	.75
Electrose Insulators.....	per doz. \$2.00
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Rubber Cap Binding Posts.....	per doz. .75
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No. 14 Solid Copper Hard Drawn Aerial Wire per 100 ft.	.35
7 Stranded Solid Copper Aerial Wire 200 ft.....	1.00
Fada Rheostats.....	.69
DeForest Rheostats.....	1.00
Klosner Vernier Rheostats.....	1.15
Paragon Rheostats.....	1.25
Bakelite, V. T. Sockets.....	.60
Crosley V. T. Sockets.....	.50
Paragon V. T. Sockets.....	.90
DeForest V. T. Sockets.....	.90
3 inch Bakelite Dials.....	.75
Cyclone 22½ Volt Small B. Battery.....	.90
Cyclone 22½ Volt Large B. Battery.....	1.60
Cyclone 45 Volt Large Variable B. Battery.....	2.50
No. 763 Eveready 22½ Volt Small B. Battery.....	1.25
No. 766 Eveready 22½ Volt Large Variable B. Battery	1.98
Arkay Loud Speakers.....	3.89
Thordorson Amplifying Transformers....	New Type 3.89
Acme Amplifying Transformers (semi mounted)....	4.25
Federal Amplifying Transformers.....	5.95
Acme, R. F. Transformers.....	4.49
3000 Ohm Everette Head set.....	5.95
3000 Ohm Dictograph Head Set.....	7.50
2200 Ohm Federal Head set.....	6.95
Western Electric Head set, Navy Type.....	10.50
Radiotron, U. V. 200, detector tube.....	4.50
Radiotron, U. V. 201, amplifying tube.....	5.75
Meyer High mu. Tubes.....	4.49
Chelsea Var. Condensers, .0005 mf., dial and knob..	3.98
Chelsea Var. Condensers, .001 mf., dial and knob....	4.19
Sterling Rectifier, guaranteed.....	13.95

**We guarantee
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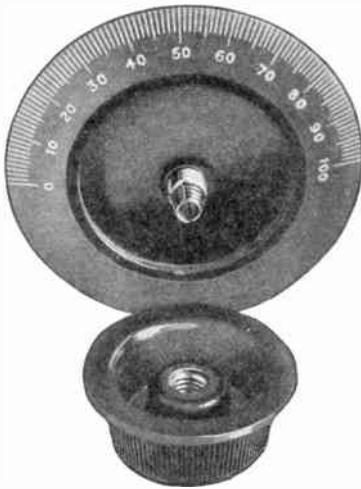
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It will pay you to let us take
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22½-45 and 105 Volts



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A Real Radio Frequency Amplifying Transformer

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No. 31—For use on 500 to 1000 Meters	5.70
No. 40—R. F. Transformer Mounting80

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EVERY EXPERIMENTER HAS BEEN WAITING FOR**

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NEW YORK CITY, N. Y.

ALWAYS MENTION THE MODULATOR WHEN ANSWERING ADVERTISERS

Quality Radio Products

Pruden Reliable Radio Specialities

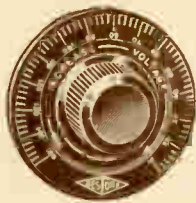
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Fully shielded assuring undistorted reception of signals as well as volume. List \$5.00



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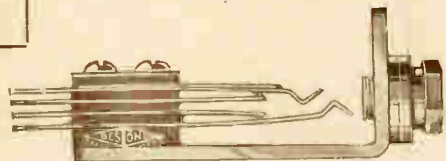
Correctly designed potentiometer supplied with a 2 inch molded dial. 300 Ohms resistance. No. 764. List \$1.50.

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The only fixed radio detector requiring no adjustment. Used in place of crystal or vacuum tube. Gives excellent quality of sound without distortion, battery or tube noises. Detects broadcasted music more clearly than a vacuum tube detector and requires no amplification where the incoming signal has sufficient strength to actuate the sensitive phones. Detects telegraph signals at several thousand miles. Ideal for use in regenerative circuits. Handsome, substantial and suitable for assembly in the finest radio equipment. Guaranteed against imperfection or faulty operation. List \$3.50.



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German silver spring with sterling silver contact points. Supplied with two plated washers for proper mounting.

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