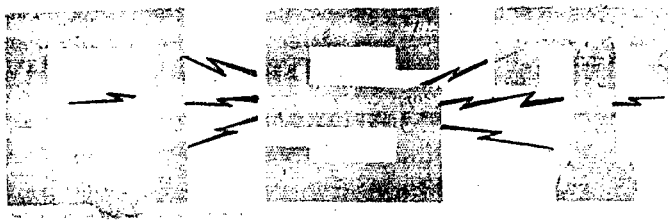

A MAGAZINE DEVOTED EXCLUSIVELY TO THE WIRELESS AMATEUR.

RE-OPENING NUMBER

Greetings, Amateurs!

THE AMERICAN RADIO RELAY LEAGUE extends its heartiest greetings to the wireless amateurs of the country on the happy occasion of the lifting of Federal restrictions on amateur receiving. We have been assured by the Navy Department that the restrictions on amateur transmitting will also be lifted as soon as the President of the United States announces that a state of peace exists.

After more than two years of absolute prohibition of all forms of amateur wireless work, the news that we are to be permitted to resume operating comes as one of the big things resulting from the closing of the Great World War. It makes us appreciate what it is to be Americans—freemen of a great Democracy. It also causes us to pause and with reverence recall the supreme sacrifices that many of us have been called upon to make that we now might continue to be freemen.

Our own record in the great struggle for liberty is something we can regard with pride. Our country had need of us amateurs in the early days of unpreparedness and the need was very great. It is for us to stand and say that almost every single one of us who was of military age and in good physical condition responded to the need.

The American Radio Relay League is an organization of us amateurs, for us amateurs, and by us amateurs, and to all interested in amateur wireless whether they be members of our organization or not, we extend the hand of good fellowship. We believe that amateur wireless is to be one of the great institutions of the future. We hope that we may be able to be of some assistance in carrying it to its great destiny.

THE AMERICAN RADIO RELAY LEAGUE, Inc.
Hiram Percy Maxim, President.

JUNE, 1919 PRICE, 15 CENTS

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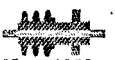

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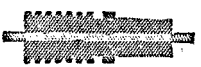

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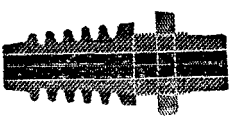

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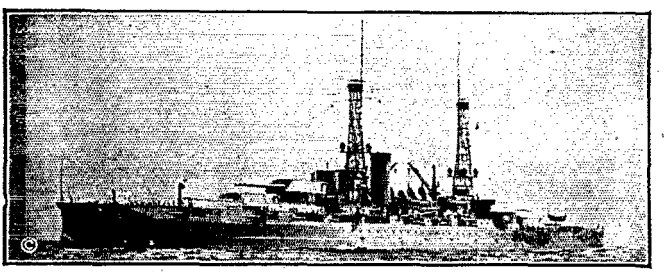

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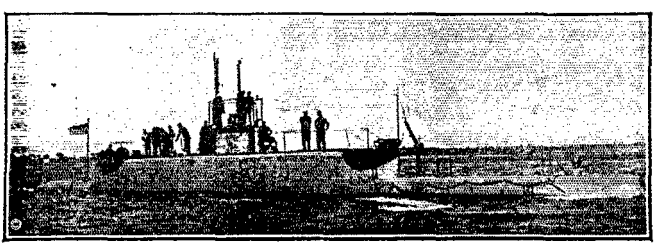

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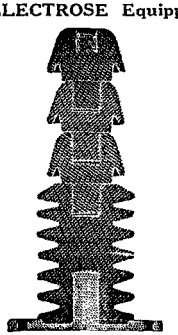

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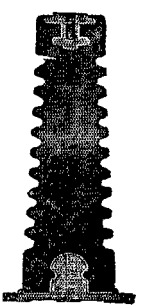

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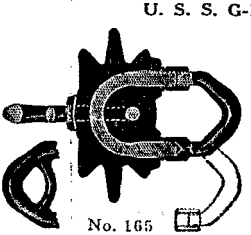

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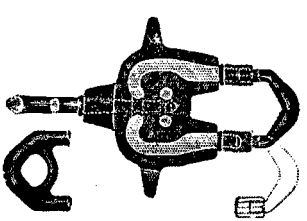

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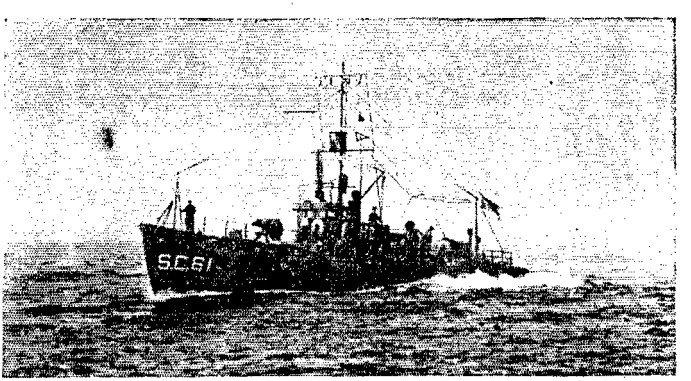

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QST

VOLUME II — JUNE, 1919 — NO. XI

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Q S T is published monthly by The American Radio Relay League, Inc., at Hartford, Conn. Kenneth B. Warner (Secretary, A. R. R. L.), Manager and Editor.

Subscription price, $1.50 per year in the United States and possessions; Canada, $1.75; Foreign, $2.00. Single Copies, 15 Cents.

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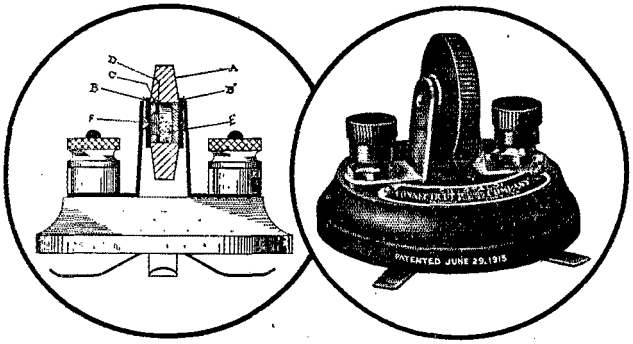

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Q S T

A Magazine Devoted Exclusively to the Radio Amateur

New Developments

By Dr. Radio

Those who have been closely connected with the subject seem to be generally of the opinion that among the foremost radio war developements is the work done in vacuum tubes. The improvements have been a combination of new discoveries and constructions following a better understanding of old ones. To properly grasp the new things which have been done in vacuum tubes, and which are now available to the amateur, it is well to briefly pass over the history of the wonderful device.

In its original form, what we now call the Vacuum Tube was based upon what is known as the "EDISON EFFECT", the current or stream of electrons which flows from a hot filament to a cold plate in an evacuated vessel, and which resists flow from the cold plate to the hot filament. The possibilities of this singular characteristic of a hot filament were probably first recognized and made use of in radio by Dr. Fleming. Fleming called his device "The Fleming Valve". He developed it into a detector, making use for the first time, possibly, of the uni-directional current flow from a hot filament to a cold plate in an evacuated glass tube. The detector proved itself to be reliable, but lacked sensitiveness.

DeForest next appeared and announced his discovery that a third element might be introduced into the evacuated glass tube to advantage. He called this third element a "grid", because it took the form of a grid like construction made by bending a wire into the form of a grid. DeForest demonstrated that the potential of this grid with respect to the filament and the plate, could be made to control the amount of current flowing from an auxiliary circuit derived in practice from a bank of small dry cells and including the receiving telephones. Incoming electrical impulses placed alternating negative and positive charges on the grid which caused a large DECREASE in the current flowing in the auxiliary circuit when the charge was negative and very slight increases when the charge was positive.

Thus the current from the auxiliary circuit passing through the receiving telephones was caused to flow in greater amount in one direction than the other. This caused a response in the telephone, naturally. The grid action was therefore said to be something like a trigger. It released uni-directional current through the telephones enabling them to produce an audible sound for very small amounts of energy coming in by the antenna.

This improvement of DeForest tremendously increased the sensitiveness of the Fleming Vacuum Valve and made a very wonderful radio detector. At the beginning of the war, the amateur had made use of it to great advantage. Originally it was obtainable only from the DeForest Company, but later other makers produced tubes which the amateurs used. Still later, amateurs made use of regenerative circuits made possible by the vacuum tubes and also of amplifying circuits which still further increased sensitiveness.

In the early days of its use, the Vacuum Tube was found to be very irregular and

fickle in practical use. Some bulbs would be extremely sensitive and others would be very insensitive. Some would require high potential in the auxiliary or plate circuit and others would not stand a high potential. Extremely critical adjustments were necessary in filament brilliance, and plate circuit potential. Some bulbs would acquire a blue glow and would "paralyze" and become inoperative as a detector at the slightest variation of adjustment. They were usually termed "hard" bulbs or "soft" bulbs. All amateurs are probably very cognizant of these aberations of the early DeForest audion.

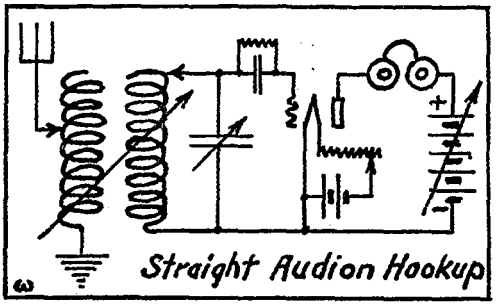


Fig. 1.

When the war came radio requirements demanded tens of thousands of detector bulbs which should be sensitive and reliable in rough usage. No fickle or delicate potential adjustments could be permitted, but on the contrary a bulb was necessary which would be sensitive and reliable at a standard filament brilliance and a standard plate potential. To accomplish this thing, the most painstaking analysis of the Vacuum Tube became necessary. One of the things investigated was the vacuum. It was found that this was very difficult to control. Varying quantities of varying kinds of gas were left in the bulbs after sealing. It was found that gas was gradually given off from the metal in the plate, and also the grid. Air was found to be given off the glass itself. In order to overcome these irregularities, it was found necessary during the exhausting process, to heat the bulbs and bombard them internally with a high potential discharge. This bombardment appeared to drive out the traces of gas occluded in the metal and glass.

Filament brilliance was investigated and it was found that when a filament is coated with a certain oxide, the stream of electrons is considerably increased so that a plentiful discharge is secured even at a very low brilliance. Bulbs have been seen operating by the writer which were so low in brilliance that it required careful observation to tell whether the filament was red hot or not. Low brilliance had the advantage of lengthening the life of the filament and rendering less exact the adjustment.

The physical dimensions of the grid and plate were also given careful investigation. Grids were made double and plates were made double. Two grids and two plates were connected in parallel on opposite sides of the filament, with improvement in stability. Tubes were constructed on lines worked out by the French in which a small helix is wound up into a grid and then surrounded by a circular plate.

Various other very interesting and complicated examinations were made, all under the most extreme pressure of war conditions. Later on, some of the wonderful work that was done by the experts will be told of, but at this writing it is not thought discreet to go farther.

The research work eventually produced a vacuum tube which was uniformly sensitive and reliable at 22½ volts plate potential and which was indifferent to any change in filament brilliance from a very dull glow to full incandesence.

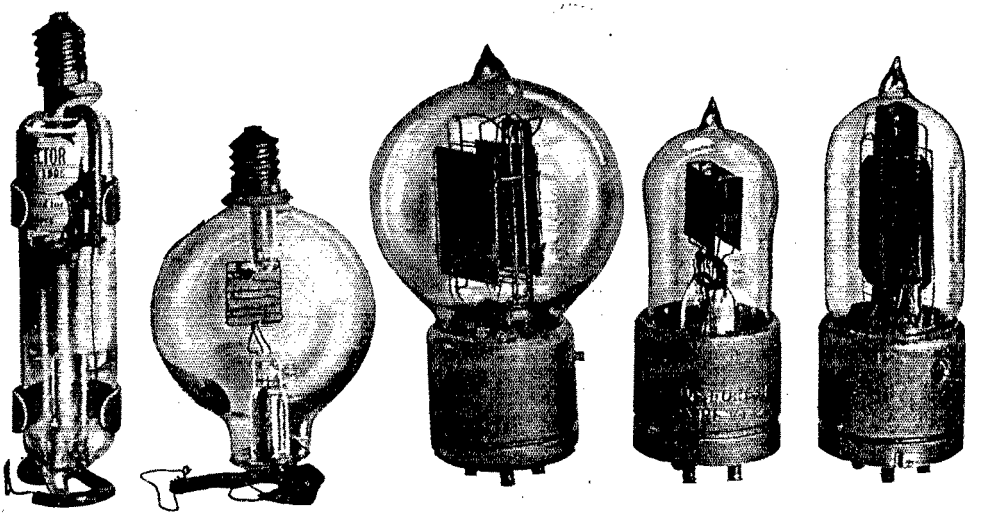
Amateurs will recall the extremely fragile external connections which were characteristic of amateur bulbs. This of course could not obtain in war service. Instead of fragile wires, the bulb was mounted in a brass base the same as an incandescent lamp was mounted. Projecting from the base were four prongs. Two of these were the filament terminals, and the other two were respectively the plate and the grid terminals. A special receptacle with a bayonet joint lock was provided so that all that was necessary to connect up a bulb was to press it down into a receptacle and everything is robust and firm and able to stand the unavoidable small abuses of every day service. Amateurs will appre-

ciate the great improvement which these bulbs will offer.

A matter which the amateur is especially interested in is that of the connections or "hook-ups" that war experience proved to be best. As far as the simple vacuum tube detector is concerned, the conventional "audion hook-up" was used (see Fig. 1), except that the small grid condenser was usually shunted with a high resistance leak of about one megohm (one million ohms).

In case of regenerative connections, they were mainly of two types:- The capacity feed back, and the inductive feed back. Both types have given very wonderful results on long wave reception. The inductive feed back seems however, to be preferable on short wave lengths. Diagrams of the two types are shown at Fig. 2 and Fig. 3.

For the reception of undamped signals of long wave lengths, either the capacity feed back or the inductance feed back can be used with success. For the benefit of those who may want the information, it can be said that the inductance values of the coils should be for the primary, about 75 millihenrys, and for the secondary and also the plate inductance, about 150 millihenrys. These with the average amateur antenna or loop will handle wave lengths up to at least 16,000 meters. The con-



Left to right: DeForest Type T, DeForest Round Audion, VT-2, VT-21, VT-1.

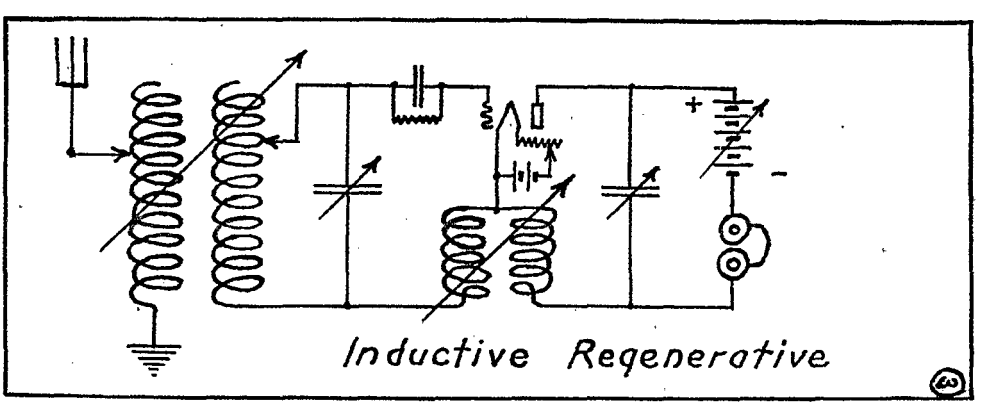
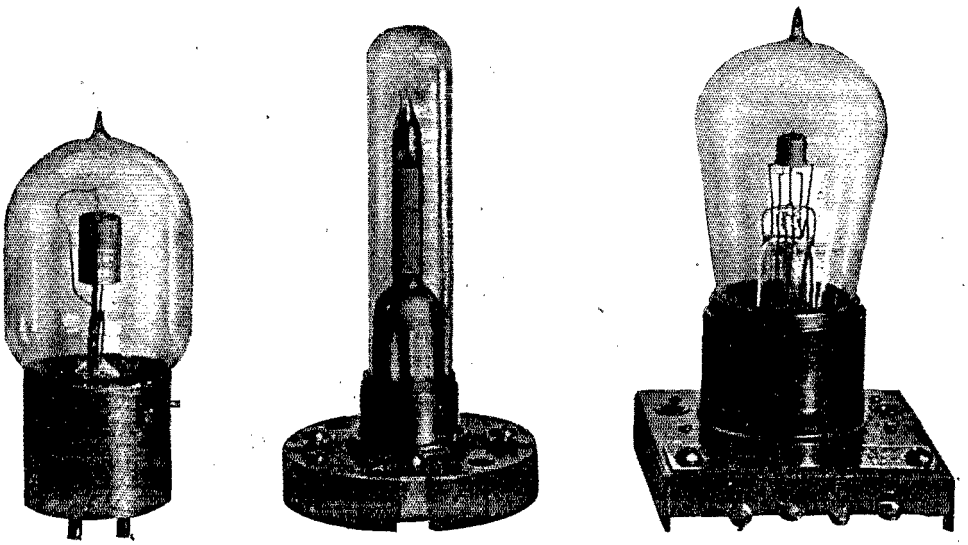


Fig. 2

densers can be the ordinary variable type used by amateurs generally.

When it comes to the use of the vacuum tube for amplification, we find that the improvements made during the war have vastly altered the possibilities in the way of amplification of weak signals. Amateurs in many cases have had experience with audion amplifiers and they know that any amplification above two step was fraught with many practical difficulties. This is all changed now with the new vacuum tubes that are available. For frequencies within the range of audibility, amplification to the extent of four and five steps is entirely practical. For amateur service, where a personal interest and great skill and patience frequently exists, a six step and even more might be considered practical with modern tubes. The effect of this degree of amplification is probably destined to be very great in amateur radio, because it permits the reception of extremely faint signals and has an influence upon the necessity for powerful transmitting apparatus. Many amateurs will question the necessity for an expensive mast and a full one kilowatt transmitter, if a station two hundred to five hundred miles distant is able to hear signals transmitted from a thirty foot antenna, and one-half kilowatt power.



Left to right: Moorhead Vacuum Tube, Donle Tube, VT-11.

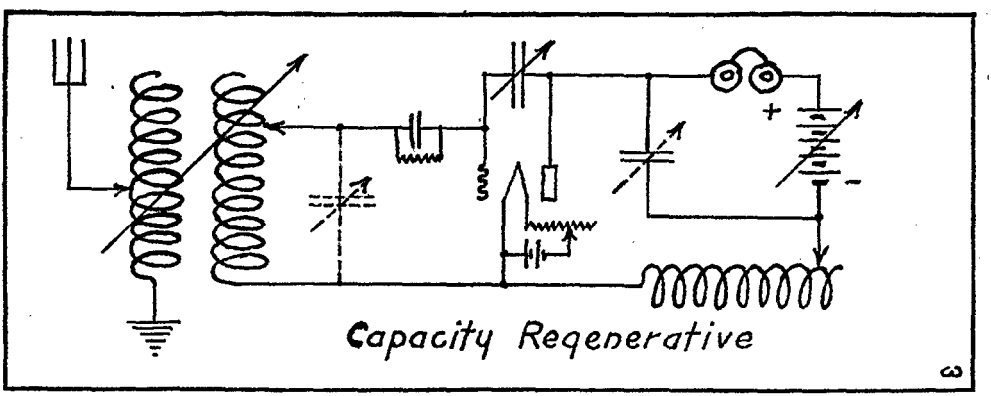


Fig 3

An example of interest in this connection is the British efforts at locating the German submarines. It is said that these submarines communicated with each other by very faint signals sent out from simple buzzers. Only nearby receiving stations could of course read these signals. The British Admiralty, so it is said, set up a forty-step amplifier on shore, and not only were able to read the faint buzzer signals, but were able to locate the direction whence they came.

The question of loop antennae is closely related to this subject of amplification, but consideration of it will be reserved for a later time. It may be said in passing, that great deal in this line. A diagram of the connections used is shown in Fig. 4.

Performance of this connection is extremely sensitive and shows great freedom from static interference. It tunes extremely closely and gives very intense signals. Of coarse, even after the four steps of radio amplification it is possible to continue the amplifying by the use of audio-amplifiers. There seems to be no limit to the degree of amplification.

The factor of this high amplification is of great importance to the amateurs. It may mean that we shall use low powers with high efficiency for transmission. Assuming we can emit sharply tuned waves

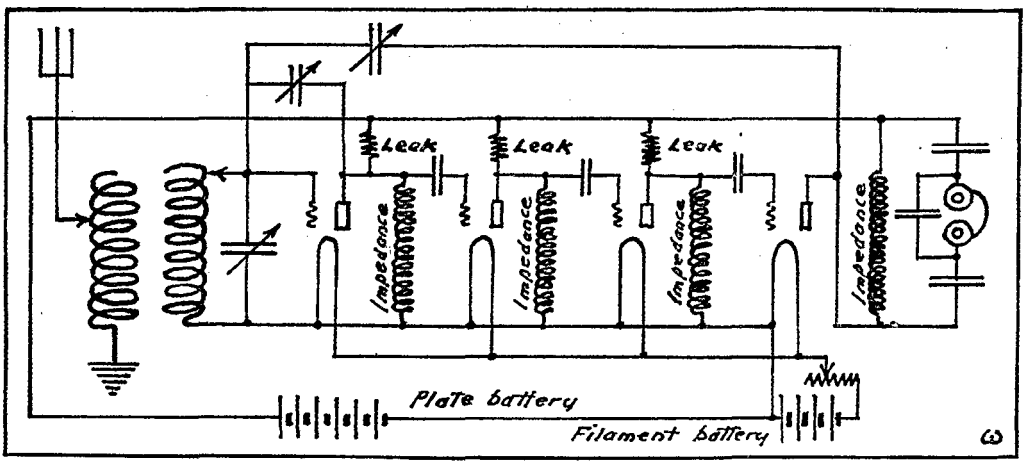


Fig. 4

if very high amplification is possible and practical, there is a question whether there is necessity for an outside antenna of the old type. If a loop set up in the room with the receiving instruments, is all that is necessary for both transmitting and receiving, amateur wireless communication becomes a very different proposition than has been the case in the past.

In closing, a word should be said about the work that has been done with modern vacuum tubes operating as radio frequencies amplifiers. The French have done a and depend upon critically tuned receiving with high amplification, it appears possible to increase greatly our working radius and eliminate much QRM.

This preliminary article suggests lines of experiments for amateurs. In future issues of QST the writer hopes to explain more in detail the results which may be obtained on long wave reception. This occasion is used to point out that there are many readers of this magazine who are in a position to materially help in broadening these discussions, and they should be encouraged to come forward.

Rotten Starting

By "The Old Man"

Rotten Starting is one of the Old Man's best. It will cause as many laughs as a forty-step amplifier boosts the signals. Regenerative laughs, fellows. No one but the Old Man could cause them. Read and laugh. —Editor.

Say Son, this here wireless game brings on a heap of rotten stuff, it seems to me. When we got the word out here that receiving was allowable, you would have thought the Town Hall had caught fire. All concerned simply dropped business, and proceeded to beat it somewhere. It seemed to be a unanimous vote to hustle together anything that would bring in a signal. The little wife in our family, who never expected to see amateur wireless practiced again, made up her mind that something had busted in the attic, what with all the haste, excitement and noise when I got into action.

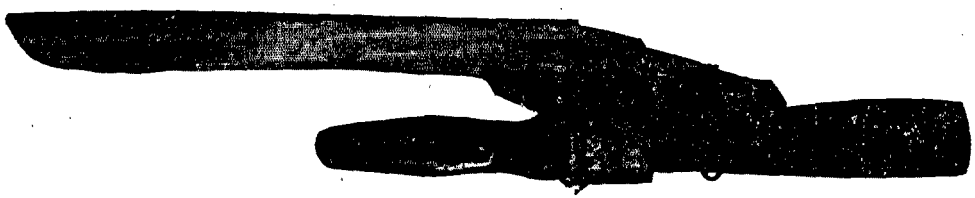
What a lot there is to do when the restrictions on receiving are suddenly removed. And just to get one mimsy little weak underfed whine from Arlington. That's all anybody ever gets the first try. Say, is it a fact that every single amateur in the country has moved since 1917? By the dust you would think every Mother's son of the bunch had done so, and was trying to make up the handicap. Everybody I know is building from the ground up. You would swear there never had been an amateur radio station in the whole darned country the way folks are digging holes, stringing wires, and burying chicken net. Where in time is all the old stuff, anyway, and has everybody given up the friendly tree and decided to put up a mast?

The head of our big hardware and electrical supply store told me the other day that if this wireless business kept up another two weeks, there would not be a pound of copper wire, nor an insulator, nor a dry cell, nor any solder, nor soldering paste, nor rubber tape left in the wholedam country. He was sending away to Chicago every ten minutes in the day for more soldering paste, he said, and was wondering whether the amateurs were painting their shacks with it, or eating it on bread, or what. (For a fact, isn't it funny how we amateurs do eat up solder and soldering paste!) He reckoned that if the wireless boom took hold throughout the country as hard as it was taking hold in these parts, that there was going to be a million dollars spent.

I dont know about the million, except that it would build a powerful lot of amateur stations judging by the economy practiced in some I have seen. I do know however, by the feel of my back and shoulders that a heap of hard work is being done these bright spring days, and also and moreover, that there is a heap of it all to be undone and done over again. It's just rotten to have to stand by and see the work some of these young squirts do getting started again.

No two of them look at the thing from the same slant. One excitable gink gets the word, explodes, alights in the attic, grabs a loose coupler in one hand, a crystal detector and a hank of wire in the other, and beats it for his sleeping room. Then he climbs out the window and crawls around on the clapboards on the side of his house like nothing human, and while you turn your back to hunt up something to sit on, he has shifted to a neighbor's tree, where with a rope in his teeth, he is shinning up as though his young life hung on the time it took to get to the top. In fifty-six minutes and thirty seconds by the watch, he has a wireless telegraph station set up, a tear in the seat of his pants that is beyond hope, a strong smell of perspiration on him, and is crouched up in a hard knot over a piece of galena trying to find the sensitive spot while hollering orders to the by-standers to "keep quiet".

Another specimen gets the glad news, calls Jim on the phone and asks him if the officially signed letter from the United States Navy Department is O.K., and after securing Jim's super-official approval of the Navy Department's action, proceeds to pull out about seventy-five pounds of Mesco, Duck, Adams-Morgan, Clapp-Eastham, Sears Roebuck, and DeForest catalogues. Not satisfied with these, he also hauls out a basket full of old QSTs, and after selecting the ones containing the article by Godley and the article on how to make the regenerative receiver, he proceeds to scratch the favorite spot on his head while he reads with care and precision every word of some funny yarn that attracts his eye. Judging by appearances, he will have something to listen to about the same time that the Peace Conference reaches an agreement.



THE ORIGINAL WOUFF HONG.

Still another young thing gets the news, blows up, hollers his head off to his mother and sisters, explaining how the new modulators and V.T.'s work, tells how they will all be listening to Nauen, Lyons, Honolulu, Japan, San Francisco, Buenos Aires, Cape Horn, and the South Pole just as soon as he can get time to hook things up, and then hurrys to the telephone makes a date with a girl and hustles off to the movies.

Another one gets the tidings over the phone, returns to the family circle with a distrait air and a far away look in his eye, induces a suspicion on the part of Mother that bad news of some kind has come, strokes his chin to stimulate his brain action and rises and proceeds in silence and sadness to the back yard where he gazes hard at the roof of the house. After scrutinizing with minute care each brick in the chimney top, he goes around to the front yard where he does the same to the front chimney. After shaking his head sadly, he returns to the back yard and repeats. He ends up by having a ten minutes stare at the tall tree in the rear of the next lot but one. This poor devil had "mastitis." He has moved since 1917, and he needs a mast, and it's a rotten mean need to have.

Yours truly is in the same boat with the last mentioned guy, on account of having moved about a year ago. The first thing that bumped into me after I caught fire was this mast business. I have graduated from the tree class, and nothing short of eighty-five feet will keep me awake. Being unable totally to make up my alleged mind regarding a mast, I turned my attention to the ground matter. There is a good deal to be said on this ground business. Some think an acre of chicken net is the only ground that will attract signals and repel static, but there were good and sufficient reasons why I should not attempt to plant an acre in chicken net. For one thing, it meant a lot of uplift work, consisting of lifting the sod off an entire grass plat. I took the wire ground route figuring it would be a cinch to run a series of little narrow grooves in the soft turf, poke down a lot of wire and tread the soft turf back. Then by driving down a dozen or so ground rods and soldering on the wires, I would have an A No. 1 ground that would pass inspection by both Final Authority and Radical. It listened easy. The listening was the only easy thing about it however. Some people may be able to run a series of little radiating narrow grooves in the soft turf with a jacknife, but I am not one of them. I tried jacknives, kitchen knives, carving knives, butter knives, can openers, forks and spoons. Finally, the little girl, who helped, went into the wood shed and came back with the family hatchet. Aged twelve, she put down a slot ten feet long, and four or five inches deep, while I was pulling off suspender buttons, making one

a yard long and two inches deep with a mason's trowel. From the hatchet, we graduated to the axe, and with the latter, we ran the series of little radiating narrow groves in the soft turf.

When these were run and my backbone beginning to feel like an over charged condenser, we started poking down twenty-four No. 16 strands of copper wire. If anybody has never poked twenty-four strands of No.16 copper wire down into a series of little radiating grooves in the soft turf, let him take a crack at it after a hearty meal. It will cure him of wireless or it will kill him. I found it a long, long way to Tipperary, believe me. I felt when I had finished that I had laid the Atlantic cable in the back yard. When I get over this, I don't expect to walk the same, but I shall be in a position to enjoy the old pipe while I reflect upon the easiest and cheapest way of getting up a mast that will hold a few wires about eighty-five feet in the air. I am told that there are plenty of rotten things lurking in the background of this job also. In the meantime, while I am regaining my health, I am sending you a specimen of a real live Wouff Hong which came to light out here when we started to get our junk out of cold storage. Keep it in the Editorial sanctum where you can lay hands on it quickly in an emergency. We will be allowed to transmit soon and then you will need it.

Well, So Long and 73 all around. C U next QST maybe. G N - S K.

List of Long-Wave Stations Heard at Rockville Centre, L. I.

This list was prepared by Mr. J. O. Smith, Traffic Manager of the American Radio Relay League, and all of the stations were copied by him at his station at Rockville Center, Long Island, between April 15th and May 1st.

The following list of long-wave stations, with their locations, characteristics, wave lengths and calls, has been prepared for the readers of QST who may be interested in long wave and long distance receiving.

Call	Wave Lengths	Location	Characteristics
XDA	4,000	Mexico City, Mexico	Spark Set
GB	7,500	Glace Bay, Nova Scotia	Spark Set
NWW	9,800	Tuckerton, N. J.	Undamped
OUI	10,500-15,000	Eilvese, Germany	Undamped
IDO	11,000	Rome, Italy	Undamped
LCM	11,500	Norway	Undamped
NPM	8,100-11,000	Pearl Harbor, Hawaii	Undamped
UA	11,500	Nantes, France	Undamped
NDD	9,200-13,600	Sayville, L. I.	Undamped
POZ	12,600	Nauen, Germany	Undamped
NPL	9,800-13,000	San Diego, Cal.	Undamped
NFF	13,600	New Brunswick, N. J.	Undamped
MCI	14,000	Carnarven, Wales	Undamped
YN	15,500	Lyon, France	Undamped
NSS	16,900	Annapolis, Md.	Undamped

As a matter of general information, the receiving antenna consisted of two wires, each 350 feet long, running east and west, thirty feet above the level of the ground, and the receiving was done on a Godley 200-20,000 meter set, using one detector and two amplifiers, with ordinary DeForest amplifier circuits.

The Famous VT-1

By K. B. Warner

To those of us who were in radio work in the war, the term "VT-1"will always awaken memories. VT-1 is the official designation of the receiving tube used by our Air Service, Signal Corps, and Navy (being also called CW-933 in the Navy), and probably a brief description of its characteristics will be of interest to those of us who have not had personal acquaintance with it.

The VT-1 is a highly standardized receiving tube, manufactured by the Western Electric Co., and as will be noted in the illustrations elsewhere in this issue, is an elongated tube mounted vertically on a 4-pole bayonet base, and having overall dimensions of 1-3/4 inches by 4-5/16 inches. This tube is capable of performing all the desired functions of a receiving tube, being equally adaptable to detecting, amplifying, or oscillating for autodyne reception of continuous waves. Being intended largely for airplane use, where the vibration is extremely severe, it was necessary to design a tube mechanically strong, and a very ingenious arrangement of the metallic parts has been devised, resulting in the practical elimination of breakages from that source. Double plates and grids are used, on each side of the filament, which is in the form of an inverted V. The plates are corrugated, which in addition to providing increased surface, strengthens them. Connecting the plates at the top is a small lava block, from which the tops of the two grids and the filament are supported.

The filament is of novel construction in that, instead of being of tungsten or similar metal and relying on very high temperatures for the liberation of electrons, it is of a less refractory metal, generally platinum, and coated with a mixture of oxides, probably barium and strontium, which have the property of emitting great quantities of electrons at moderate temperatures. The VT-1 filament merely glows a dull red, and its successful performance is at first a mystery to the operator who has been accustomed to reading his newspaper by the light of his audion. The oxide-coated filament has several advantages over

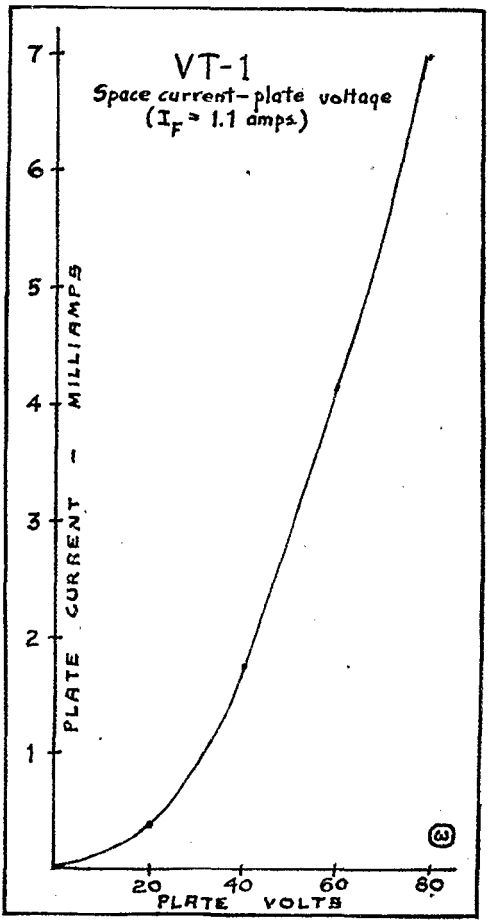


Fig. 1.

filaments such as tungsten, which must be heated to incadescence. Its life is longer, because the filament temperature is lower for proper electron emission. It is more reliable because slight changes in filament current produce less effect on its plate

current. Due to lessened filament evaporation, it maintains its operating characteristics nearer constant thru its life. Its operation is also more economical, for less filament current is consumed for proper electron emission than with tungsten filaments.

A very high vacuum is employed, with electrodes bombarded during evacuation to remove occluded gases, so that at working voltages ionization is wholly absent. This makes the characteristics of the tube definitely determinable, makes posible quantity production with absolute assurance of reliability, and eliminates the necessity for the critical adjustments that characterized our former tubes when working near the ionization point.

The result is a tube with a life of several thousand hours, reliable and constant in operation, rugged, and practically insensible to small variations in filament or plate voltages. The filament current for best operation is 1.1 amperes, but as this is not critical the tubes are operated on a standard 4-volt storage battery thru a series resistance of 1 ohm and give constant performance at voltages varying between 4.4 at gas-peak and 3.6 at discharge. The normal plate battery is a 15-cell flashlight-battery rated at 22.5 volts, but this also may vary from 18 to 25 volts without appreciable effect on operation. The entire secret is in the high vacuum used, giving the tube definite and uniform characteristics.

In detection the tube operates on the lower bend of its characteristic curve, the upper bend not being reached even by the voltages employed for use as an amplifier. In circuits requiring a grid condenser, the proper capacity is 150 micro-mfd., and should be shunted by a leak resistance of 0.5 megohm. In amplification the tube functions on the straight portion of its curve and the plate voltage may vary from 18 to 100 volts, somewhat better results being experienced with the higher voltages. The Mu, or amplification factor (defined as the ratio between the change in plate voltage necessary to effect a given change in plate current and the change in grid potential necessary to produce the same change in plate current), is approximately 6.0.

Fig. 1 is a typical plate current—plate voltage curve, while Fig. 2 shows typical plate current—grid voltage curves at varying plate voltages, Curve III being suitable for amplification and Curve II illustrating the characteristics when using normal plate voltage for rectification.

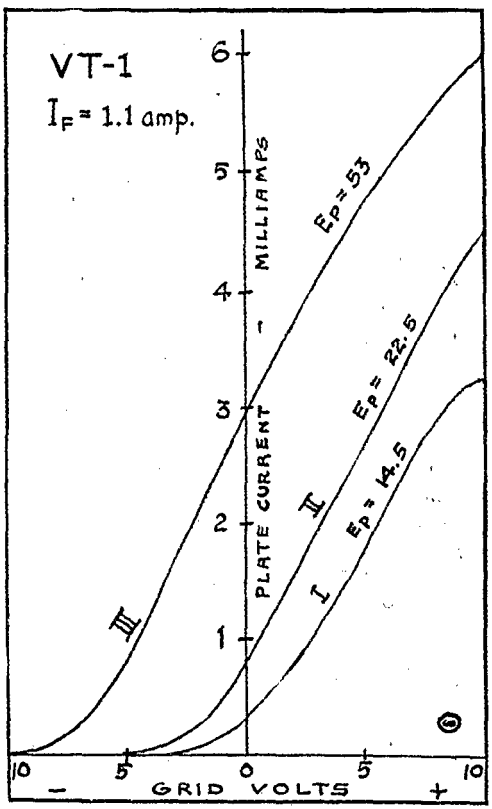


Fig. 2.

Characteristics of VT-1.

Plate voltage (rectification)	18 to 25
Filament voltage	3.3 to 3.9
Plate current at 20 volts (grid zero)	1 milliamp.
Filament current (normal)	1.1 amp.
Amplification constant	5 to 7.
Free grid potential at normal plate voltage,	-1.1

A. R. R. L. LOAN

In your tearing around trying to get a wire in the air and some kind of a receiving set in operation, don't forget our Loan. The whole thing hangs on it. We must have the money to get QST going again, and we must have a Headquarters office, and we must have paper, envelopes and stamps. In the beginning, it will take quite a little money and an awful lot of hard work to get the machinery running in harmony again. Our Board of Direction have an unlimited supply of hard work that they can give, but they need help in the case of money. This must come from the membership, not as a gift or donation, but rather as a loan until we can begin to make our organization self-supporting. Then, we shall gradually pay back the loan with interest, and wireless amateurs of the country will have their own organization OF AMATEURS, FOR AMATEURS, BY AMATEURS, and their own magazine in which to foregather and improve their knowledge and have a hearty laugh. That is going to be something well worth while, because Wireless is the next developement. Somehow or other, we wireless bugs seem to have a better fraternal spirit and a more highly developed sense of humor than other mortals, as our A.R.R.L. history has shown in the past. Let us keep it up, and let every fellow who has anything to loan from a dollar up come across with it and help the game along. He will get his money back with interest and he will have made himself a member of the A.R.R.L. family by so doing.

EXPERIMENTING SCIENTIFICALLY

In ye olden days, we amateurs experimented for results about in the manner that a blacksmith experiments. This old-fashioned experimenting was the sort where we thought it pure science to hook on three more turns in our primary circuit, and call up a fellow on the next block and ask him how it affected our signal strength. The day for that type of experimenting has passed. It was all right for the days of crystal detectors and three slide tuners and a helix, but now that every amateur has easy access to the clearest kind of explanations of fundamental radio principals, we must experiment more scientifically.

We all must learn how to measure inductance, and capacity, and the demon, "distributive capacity". We must be as familiar with wave meters and the measurements of wave length as we are with the code. Radio is getting more and more complex and if we amateurs are to keep up, we must think of these things.

A thing that is going to call for scientific handling, is our transmitting. We are going to be limited to two hundred meters, and a pure wave, and not more than two-tenths decrement, and the old hit or miss methods will not get us very far in the days to come. The moral is, to get busy, fellows, and own a wave meter and some other similar instruments and accustom yourself to using them.

RECEIVING PERMITTED

Amateur Wireless is to be resumed on the pre-war basis. There is no longer any doubt of it. Many of us have been skeptical for some months, but now all skepticism is swept into the discard, and we know we are soon to have our full old time Liberty.

The glad news that the restrictions on receiving were to be lifted by the Navy Department got on the telegraph wires on Saturday, April 12th. Immediately thereafter, telegrams began pouring into headquarters at Hartford, from all parts of the country. We received our own official notification on Sunday, the 13th, that on and after April 15th, 1919 the restrictions on amateur receiving were off, but that transmitting was still under the ban. The news caused an electrical impulse to instantly pervade the entire country. It was like the news of the Armistice. It seemed to fill the breasts of thousands of us with a wireless enthusiasm that had not been experienced for many a long day. Probably the definite official statement by the Navy Department that the restrictions on amateur transmitting would also be lifted as soon as the President of the United States announced that a state of peace exists, had a very material effect in encouraging this enthusiasm, because it was taken as conclusive evidence that the Navy Department was going to play fair with us amateurs after all and give us our liberty just as soon as the conditions warranted such action.

A meeting of our Board of Direction was called immediately and a large number of members met with the Board in New York on April 16th. It was some jollification meeting. The questions of the immediate organization of our membership, and the immediate resumption of QST, and immediate finance were argued and decided. A tremendous amount of work was laid out and delegated, not the least of which was the revising of the Constitution in order to meet the new conditions. Space does not permit the telling of the whole exciting story here, but it will be unfolded in due time, and all hands will be proud of the pep that was put into this job, because as a matter of fact, we were all caught napping. We can safely say that amateur wireless in the good old USA, is to return in its full glory, and that not only the old crowd, but a lot of new ones from the Army and Navy will soon be getting together in the air, as in those glorious old days before the war. QST will be issued regularly from now on.

NEW DEVELOPMENTS

It certainly seems like old times for the Editor to be seated before the old typewriter with his legs twined around the chair in the same old twist, and pounding out editorial comments upon an article by such an old timer as Dr. Radio. The old crowd will all remember him and his simple and sane way of presenting the vital points of a technical question. This time he writes in his usual fashion on some of the NEW DEVELOPMENTS in radio apparatus which were brought out as a result of the war time requirements, and which may be made use of by the amateur. He bears particularly in mind that we are allowed to receive only, thus far. It is clear however, that a great deal of the apparatus used in receiving bears a very close relationship to a lot of transmitting apparatus. For example, bulbs are used for both receiving and transmitting. We have always felt that this mysterious little piece of glass possessed latent possibilities, when we first were induced to use it in place of a crystal detector. The DeForest Company was our sole source of supply in these first early days, and everybody must remember the little globe shaped audions. Little did most of us realize that those little audion bulbs that we used to fight over were the forerunners of the wonderful vacuum tubes that Dr. Radio tells about in his interesting manner. Read it, and then take a full man's size think, after which, read it again.

And remember that with loop anteannas, no larger than six feet square, and located in attics, a lot of us are hearing Lyons, France, Nauen, Germany, Mexico City, San Francisco and Honolulu, with regenerative hook-ups and bulb amplification. It seems safe to say that during the war improvements in receiving apparatus have been made by which the ordinary amateur may expect to be able to read signals one twenty-fifth of the strength that was barely audible when we stopped in 1917.

RESUMING QST

Just three years and five months ago, we got out the original and first QST. Little then did we dream of regenerative receivers, loop antennae, the Old Man's Wouff Hong, or a period of twenty long radioless months with no QST. Now we're back again. We're leaning over the same old editorial desk, and we feel quite sentimental as we reflect upon the situation and realize that our old friends are again with us, and that our amateur radio family is again seated around the ethereal table.

While the other radio developments are taking place, we have not been idle. We've installed, not a new amplifier, but a better system of keeping track of QST subscribers, and by golly, we expect every old reader and all the new ones to co-operate by doing their share. Here's how you can do it:-

1. Notify us of any change in your address. Give your old address and your new one, and we'll do our prettiest to see that your QST comes without a QTA.
2. If you have any complaint, don't spare us. Tell us the trouble and we'll correct our records and straighten out the difficulty, or dislocate something trying.
3. Perhaps some of your friends have not received their copy or do not know that QST has been resumed. For Heaven's Sake give them a CQ.
4. Don't get excited because QST isn't on the news-stands this month. That's because our Editorial and Distributing Departments have been suffering from the worst kind of heavy traffic. The msgs. are coming faster than our recorder will act. Next month you'll see QST in the old place. Tell the fellows it can be bought at the same old stand. If it can't be, help correct the situation by giving your news dealer's name and address. We will fix him.
5. Help the advertisers as you did in the past. Write to them and ALWAYS MENTION QST.
6. Get some of the new fellows to subscribe.
7. Read the above over again—and get a move on.

OUR ADVERTISERS

If any amateur is in need of a bracing tonic, let him take a full breath, and then turn to the advertising pages of this first issue of QST since the war. Let him stop and think that every single one of these manufacturers was caught napping just exactly as completely as we amateurs were, when the Navy Department suddenly removed the lid. The Department's intentions were so perfectly guarded that no one had a ghost of a suspicion that any thing was doing. Just the same, these manufacturers of amateur radio apparatus jumped into the emergency with just as much vigor as we amateurs did and left no stone unturned to play the game with us. When we approached them for their advertising, almost all came forward like true brothers and agreed to take space in QST. Some of them even said they would take space and advertise before they were actually justified in doing so. This is the kind of co-operation that brings results. Every amateur who reads these lines, wants to feel that his duty toward himself and amateurs in general, is not done until he makes a careful study of the apparatus that is advertised in this issue of QST, and writes to every manufacturer who offers anything that he thinks he might want. This helps the manufacturer, it helps the

amateur by getting all the results of the experimental work the manufacturer has done in perfecting his apparatus, and if QST is mentioned in the letters it helps QST. Therefore, fellows, whether you were one of the old gang, or one of the new comers, get into the game, study the advertisements, and write for all the information you need, and MENTION QST WHEN YOU DO IT.

THE WOUFF HONG

Honest fellows, we thought we had shell shock when we opened a package recently received from "The Old Man". Both a letter and package came in the same mail, and never having been honored before with a package from him, and hoping it might contain something new in the way of a receiving amplifier, we opened it first. Then followed the shell shock symptoms, and we leave it to the fraternity at large to say whether the Editor was not justified. On another page, we show an illustration of what the package contained. It was a WELL PRESERVED AND AN ABSOLUTELY AUTHORITATIVE SPECIMEN OF A WOUFF HONG. Attached was a card bearing the inscription, "To Editor C. D. Tuska, from The Old Man". We confess a distinct and uncanny chill in our midst when we regarded the thing. In fact, we have not yet entirely recovered our customary poise and self-confidence. It was shown to the Board of Direction at their meeting on May 3, in New York City, and each face noticeably blanched when the awful Wouff Hong was pulled forth and laid upon the table.

From several of the old man's stories, we judge that this instrument is used in some of the Middle Western States upon users of spark coils, and creators of unnecessary QRM. If this is the case, we shall make it our business to continue to reside in the East. We do not know which end of the Wouff Hong one lays hold of in order to operate it properly, but we suspect it is the smoother end, which has evidently been fashioned from an old hammer or hatchet handle. If this is the end grasped, we leave it to the imagination what is done with the other two savage looking terminals. The Editor invites comment as to the use of this weapon, especially from any one in the Middle Western States who may have been operated upon by it. For the present, it is framed and hangs in the Headquarters Office of the American Radio Relay League at Hartford, Connecticut, as a horrible example of what awaits amateurs who persist in causing unnecessary QRM.

AN ERROR.

In our article on A. R. R. L. bonds in the Midget issue of QST sent out a month ago, it was stated by Mr Maxim that the Institute of Radio Engineers raised funds by loans from the membership. Mr. Alfred N. Goldsmith, Secretary of the Institute of Radio Engineers, writes us and points out that this is not a true statement, and that we probably will want to correct it. We certainly do, and we hereby, at Mr. Maxim's earnest request, recall what was said. Instead it should have been said that the Institute of Radio Engineers at one time raised funds by loans from members of its Board of Direction and their friends. Some of us might not think this is a great difference, but as it evidently was of enough difference to disturb Mr. Goldsmith, we hasten to make the correction.

AN INVITATION.

QST is going to depend on you fellows, the same as in the old days, to write in whenever you have any good radio news on original apparatus, new hookups, new stations, or interesting observations on anything, which you can contribute to the good of the cause. This spirit of helping each other out thru the columns of QST has saved a ham's reputation more than once in the past, and we certainly need to hang together in these days of Rotten Starting when we don't remember L from C. Shoot in your dope!

The Operating Department

J. O. Smith, Traffic Manager
Rockville Centre, L. I.

After two years and one week of idleness, during which time all amateur radio work, both transmitting and receiving, had been absolutely under the ban, the amateur radio world, and all its connections and ramifications was thrilled by the formal notice of Acting Secretary of the Navy Roosevelt that the restrictions on amateur receiving were to be removed on April 15. The notice further stated that the ban on transmitting by amateur stations would be lifted when the peace treaty had been signed, and it is the understanding that the amateurs will not be required to wait until the peace treaty is formally ratified by the United States Senate and peace formally declared by the President.

The writer has been a member of the Board of Direction of the League since it was formed, about two and a half years ago. As the events of the "closed" season are looked back upon, it is a source of much gratification that those many nights spent at Board meetings, when there seemed nothing whatever to look forward to, have at last materialized in the partial reopening of our stations, and have also resulted in the formation of a strong traffic organization that includes most of the best-known amateur radio men in the country.

The loyalty and interest of these men has resulted in the perfection of a traffic organization that is practically as perfect as those of the national wire companies; that is, nation-wide in scope; and that is ready to lay out and maintain our traffic lines and take care of the relay traffic of the League as soon as the reopening of the amateur transmitting stations is accomplished.

The Operating Department of the League consists of a Traffic Manager, six Division Managers, and District Superintendents. The country is divided into six divisions, as shown by the map accompanying this article, and these divisions are in charge of the following division managers:

Atlantic—Charles A. Service, Jr.,Bala, Pa.

East Gulf—J. C. Cooper, Atlantic Nat'l Bank Bld'g, Jacksonville, Fla.

West Gulf—F. M. Corlett, 1101 East 8th St., Dallas Texas.

Central—R. H. G. Mathews, 1316 Carmen Ave., Chicago Ill.

Rocky Mountain—C. E. Hart, 306 N. 2nd W., Salt Lake City, Utah.

Pacific—L. L. Hoyt, Hotel Cherry, Seattle, Wash.

The assistant division managers and the district superintendents are appointed by the division managers. Applications for appointment to the trunk lines of the League should be made to the district superintendents, who have charge of all traffic arrangements. The superintendents report to the assistant division managers, the latter report to the division managers, and they, in turn, report to the traffic manager, who is responsible to and reports to the Board of Direction.

All members of the League who are desirous of taking an active part in its traffic affairs should take up the matter with the division manager who has charge of the territory in which they are located. There will be at least two district superintendents in each State, and more where conditions require it, and the services of all good League workers who want to take an active part in the traffic affairs can undoubtedly be utilized to good advantage.

The superintendents will be the contact points of the Operating Department with the general membership of the League, and in addition it will be their duty to see that in each town of any size in their district, local clubs are formed and affiliated with the League. It should be the purpose of these local clubs to handle local traffic and

to educate the radio beginner of the locality to be of greater value to himself than he has been heretofore, and also help him to a lawful operation of his station. The affiliation of these numberless radio clubs throughout the country with the League will build up an organization that will be big and powerful enough to make determined and effective resistance to any future measures to interfere unduly with amateur radio work.

In the days before April 6, 1917, the traffic of the League had reached such proportions that it called for constant effort to keep it moving, as practically all relay stations were loaded up, "going and coming". All who were familiar with the quality of this traffic agree that in a lot of cases there wasn't any quality to it, or, in fact any reason for its existance. When the relay work is resumed, it is to be hoped that all officers and members of the traffic department will have the courage to refuse the "Greetings-by-wireless" type of message. There will be enough of the "Will arrive- tomorrow" kind to keep us all busy, if we will only keep the way clear, so that prompt handling and delivery can be depended upon.

The Operating Department of the League will have a section of QST each month, in which will be recorded all the activities and developments of the department. A log should be kept by every station and a report made monthly to the superintendent of the district.. The superintendents should work these reports into a whole, covering their district, write a summary, and forward to the division manager. These reports should be headed, "District of Western Kansas, John Jones, Supt." Etc.

The division managers will work these reports into a general report of their division, write a general summary on affairs in the division in general, and send them to the Traffic manager, for his information and for use in QST. These reports must positively reach the Traffic Manager on or before the first of each month, or publication in the following month's QST cannot be guaranteed.

Membership blanks can be obtained by any member of the League desiring them by addressing the Secretary of the League, at Hartford. It would be a fine thing for the League if every member of it would make it his personal business to bring in at least one new member.

When the relay traffic of the League is resumed, this traffic will be handled in short relays, that will practically insure the ability of the League to keep traffic going under any conditions. If the relay stations are close enough together to insure reliable communication during daylight, it will meet the provision in the new constitution of the League which says that all relay work will be handled in such a way as will give everyone interested a chance to get into the game and also provide dependable communication under practically all conditions.

In connection with the reopening of transmitting stations, it might be well to bring to the attention of all interested the fact that all previous licenses, both operating and station, have expired, and that new licenses, for both purposes, must be secured from the Radio Inspector, of the Department of Commerce, according to the district in which the operator and station are located.

The attention of all amateur station owners who desire to transmit is also called to the provisions of Sec. 1, of the "Act to Regulate Radio Communication," approved Aug. 13, 1912, as follows: "That a person * * * * shall not use or operate any apparatus for radio communication * * * the effect of which extends beyond the jurisdiction of the State or Teritory in which the same are made, or where interference would be caused thereby with the receipt of messages or signals from beyond the jurisdiction of the State or Territory * * * Any person * * * that shall use or operate any apparatus for radio communication in violation of this section * * * shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding five hundred dollars, and the apparatus or device so unlawfully used and operated may be adjudged forfeited to the United States.

In short, this means that a transmitting station cannot be operated without a license if the signals from it can be heard in another State or Territory, or if the signals interfere with the receipt of signals

by a neighboring station from outside of the State or Territory where located.

Transmitting station owners should also remember that the legal wave length for general amateur stations is 200 meters, and that the stations should be so tuned and adjusted as to conform to the decrement provision of the law, which is that it must not exceed two-tenths. Station owners should familiarize themselves with the necessary information to enable them to keep within the law as to wave length and decrement, as both these provisions of the radio law are to be rigidly enforced in the future by the Radio Inspectors.

The reopening of the transmitting stations will be the occasion for great advances in amateur radio work, in that many stations are now installing, or are preparing to install, undamped transmitters. These can be used for the transmission of undamped signals, modulated tones which can be received on crystal detectors, or for radio telephony. These transmitters will be of the tube type, as it is hoped and expected that the tube situation will be straightened out sufficiently soon to provide an adequate supply of receiving and transmitting tubes. With this type of transmitter the old questions of decrement and interference are practically solved, as it is true, in a general way, that in the case of a tube transmitter with a decrement, "there ain't no sech animal." The result is that a number of such transmitters can work in close proximity, without interference, an ideal condition when the usual heavy traffic of the League is considered. In addition, the same antenna current of undamped signals as compared to those of a damped, spark station, will be two or three times as effective at a distance as the spark signals, because of their persistance at the receiver.

At this writing, reports from all the Division Managers show that the interest is as great or greater in amateur radio than was true when the stations were closed, over two years ago. Many of the "boys" are still in service, but, to a man they say they will be ready and anxious to get their stations going again, as soon as Uncle Sam gets through with them. Everything looks fine for amateur radio at present, and every single man, woman or child interested should help to put it on a foundation so solid, and keep the art so clean, that no fault can be found with it in the days to come.

The work of organizing the Atlantic Division has proceeded to a point where two Assistant Division Managers and a number of District Superintendents have been apointed. Many of the former relay station operators are still away in the service of the Army and Navy, but enough of them both at home and in service have been heard from to insure resumption of former traffic arrangements as soon as the ban on transmitting is lifted.

The following appointments have been made:

Assistant Division Manager (for New England) Mr. Guy R. Entwistle, 137 Sutherland Road, Brookline Mass.

Assistant Division Manager (for Conn. N. Y. and N. J.) Mr. M. A. Mc Intire, 1127 Avenue G. Brooklyn, N. Y.

District Superintendent for lower Mass. Mr. H. C. Bowen, 168 Belmont Ave., Fall River, Mass.

District Superintendent for western Connecticut, Mr. H. E. Nicholls 513 Pequonnock St., Bridgeport Conn.

District Superintendent for eastern New York (excepting New York City, Long Island and Staten Island) Mr. C. R. Runyon, 544 No B'way, Yonkers, N. Y.

District Superintendent for Western New York, Mr. W. T. Fraser, 48 Glenwood Ave., Buffalo, N. Y.

District Superintendent for eastern Long Island, Mr. H. L. Stanley, Babylon N. Y.

District Superintendent for northern New Jersey, Mr. Lester Spangenberg, Clifton, N. J.

District Superintendent for New York City and Bronx, Mr. John Di Blasi, 153 East 86th St., New York City. (East Side Y. M. C. A.).

District Superintendent for eastern Pennsylvania, Mr. Chas. H. Stewart, St. Davids, Pa.

All station owners in the Atlantic Division who are interested and desirous of taking an active part in the traffic work of the League are requested to communicate with the nearest district superintendent.

Where no district superintendent has been appointed, correspondence should be addressed to the Division Manager or Assistant Division Managers.

ATLANTIC DIVISION (NEW ENGLAND SECTION.)

Mr Guy R. Entwistle, Assistant Division Manager, 137 Sutherland Road, Brookline, Mass.

When the ban was put on amateur radio, two years ago, it put an end to the encouraging development of relay work throughout New England. At that time we had in operation an outlet for New England traffic, with Boston as the nucleus, and passing through Burlington, Marlboro, Worcester, Springfield, Hartford, and Bridgeport, to Long Island, and thence to New York, and the South and West.

Steps had been taken to expand this line to the northern New England States of New Hampshire and Maine. We were fortunate in obtaining the co-operation of the special station 1ZH, owned and operated by Mr. Wilbur Hardy, who was in regular communication with the University of Maine. There is every reason to expect that similar arrangements can be made as soon as the transmitting stations are allowed to resume operation.

Mr. H. C. Bowen, of Fall River, has been appointed District Superintendent of lower Massachussetts, with the object of establishing a southerly shunt line for traffic.

It is to be hoped that all amateurs of this section will realize the advantages of organizing their efforts and fall in with the A. R. R. L. and reap the benefits of a united effort to firmly establish the amateur in the radio profession. I should like to hear from amateurs in the New England district who are able and willing to take an active part in the traffic organization of the League.

EAST GULF DIVISION.

Mr. J. C. Cooper, Jr., Manager,
Jacksonville Fla.

To Radio Amateurs in Arkansas, Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee:

Since my return from the service, I have agreed to act once more as Division Manager for the American Radio Relay League in the Eastern Gulf Division, which includes the above mentioned States.

I want to appoint several district superintendents in each of these States to take immediate charge of making traffic arrangements for amateur radio relay work when transmitting stations are once more authorized. I am anxious to hear from each radio amateur in any of the above States who has been previously interested in radio relay work and who intends to take it up again Even if you are still in the service when you see this, write to me and tell me what your plans are.

The number of stations in the Eastern Gulf Division was always small and each amateur who has a good station, or has in mind the building of a good station, can help out. I am especially anxious to hear from the old-timers who would be willing to serve as district superintendents if appointed.

Address me at 804 Atlantic National Bank Building, Jacksonville. Florida.

J. C. Cooper, Jr.

CENTRAL DIVISION.

R. H. G. Mathews, Manager,
Chicago, Ill.

During the period of inaction due to the closing of the amateur stations during the war, the Division Manager and his assistants have devoted considerable thought to a new plan of organization for the relay work of the Central Division.

By this plan, at least two District Superintendents will be appointed for each state. It will be necessary for appointees to the positions of District Superintendents to have good long-distance stations, and to possess the faculty of forming and holding together an organization. It will be the duty of these men to form intra-state routes which will connect their own stations with as many towns in their districts as is possible.

Further, it is the intention of the Division Manager to intrude upon a new field, with several objects in view. The principal difficulty experienced in former efforts at long distance communication was introduced by the interference of smaller stations. This interference, it is believed,

may be very considerably reduced, if not entirely eliminated, by the proper education of the operators of these interfering stations . It has been the writer's experience that by first convincing the more or less radio-untrained operator that proper tuning of his transmitter is desirable, both from his standpoint and from that of the rest of the stations in his vicinity, and after convincing him of the value and the necessity of tuning and general compliance with the law, it will be usually found that he is willing and anxious to be taught how to accomplish this. It will therefore be the duty of each Dist. Supt to see that in each town of any size in his district, local clubs are formed, **affiliated with the A. R. R. L.'s National organization,** with the local A. R. R. L. official relay operator at the head of, or at least prominent in his local association. It will be the purpose of these local clubs to so accomplish the education and training of the radio beginner that his station will be of greater value to himself and to the relay game, and that he also will not be the unconscious violator of the law that he has been heretofore. For wilful violations, of course, there are due penalties prescribed by law, and it is believed that enforcement will be carried on more strictly than before the war.

The objects of our association have always been, first, the carrying on of speedy and consistent relay work, and second, the development of the interest of as great a number of radio men as possible. In the past, the latter has been more or less neglected, because of the very limited nature of the old Trunk Line system. By the new plan, it is hoped that good results may be secured along both lines.

The following appointments have been made:

Assistants to the Division Manager—L. E. Dutton, Chicago, Ill. and P. B. Parks, River Forest, Ill.

Traffic Assistant to the Division Manager. R. J. Iverson, Maywood, Ill.

District of Southern Indiana, Superintendent,—F. F. Hamilton, Indianapolis, Indiana.

District of Northern Wisconsin, Superintendent,— H. I. Crawford, Wausau, Wis.

District of Southern Wisconsin, Superintendent, H. J. Burhop, Sheboygan, Wis.

Assistant District Superintendent,—C. F. Bates, Milwaukee, Wisconsin.

Assistant District Superintendent—M. C. Lapp, Plymouth, Wisconsin.

District of Eastern Ohio, Superintendent —A. J. Ball, Hubbard, Ohio.

District of Kentucky, Superintendent— H. A. Loveless, Somerset, Kentucky.

District of Kansas, Superintendent—R. K. Trump, Topeka, Kansas. Assistant Superintendent—W. A. Beasley, Topeka, Kansas.

District of Northern Minnesota, Superintendent— Werner A. Birch, Chisholm, Minnesota.

Others will be appointed for the rest of the division as the proper appointees become evident, and also, the territory assigned as above may be subdivided, if deemed advisable. It should be kept in mind that appointments will be made solely on merit, taking into consideration not only the quality of the appointee's station, but also personality and character.

Applications for appointment as official relay station, must be made through the Superintendents of the applicant's district, or, in case that no District Superintendent has as yet been appointed, may be made direct to the Division Manager.

In accordance with instructions, reports have been made by the various District Superintendents of the activity within their districts and all these reports show a gratifying interest in the work of the A. R. R. L. and it is believed that, if the above described plan can be put into operation, a tremendous increase in the value of the A. R. R. L. to its members will result, as well as increased efficiency in relay traffic handling.

The organization of local branches in many cities throughout the Division has already begun and accordingly it is urgently requested that the Secretaries of already existing local clubs communicate with the proper District Superintendents or with the Division Manager at Chicago, with a view toward affiliating their clubs with our National organization, thus helping and benefitting both themselves and the League.

ROCKY MOUNTAIN DISTRICT.

Mr. Cedric E. Hart, Manager,
Salt Lake City, Utah.

All amateurs in the Rocky Mountain District, who are interested in the A. R. R. L. an organization of amateurs, by amateurs and for amateurs, and who want to take an active part in the traffic work of the League, are requested to communicate with me at once.

PACIFIC DIVISION.

Mr. L. L. Hoyt, Manager, Hotel Cherry,
Seattle, Washington.

Having located in this section since the war, I do not know as yet just what the conditions are, although I understand that a prevalence of bad atmospheric conditions exists during a considerable part of the year. However, I believe that a lot of this trouble can be obviated by the use of scientifically designed apparatus. I expect to be permanently located on the Alki side of Puget Sound, and hope to be able to get traffic through to San Francisco over Trunk "F". A lot will be heard from the amateurs of the Northwest in the future.

All amateurs who are desirous of taking an active part in the relay work of the League in the Pacific States are requested to communicate with me at once.

WEST GULF DIVISION.

Mr. F. M. Corlett, Manager,
111 East 8th St., Dallas, Texas.

Many of the former relay station owners of this division are still in the service, but enough of them have been heard from to indicate a spirit of enthusiasm for the relay work of the League, and our organization work is going right ahead.

All amateurs interested are requested to write at once.

Personal Notes

(In these days of reconstruction or, more accurately, relocation, some of us are having a hard time finding where some of our old friends are, and what they've been doing since last we heard their spark. Lack of room has limited the items in this issue —Ed.)

R. H. G. Mathews, 9ZN, Chicago, Radio Gunner, U.S.N.R.F., served the duration of the war in the office of the District Communication Supt. at NAJ. For the past several months he has been in charge of the Naval Radio Intelligence Office in that district. Mr. Mathews was recently elected Vice President of the A.R.R.L., and is Manager of the Central Div.. of the Operating Dept. 9ZN promises to bloom forth in great style when the lid is lifted.

Jas. L. Autry, Jr., 5ED, Houston Texas, was a student in the S.A.T.C. at Rice Institute, Houston, during the war, and can be counted on to be on the job in Houston.

Our friend Harmon B. Deal, of 9NN, Cape Girardeau Mo., was Elec. 1st Class, U.S.N.R.F., and an operator at WCX for many months. More recently he was released to return to his studies and is now a Junior at M.I.T. We shall miss 9NN.

"Pink" (L. A.) Kern, of 9GY, writes us from Ann Arbor that 9GY will not be among those present but that he hopes to be on the brass at 8XA when reopening comes.

S. Kruse, of Lawrence Kansas fame, after a year in NewYork City with Western-Electric, is now engaged in radio work at the Bureau of Standards, Washington.

Old 9EP, Guy Wilson, late of Kansas City, is located in New York City in engineering work for Ogden-Armour & Co.

1st Lt. C. D. Tuska, of this office, put in a pretty full time of it. He was O.I.C., Air Service School for Enlisted Radio Operators, Ellington Field, Houston, and later Post Radio Officer at Love Field, Dallas, and Camp McClellan, Anniston, Ala. He has received his discharge and is now designing engineer for A. C. Gilbert Co., New Haven, beside exercising a fatherly supervision over QST and the activities of the League.

Lt. K. B. Warner, Air Service, formerly 9JT and 9FW, Cairo, Ill., also served in Texas as radio instructor at the school at Ellington Field, Houston, and later in the same capacity at the Radio Officer's School, Columbia University, New York; still later,

as Asst. Technical Officer, Radio Branch, Training Section, Washington and Bolling Field. He has now been released from service and was recently elected a member of the Board of Direction and Secretary of the A.R.R.L. with offices in Hartford.

We recently received a very interesting letter from Sgt. F. K. Ostrander, Jr., formerly 1MO at Springfield Mass., and at La Courtine, France, with the A.E.F., describing his army telephone and radio work, and expecting to be back in amateur work in the States soon.

Readio, of 1ZS, also a Springfield man, instructed draft men in radio thru the entire war. Another Massachussetts chap who was sidetracked onto instruction work was St. James, 1IZ of Great Barington, who was a C.P.O. at the Naval Radio Sshool at Harvard.

Mr. J. O. Smith, our Traffic Manager, formerly 2ZO of Valley Stream, L. I., did civilian service in the O.D.M.A., Radio Training, Washington, having charge of the purchase, storage and movement of radio material for that branch. Mr. Smith is now located at Rockville Centre, L. I., and is doing commendable work in the organization of the A.R.R.L. Operating Dept.

Lt. Comdr. H. C. Gawler, U.S.N., former Radio Inspector of the 1st District, has been doing extensive radio work in the Azores and elsewhere, and is expected home soon on his old job.

Lt. J. C. Cooper, Jr., U.S.N., one of our Directors, has just been discharged from service in the office of the Naval Communication Dept., Washington, and is back on his old A.R.R.L. job at Jacksonville, Fla.

(Concluded on page 25)

OUR FINANCES

The Loan and Membership Dues

The "Midget Issue" of QST which was sent out a month ago probably did not reach the eye of all of us, so it seems desirable to tell again about the plans of the Board of Direction for raising the money to resume the publication of QST, and to do the reorganizing work that is necessary after two years of enforced idleness.

The Board of Direction, which is the working committee which runs the American Radio Relay League, met immediately after the removal of the restrictions on receiving and after several long sessions, evolved the plan for raising the money that was needed to start things going. The plan consisted of making a loan from the membership and to urge everybody to pay his dues right away. These two sources of income, it was estimated, would be enough to carry us over the time between starting and when we would become self-supporting. The latter condition would seem to be brought about just as soon as the manufacturers were prepared to supply us with apparatus and advertise this apparatus in QST. Once that QST was in a position to support itself, and our small running expenses, we would have our membership dues to pay back our loan with its interest.

This, in brief is the plan. It will work, without doubt, unless another war comes along, or something else happens which would cause the Government authorities to again close down on amateur wireless and stop the sale of apparatus. This is not likely to happen. Therefore, we expect to be able to have the money to resume the publication of QST and to revive our organization and also to pay back this money within two years' time at the longest, and if the fellows help us and co-operate, in less time.

But, the whole structure hinges upon the one requirement that the fellows COME ACROSS. We want to see them do it because we know the crowd generally throughout the country wants QST and wants an A. R. R. L. It is only a question of jogging the memory of everybody. So we are writing this little jog. The loan takes the form of Certificates of Indebtedness. The Certificates are of all denominations starting at $1.00, and going up to $200.00. They bear interest at 5% per annum, just like any other loan, and they will be paid back in two years any way, and probably less time. Every amateur

ought to feel that it is absolutely his duty to take some of the Certificates of Indebtedness as often as he is financially able. It is not money spent, but money saved. A dollar is just as welcome as $200.00, because it indicates the spirit of our fellowship. In addition to this, every amateur ought not to feel satisfied until he has joined us other amateurs and paid his yearly dues. These amount to $2.00 and include a subscription to QST for one year.

There is the story. Come on in with the rest of us. The water is fine.

THE AMERICAN RADIO RELAY LEAGUE.

APPLICATION BLANK

THE AMERICAN RADIO RELAY LEAGUE, Inc.
Hartford, Conn.

I desire to become a member of / renew my membership in The American Radio Relay League and I am remitting herewith my yearly dues of $2.00.

Name.....

Address.....
Street, Town, State

Age..... Did you have an Operators License?.....

If so what grade?.....

Did you have a Radio Station?.....

Give short description.....

.....

.....

.....

Date..... Signed.....

CUT OFF HERE

The Treasurer
American Radio Relay League
Hartford, Conn. :

Date.....

I am enclosing $....., which is a loan for two years at 5% interest to the American Radio Relay League, Inc. Please remit my A.R.R.L. Bond to the following address:

Name.....

Address.....
Street

.....
Town State

PERSONAL NOTES.

(Concluded from page 23)

V. F. Camp, Brightwaters, L. I., served as 1st. Lt., Air Service, and is also now out and at his old address.

Howard Stanley, Babylon, L. I. , who is connected with the Western-Electric Co., served during the war in the Bureau of Aircraft Production, Washington, dealing with V. T. production problems.

Ensign Chas. A. Service, Jr., U.S.N.., is still in the service at the office of the Director of Naval Communication Service, Washington, but expects to soon be back on his A R.R L. duties at Bala, Pa.

Sgt. Louis G. Frank, U.S.S.C., formerly of Brookline, Mass., is still in the border radio service with R.T.U. 39, now at Sutherland Springs Tex.

Our Treasurer, C. R. Runyon, Jr., was a C.P.O. in Navy radio, but has been discharged and is now again at Yonkers and at his A.R.R.L. duties.

A recent letter from C. W. Patch, Manager of the Dubuque (Iowa) Wireless Association, announces very interesting and commendable reorganization activities in that body. Dubuque has had a radio club for a good many years, and we expect big things of the D.W.A. under Mr. Patch's able management.

Indianapolis just now is the scene of much amateur activity. There are four radio clubs there, three being High School organizations, and the other the main organization of the city—the Hoosier-Scout Radio Club. The activity in Indianapolis is very closely allied with the work of the Boy Scouts of America. Mr. Francis F. Hamilton, an A.R.R.L. District Superintendent and a progressive enthusiast is the leading light in Indianapolis affairs and did commendable work at Washington recently when amateur radio was on trial for its life.

In Memory of William D. Woodcock, Ex-8SK

Buffalo, N. Y., May 3, 1919.

The Treasurer,
American Radio Relay League:

The special bulletin of the A. R. R. L. sent to my son, W. D. Woodcock was received.

I am sorry to tell you that he will never join his old friends in the air again.

He died on Sept. 29 of pneumonia following influenza, at the Great Lakes Training Station.

William enlisted in the U. S. N. R. F. (radio) in April, 1917. In September he was released from active duty to continue his college work and returned to Great Lakes July 6, 1918. From that time until his death he was at the Radio Laboratory, Great Lakes.

He was an enthusiastic Wireless Amateur and always enjoyed Q S T and I know he would have wanted it to start again.

Will you kindly accept the enclosed check from Mr. Woodcock and myself in memory of our son and the benefits and pleasure he received from Q S T.

Very truly yours,

Emma J. Woodcock (Mrs. Geo. M.)

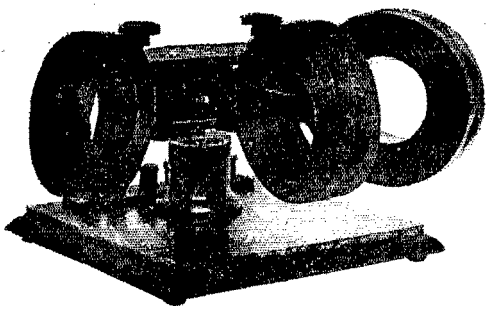
FOR SALE & EXCHANGE

ANNOUNCEMENT—Formerly in these columns QST provided a free service for its readers, but we found advantage taken of our offer by parties who were merely beating the advertising game, and it is not always possible to draw the line of demarkation between a genuine amateur situation which we could assist by free publication, and the commercial proposition. We have therefore decided to open the customary classified columns, and will receive advertisements for this section at five cents per word, payable in advance. Copy must be in our hands by the 10th of the month for the succeeding month's issue.

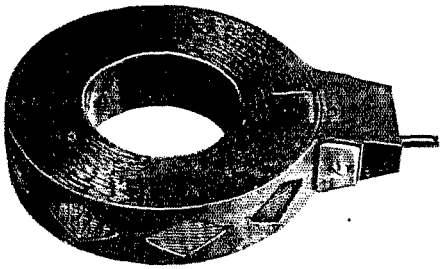
OMISSION

Unfortunately it was impossible to obtain cut of the map mentioned by Mr. Smith on page 17, in time to print in this issue. The map appears in the May, 1917, issue of QST, copy of which will be furnished at the special rate of 10c. as long as the supply lasts.

Editor.



TYPE L101. COIL MOUNTING.
Also Made in Other Styles



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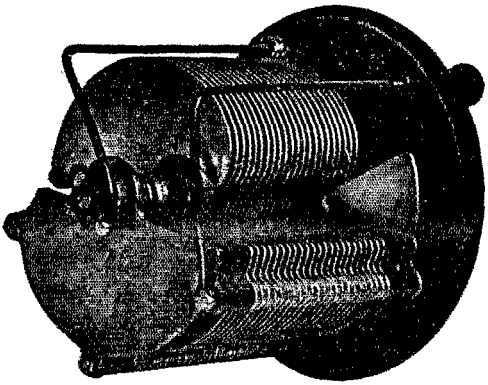
For Wave Lengths 150-25000 Meters



VERNIER CONDENSER
Made in Various Sizes. From $15 to $18

Experimenters!

Are You Listening to Rome, Lyons, Eiffel Tower, Darien and Nauen Discussing Matters of World Interest?

YOUR OWN AIR CONDENSER WITH 3 OF OUR NEW "HONEYCOMB" WOUND INDUCTANCES MAKES THIS EASILY POSSIBLE AT A COST SO LOW IT WILL SURPRISE YOU.

Our new VERNIER CONDENSER when used in connection with the devices illustrated above complete a long wave receiving set which cannot be surpassed for double the money.

Particulars and prices on application

De Forest Radio Tel. & Tel. Co.

1415 Sedgwick Avenue **New York City**

Wireless Receiving Ban Raised

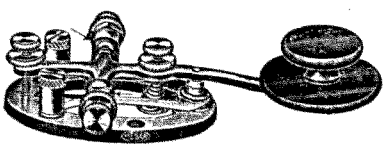
On April 15, 1919, the restriction on Wireless Receiving was formally raised by the U. S. Navy Department and very likely will in the not distant future be removed on transmitting.

Our knowledge and experience in the construction of wireless material place us in a particularly strong position for manufacturing effective, up-to-date apparatus; two of our most recent we show below.

We carry in stock a large complete line of recognized experimental wireless material of all manufactures, and can solicit your orders when in need of this or any other standard electrical devices.

MESCO HAND RADIO KEY

For ¼ and ½ K. W.



List No. 80. Type CAM 833.

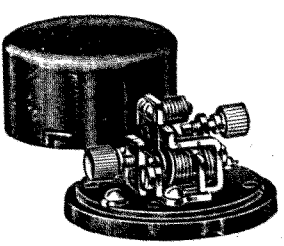
The lever is of phosphor bronze accurately balanced. Bronze will not corrode or deteriorate with age.

The base is the Western Union type and is made of heavy cast brass, well lacquered.

The binding posts have a combination top screw that can be tightened or loosened with the fingers as well as with a screwdriver. Used by Navy Department. The contacts are made of sterling silver ¼ inch in diameter. They are interchangeable and can be readily replaced. The lower contact can be removed without disturbing the insulation and fitting holding it so that it is not necessary to disconnect the key from its base mounting. This is the only key made with this essential feature. Disturbing the insulation which is the weakest point in a key is serious for many reasons. A special phosphor bronze current carrying spring is fastened on the base and lever so that the current is carried by this spring and not by the trunnion screws.

List No. 80, Mesco ½ K. W. Hand Radio Key, Price $3.60

MESCO RADIO BUZZER



This buzzer maintains a constant note and is recommended as an exciter for checking wavemeters where pure note and ample energy are required.

It consists of practically a closed circuit field of low reluctance, having a steel armature to which is riveted a strap supporting a movable contact. The armature tension is adjusted by means of a screw with a milled head large enough to be easily and permanently adjusted with the fingers. The stationary contact is adjusted by means of a similar screw. The magnet coils are connected in series with a total D. C. resistance of 3.9 ohms. Shunted across these coils is a resistance having a D. C. value of 3 ohms. This shunt eliminates all sparking such as occurs at the break on ordinary radio buzzers and the energy saved thereby is transferred into any oscillating circuit connected to it, the result being that this buzzer as constructed radiates five times more energy than any other existing type. All connecting wires liable to be broken are eliminated. Contacts are of genuine platinum, which is essential in order to maintain a constant note. The parts are mounted on a Condensate base to insure constancy in operation.

Diameter 2 in., height 1¼ in. The cap is attached to the base by a bayonet joint.

List No. 55, Mesco Radio Buzzer, Price $2.05

Send for the New Edition of Our Catalog H28

It is pocket size, contains 264 pages, with over 1,000 illustrations, and describes in plain, clear language all about Bells, Push Buttons, Batteries, Telephone and Wireless Telegraph Material, Electric Toys, Burglar and Fire Alarms Contrivances, Electric Call Bells, Electric Alarm Clocks, Medical Batteries, Motor Boat Horns, Electrically Heated Apparatus, Battery Connectors, Switches, Battery Gauges, Wireless Telegraph Instruments, Ignition Supplies, etc.

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