MORE ALUMNI NEWS
Carry Your Association Now in Operation

NATIONAL RADIO INSTITUTE ALUMNI ASSOCIATION
This is to certify that

Mr. 
IS A MEMBER IN GOOD STANDING FOR ONE YEAR FROM DATE (SUBJECT TO PROVISION OF BY-LAWS)

DATE

According to the wishes of President J. E. Smith of N. R. I., the Alumni Association has now in effect an efficient plan for offering membership to each N. R. I. student on the day he graduates.

That the new grade appreciated is quite apparent from the number of Alumni applications coming in from these men. Many students are studying hard to finish up and graduate so they can apply for membership in the Association. There's a great incentive to belong to the "First known Alumni Association of a Home Study School." Keep plugging, you students. We want to welcome you into our ranks soon.

At the request of the Alumni Association, Mr. F. L. Sprayberry, who wrote the fine articles on set analyzers in the May and June issues of National Radio News, will give some further uses for the text of the next issue. Among other things, he will cover the testing of pentode tubes.

We have also arranged to have published in the December News diagrams on some of the more recent Battery receiver developments for use in rural communities. Your Association is working tirelessly for you. Back your Association.

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The Naked Truth

STUDENTS of art will tell you that in order to properly draw the lines of a human being, in any clothing whatever, they must first have a thorough knowledge of the human figure in the nude. This is because all normal persons have fundamentally the same figures, regardless of how they appear in clothes of various patterns and designs.

It requires very little thought to realize that this holds equally true in Radio. Ever so often we see a man fall short on a job in Radio, because he is not thoroughly schooled in the fundamentals—Radio in the nude, so to speak.

That is why N. R. I. insists upon a thorough groundwork in the elementary side of Radio.

After all, when the fundamentals have been thoroughly mastered, it is only a case of knowing the various expansions and alterations—a case of applying advanced ideas to the principles.

Whether you are working on a three tube regenerative, heterodyne, or a four tube super-heterodyne; or a television receiver; or a television receiver, down in the heart of that set you are working with Radio in the nude, those principles you learned in the early lessons of your course. The Naked Truth of the whole matter is—if you care to look facts in the face—that you will make your Success, more by your knowledge of those nude elements—than by your knowledge of them when they are fully clothed in the many modern improvements.

Thanks to Contributors

SINCE the Alumni Association of the National Radio Institute took over National Radio News as its official organ, Alumni Members and Students have taken it upon themselves to assist the editing of the News by supplying copy for interesting articles. We, at the Institute, certainly appreciate this cooperative attitude.

I earnestly believe that one of the biggest factors in the success of N. R. I., its students, and graduates, is the cooperation between them.

Every bit of material which is sent in, marked for National Radio News, is carefully read by the Editor, personally. Of course, not all can be used—for one, because there is not enough space, and second, much of the copy being on similar subjects, would cause repetition if published.

But it’s a good practice for you fellows who like to write and who have a knack for journalism and it’s really worthwhile to try a dozen times, if you finally succeed in getting in the columns, isn’t it?

I’m sure every “News” reader appreciates the article by Graduate M. J. Reiff in the September issue as well as the one by K. W. Griffith in October. We hoped to have an article in this issue by Harry Barschdorf, Vice President of the Alumni Association, but he was called out of town unexpectedly. However, we’ll have his article in a forthcoming issue.

J. E. SMITH, President

THE MARINES WENT TO NICARAGUA...

and Student Adam G. Hillman went with them. He is attached to the Aircraft Squadrons, 2nd Brigade, Managua, Nicaragua. Below is an article written by Mr. Hillman for National Radio News.

This place, Managua, Nicaragua, may sound to you readers as if it is a “back in the woods” settlement. Well, believe me—you’re right. It lies high in the wooded hills, but if you are looking for excitement, well—come to Nicaragua. We have earthquakes here that will make your hair stand on end.

When the last earthquake occurred our Radio was inaudible. During the first three nights after the quake about four hundred messages were sent out. They went to amateur stations in the United States, by special operators, to receive messages at home before they even knew they had been through an earthquake. So the radio in the papers didn’t come through as a surprise and shock.

Before I started my course with the National Radio Institute I didn’t know anything about Radio except the Code. Now it is quite a different matter.

While I have completed only a few lessons, I have improved my knowledge about Radio enough that I have been able to install Radios (transmitter and receiver complete) in some of the houses I have had good success with the installations.

One of the most interesting phases of my work here was a trip by plane made to the United States last July.

We left here on July 8th in a Ford Tri-Motor Transport plane for Ascania, D. C., arriving there on July 12th, after making overnight stops at Telan, Honduras; Havana, Cuba; Miami, Florida; Charleston, S. C., and Quantico, Virginia. Our actual flying time was twenty-three hours and twenty-five minutes. An Aircraft installation of the Pan American type is installed in the airplane. The receiver employs a one-tuned circuit. It consists of a 224 input coupling tube, a 224 regenerative detector and two stages of resistance coupled audio amplification which consists of a 224 and 227 output tube.

The transmitter is of the master oscillator power amplifier type. It employs a Hartley circuit for the master oscillator and a neutralized power amplifier using a total of two U. X. 210 tubes. The plate voltage supply for the transmitter is obtained from the high voltage windings of a dynatron.

Primary side of the U. X. 210 tube is driven by a 12 volt direct current supply and has an output voltage of 450 on the high side. Excellent results are obtained from this installation, using a trailing antenna.

My return trip was made in a Marine Sikorski plane and the flying time was two hours and twenty-five minutes. The same type of Radio installation was used on the return trip.

I was able to keep in constant communication with the Pan American Radio Stations along the route, working on 52.7 meters. I also had good results in communicating with Pan American planes flying over the same route. All stations on the route congratulated me on my transmitter and stated that I was coming in plenty loud.

For the benefit of some of my fellow students who might be doing aircraft Radio work, if you ever install a transmitter in a plane, and it will not radiate, and by checking it over you find that the set is okay—check your ground connections on the plane. Sometimes the fault lies in the bonds of the planes and it will fail to serve as a ground. This fault especially occurs on float planes. I suggest, if this happens, take a roll of antenna wire and install a counterpoise in the tail section of the plane and make your ground connection to this. Your radiation ammeter should then show a reading.

If any of the readers of this article would like more complete data and diagrams of the equipment, I would be glad to give it to them if they will write to me.
There's a fellow, down and out, looking for an opportunity to make 50 cents changing a tire—yet by his own admission—living in a town where there isn't a competent Radio man—where people have to ship their Radio sets away to have them repaired.

Upon returning to my office I looked up the statistics on that particular town and found that it had a population of 1,100 people. Probably half of those people have Radios—and are prospects for service work. The rest are good prospects for new sets. It doesn't take much reasoning to figure out that young fellow, had he given his future a more thoughtful consideration, would have become a trained Radio man and built himself up a business much more profitable financially than plodding along dusty roads looking for an opportunity to change automobile tires in a broiling hot sun.

It seems that the closer opportunity gets to some folks, the harder it is for them to see it. They only see opportunity in terms of long distances. They must get away from their homes—go some place else in order to find opportunity.

Oil wells and diamond mines have been lost because their owners were looking for opportunity elsewhere. Be absolutely sure that you don't have a gold mine right at home before you start chasing opportunity half way round the world. E. R. HAAS, Vice President and Director.

THE WAY TO WIN
It takes a little courage,
And a little self-control;
And some strategic thinking;
If you want to reach the goal.
It takes a deal of skill,
And a bit of luck,
No matter what the battle,
If you want to win.
There's no easy path to glory,
There's no road to fame,
Life is harder than you think.
If you want to win.
If it's simple, you can win.
For you are the one to win.
For endurance and for grit;
For a rugged disposition;
And a "Don't know when to quit."
You must take a blow, or give one.
You must take what you can get.
And expect that in the struggle.
You will suffer from the attack.
You must weather the storm.
A fight you once sustained.
And walk in the valley.
That's the only way to win.

Condenser Alignment
A local and accurately calibrated signal generator as well as an output indicating meter is absolutely essential for correct alignment. This signal generator must provide a signal at the broadcast frequencies of from 550 to 1500 K.C. and in addition a signal of 262 K.C. for the intermediate frequency. The broadcast band signals of the signal generator must be accurately known as the fixed frequency output is calibrated in kilocycles and the alignment of the gang tuning condenser must be made at definite frequencies in order to have the receiver operate in the correct location for the scale of the various frequencies. The intermediate frequency signal of the signal generator must likewise be accurate in order to align to I.F. stages at 262 K.C.

Several companies manufacturing test equipment including Jewell Electrical Instrument Company, Weston Electrical Instrument Company and Supreme Instrument Company have complete R.F. and I.F. signal generators on the market which have incorporated with them copper oxide meters for reading the output. The output meter is connected across the voice coil of the speaker or across the primary of the output transformer.

Aligning Intermediate Condensers
A non-metallic screw driver is necessary for aligning the intermediate condensers. The alignment of the signal generator signal are from 255 to 254 K.C. Remove the grid cap from the grid connection of the 253 1st detector tube and connect the lead from the signal generator to the grid of the 253 1st detector which should be left on for this test it will be necessary to bring the signal lead through the hole in the shield over this tube. To facilitate this connection at the chassis, a distance of about 1 1/4" is cut in the shield over the 1st detector tube. If many of these chassis are to be aligned it is suggested that an extra tube shield for this chassis be purchased and such a hole be made in it. Connect the ground lead of the signal generator to the ground post of the chassis.

The intermediate condenser adjusting screws are reached from the bottom of the chassis. There are two on each of the two porcelain bases of the I-F transformer assemblies. The volume control must be at maximum setting and the power level switch at "Hi" power for all adjustments. Alternate the signal generator signal until the output is 50 volts or less in order to prevent any deflection of the automatic volume control. Then adjust the two intermediate condenser screws until maximum output is obtained on the output meter. After all four have been adjusted the tuning is to be checked and the setting for maximum output.

Aligning R.F. and Oscillator Condensers
For adjusting the R.F. and oscillator condensers the signal input from the signal generator should be made to the condenser input. Adjust the signal generator for a signal of exactly 1400 K.C. Then adjust the trimmer condenser for maximum output, adjusting the oscillator trimmer for maximum output. Then adjust the trimmer condenser for maximum output, adjusting the oscillator trimmer for maximum output. Then adjust the trimmer condenser for maximum output. Then adjust the trimmer condenser for maximum output.
But the fellow who goes to his job as if it were play—a game, in which it is up to him to do better work than someone else, will accomplish something. The fellow who doesn't watch the clock, who is interested in what he does—is the fellow that is going to have a good time of life even while he's working and he will go some place in this world.

Let's jump into our jobs just like we used to jump into that old swimming hole—with the same fervor and spirit and we'll find that there is just as much thrill in our everyday business as there was in the tingle and splash of that cool water in the old swimming hole.

ANOTHER LETTER WHICH WON A PRIZE IN THE RESULTS CONTEST

Dear Mr. Smith:

I have had wonderful results from my Radio Training with N. R. I. My course has more than paid for itself.

In times when work was slack in other trades and many men were working the streets, I had no trouble in keeping a job as Radio-Trician with the Nason-Duluth Company, here. I am truly convinced that it has not been for your training, I could not have been in the unemployable class myself.

I earned enough to pay for my course and also enough to keep me some financially during the dull period. I made quite a bit of money by erecting aerials and even by building and selling crystal sets. In addition to this I had a lot of work as a service receiver.

At present I am employed as Radio Serviceman for the Quality Hardware Company and expect to go much further in this great Radio profession.

IRVIN S. DURCAN.

Duluth, Minn.

THIS MONTH'S COVER

Col. Charles A. Lindbergh, on the eve of his flight to the Orient, is presented with a medal by the Columbia Broadcasting System, in recognition of his distinguished contribution to the art of Radio. He is the first American to be so honored. The Colonel has been a persistent advocate of the use of Radio on all passenger carrying airships.

In a recent address Colonel Lindbergh is reported to have stated: "I advise any young man looking to Aviation as a career to take the Radio side of it. That is the coming thing."
They Studied for
SUCCEsS

It may be the successful operation of a business of your own—a shining example of increased business and consequently higher profits as you go along. Or it may be a promotion to the next higher job with an increase in salary and responsibility. It may be in the form of an investment upon which you have labored long and with painstaking efforts—finally working out to your entire satisfaction.

Consider the thrill of going into your own place of business each morning—opening your own door—regulating your own activities, putting your skill against the world. You are the boss. You give the orders; you take the profits. Your earnings are regulated only by the amount of time, study, and effort, along with the ability you've put into the game.

Take, for instance, the case of John Kirk, of Ontario, Canada. He is proprietor of the Eastwood Radio Service Company. Part of his fine show-room and an outside view of his store are pictured above. A fellow can be proud to have his name connected with a business of this kind. It is well worth the study necessary to put it across.

In the lower right hand corner of page 9 is the neat work of the Stanford Radio Service Company, Glenbrook, Connecticut, in which Student George Morton is a partner.

In it not easy to imagine the pride that Graduate Earl Montgomery takes in his new job as Radio operator and Radio service man for the U. S. Veterans Hospital, Lexington, Kentucky. In a letter to Mr. Smith, Earl states: "Out of 10 men who took the examination for the job, I stood highest with an average of 96.5%, thanks to N. R. I." Montgomery is another boy who is attaining success through diligent study of the N. R. I. Course. Training does pay.

While the National Radio Institute Employment Department was directly responsible for placing Graduate L. E. Blair as a Radio teacher with the Meridian School of Commerce and Radio, at Meridian, Miss., this was made possible by the energy Blair put behind his training. He studied for success and he is getting it.

For similar reasons W. Howard McNett and J. W. Seavors of Dallas, Texas, obtained a position as Radio Engineer with Thomas A. Edison Laboratories. Flattering offers have been received, but he prefers to stay with Edison. A salary increase of 50% and a good job prove to J. W. that study pays.

James W. Nolte of Omaha, Nebraska, is in charge of the Radio Department of Wright and Wilson. His shop is acknowledged to be the best equipped in Omaha. It is not always the advantage of study or if you don't take the opportunities in Radio, ask Nolte.

Student George Morton, another of the Stanford Radio Service, Glenbrook, Conn., is another boy whose future is looking bright. He is about to graduate from the N. R. I. Course. We wish him success.
A SIMPLE SHORT WAVE CONVERTER

By Henry K. Bradford

N. R. I. Short Wave Consultant

RADIO communication below 200 meters which is considered in general to be the short wave band has steadily increased since the discovery of the great utility and efficiency obtained through the use of these wavelengths. The steadily increasing utility of these wave bands has been further manifested by a move of the Federal Radio Commission to decrease the band separation between adjacent stations in this short wave band and to provide for many additional stations in this way.

The use of some of these wave bands for police communication, aircraft communication, emergency communication and other spectacular achievements such as international communication has inspired considerable public interest in this line.

In general, the public cannot be sold a complete short wave receiver for such reception as mentioned above unless their present receiver investment is small and their interest in short waves is great. A great majority of people who have made a considerable investment in Radio receivers realize that a simple converter attachment will bring them signals from these short wave bands with no very great additional expense.

The short wave converter is by no means intended to entirely replace the short wave receiver but it has some advantages over the short wave receiver nevertheless.

The circuit diagram of a very practical short wave converter for use with any broadcast receiver regardless of its circuit or make is shown in Fig. 1.

The circuit consists of a detector (sometimes called a mixer tube), an oscillator and a rectifier. All three tubes are type 27's. The detector or mixer tube is untuned and the grid is fed with the signal frequency from the antenna and with the oscillator frequency from the pick-up coil L2. The two frequencies combine and are rectified, giving a beat frequency somewhat in the broadcast band. This beat frequency should fall somewhere around 1400 kilocycles. A broadcast receiver to which this converter is connected must of course be tuned to 1400 kilocycles.

This converter is designed so that the constructor can use commercial five prong plug-in coils if he desires. The plug-in unit consisting of three coils L1, L2 and L3 is enclosed in a dotted line simply to show that it is a one unit plug-in coil. This dotted line does not indicate that it is a shield.

For wavelengths between 17 and 202 meters, the number of turns for each coil considering a one and one-half inch diameter should be as follows: 17 to 30 meters, L1 5 turns, L2 2 turns, L3 4 turns; 30 to 52 meters, L1 9 turns, L2 2 turns, L3 7 turns. From 48 to 105 meters, L1 8 turns, L2 3 turns, L3 18 turns. From 73 to 202 meters, L1 16 turns, L2 4 turns and L3 48 turns. Standard commercial coils that you can buy may differ slightly in numbers of turns from these values given but the wavelength from coil to coil will overlap sufficiently so that the entire range can be covered.

The 85 millihenry choke should be a two or three section choke with a minimum of distributed capacity.

The filter condenser should be electrolytic type and should consist of two 8 microfarad sections.

Other information given on the diagram should be sufficient for the constructor.
THE officers of the Association feel that the new plan of taking over National Radio News, as the official organ of the Association, is largely responsible for our greatly increased membership.

* 
Graduate A. D. Taylor, of Daytona Beach, Florida, makes a bid for being the Champion of the Alumni Association in so far as age is concerned. He’s 77 years of age and going strong.

* 
Frank McClellan, Alumni Member in Troy, New York, is handling the Ozarka line of receivers. Naturally he runs into the “trade in” problem and here’s how he solved it:

He removes the old chassis from the console and installs an Ozarka 93 or 93R chassis in the place. He can sell these revamped sets at a good price. The old chassis he uses for a supply of replacement parts in his service business.

The idea of using his “trade in chassis” as a supply department came to him when a manufacturer asked more for an audio transformer than Frank had allowed for the whole set on a “trade in.” Thanks for the tip, Frank.

* 
Funny little incident occurred the other day. A fellow wrote in to the Institute and asked permission to join the N. R. I. Alumni Association. Said he was a graduate of the (—) School. Of course we had to refuse his application as we only accept N. R. I. graduates. But it is interesting to know that our organization is getting so well known.

* 
She: “I simply adore that new dance step of yours—where did you pick it up?”
He: “Dance step the devil—I’m losing my center.”
THE MARINES WENT TO NICARAGUA
(Continued from page three)
I've heard a lot of talk lately about the lack of prosperity, and I'll attribute it to most of this to the fact that the individual person himself is at fault because he does not try to obtain the necessary knowledge that it takes to pull through when times are hard.
I know of no better form of education at this time than Radio. It is a subject that a man can take an interest in—there is a lot to learn, and he can grow and become prosperous. Of course, he must study properly—he must learn the "how" and the "why" of the delicate instruments if he desires to make his name stand out as a real Radio-Trician. Then he must learn by doing. First he knows why, then he learns how, and as far as I can see the answer to the how and why of studying Radio is "The National Radio Institute's Course."

MAKE FRIENDS AND KEEP THEM
(Continued from page thirteen)

You win fellows—you who wear the mail box to stay out of trouble. I am writing to let you know that the National Radio News assumes no responsibility. Please handle any correspondence of the news desk with the Weekly National Radio News—Editor.

ALDEN ADAPTERS
The Alden Manufacturing Company, 716 Center Street, Brockton, Mass., announces new adapters for use in vacuum tube circuits in sets having high-wattage tubes. Also a complete line for testing pentodes in various tube checkers and analyzers.

BITTAN SALES CO.
The D. B. Bittan Sales Co., Inc., 27 Park Place, New York City, manufacturers-distributors of electrical appliance parts, announce they are in a position to supply tubes and electrical equipment as well as replacement parts. Mr. Bittan will be glad to hear about your needs.

ELECTRAD PAMPHLET
Eletcad, Inc., 175 Varick Street, New York City, announce a new pamphlet covering replacement lines for the service man. A copy of this pamphlet may be obtained free of charge by writing to Eletcad.

POLYMET UNCASED CONDENSER KIT
The Polymet Manufacturing Company, 820 East 34th Street, New York City, announce a special kit for service work, particularly useful in the repair of high-wattage tube circuits. Contains 25 uncased condenser sections of various capacities, working voltages, and dimensions. Selection sufficiently wide to enable the Radio-Trician to replace practically any defective section. Supplied with flexible insulated wire leads, both coming out of the same side. The kit is complete with a filter block, it can readily be soldered. Condenser sections are pure linen condenser tissues, are guaranteed to be built in strict accord with R. M. A. standards.

Herb Heimer, San Antonio, Texas, is the boy in the family. He takes care of the family dairy farm. According to his statement, if it were not for his thoughts about getting into Radio, he might have made a living as a farm product is so low now. For a budget of wheat that he can sell he can only buy three loaves of bread back again.

"Tell it in the Mailbag"

HERB WALTERS

Alumni Association Member R. Bardwell warns us to "Watch those innocent little girls that can cause a lot of trouble!" 243's of a Silver Marshall super had a negative of 150 developed on the grid; 680 ohm resistor locked O. K., but on touching it fell to pieces. Carbon resistors at times have a habit of making large variations in value.

Another country heard from. This time it's Canada. Up in Leduc, British Columbia, where Ed. Pacific says the wireless doesn't work, a fellow out in the bush named Reznar said he bought a new Bush receiver. He said it's a A K. D. that he bought second-hand. It went fine for three months, then...