

SCHOOL STUDY SPORTS

THE JUNIOR BRITISH WHIG BIGGEST LITTLE PAPER IN THE WORLD

HUMOR PLAY WORK

Camp Cookery

"First call to breakfast," ring it loud and clear; Needn't call a second time, for they'll all be here.

You can't really call yourself a camper unless you can make flapjacks. Flapjacks and coffee—there's something to start you off well on a crisp morning.

One quart of flour, one teaspoonful of salt, two teaspoonfuls of sugar or four of molasses, and two level table-spoonfuls of baking powder are what



you need to start with. Mix these together. Rub in, dry, two heaped table-spoonfuls of grease. Then make a smooth batter with cold milk. The milk is best, but if you haven't it, use water. Flapjacks are a sort of "what-have-you" affair anyway.

Make the batter just thin enough to pour from a spoon—not too thin, or you will have a hard time baking it. Stir the batter well to smooth out all the lumps.

Set the frying pan level over the coals. When it is quite hot, grease with a piece of pork. Be sure to have the pan hot enough. The batter should sizzle as it touches the pan.

Four from the end of a big spoon enough batter to fill the pan within about a half-inch of the rim. When bubbles have appeared all over the cake and the edges have become stiff, move the pan about to make sure that the cake is not sticking to the pan. It is still enough to flip.

Hold the pan slanting in front of you

and away from you. Go through the first motions of flipping once or twice in order to get "into the swing of it," then flip it badly so that the cake will turn a somersault in the air, and catch it upside-down.

Don't be afraid of giving it a good toss. Grease the pan well and stir the batter again before making a fresh cake.

Fried salt pork and gravy is fine with flapjacks. Slice the pork thin and put it in the frying pan with enough warm water to cover. Stir it around until the water begins to steam, then turn this all off and drain the pork. Now fry the hot dish until crisp. Put it in a hot dish near the fire while you are making the gravy.

To make the gravy put a table-spoonful of flour in the grease from the salt pork, which is left in the frying pan, and rub the flour in until smooth and brown. Add two cups



of water, pouring in very slowly and stirring all the time you are pouring it in. Then season with a little pepper. Of course the salt pork makes your gravy salty enough. Keep on stirring the gravy until it is smooth and a little thick. Then it is ready to use.

Put it over the salt pork. This is a very good pancake is well try it

THE SHORT STORY, JR.

The Listener-in

"OHNNY" SAID sharply. "What are you doing?" Johnny put the telephone receiver back on the hook sheepishly. "I was starting to call," he explained, "and some one seemed to be on the wire."

"And you listened to them talk," added his mother. "Well, it's not as honorable a thing to do. Don't let me find you doing it again."

But Johnny's curiosity was almost as great as his sensitiveness. A few days later he picked up the hook to phone his pal, Bill Williamson, and he heard a girl's voice. He recognized it at once as the voice of Florence Carson, a girl of his own age who lived three houses down. He didn't put the receiver back.

"Yes," Florence was saying. "I suppose we'll have to invite Johnny to the party."

"But Johnny is such a silly thing!" the other voice—also a girl's—replied. Then Johnny put up the receiver, feeling very queer. He wondered what party they meant. He knew there wasn't any other Johnny that Florence was acquainted with.

The next day he received an invitation to a birthday party at Florence Carson's house. He brooded about it, and the more he thought, the worse he felt. Of course, he decided, he couldn't go to the party.

His mother couldn't understand his sudden dislike for parties. Finally she agreed that he might stay at home, and telephoned Florence that he was sick and wouldn't be over.

He really did feel sick by the time he had seen all of his gang trooping by to the party. He was sitting lonesomely in the living room when the party was over, and Florence ran in. "How are you feeling, Johnny?" she asked. "I'm sorry you couldn't come, for we had so much fun. See, I brought you some cake."

Some one called from out in front. "That's Joanna Westerman," said Florence. "I must run along. I'm taking her a piece. She's scared to cross the bridge alone. Johnny is so silly, isn't she?"

RADIO EXPLAINED

By E. H. LEWIS INSTRUCTOR NEW YORK, Y. M. C. A. RADIO SCHOOL

FUNDAMENTAL THEORY OF AMPLIFICATION.

A characteristic of the vacuum tube is that small potentials, when applied to the grid, will produce larger plate current variations than when applied to the plate. Considerable energy, furnished by the plate battery may then be controlled by the grid acting as a valve, and the tube is inherently a relay. Some tubes are much better relays than others. It is true, but almost all tubes can be made to act very well in this manner.

Suppose that the tube is operated at a point on its characteristic curve, where equal variations of grid potential will cause equal variations of plate current about the normal value. If no grid current flows at any time, there is no damping effect, and the plate current variations will be proportional to the grid potential variations, in order to accomplish this it is necessary that the grid shall at no time be allowed to have a higher potential than the negative end of the filament. It is usually, then, necessary to have a negative potential normally applied to the grid which will be sufficient to insure that positive applied potentials will at no time exceed it. Assuming then, that the grid has a sufficient negative potential, steadily applied to it, and the tube is being operated at a point on the steep portion of the characteristic curve, the plate-current fluctuations are proportional to the grid potential variations and are in step with them. Suppose, however, that these up and down pulsations of plate current about the normal value are not sufficiently great to produce the desired signal strength in the head telephones. The telephones may be replaced by a primary of an iron core transformer, whose secondary is connected to the grid circuit of a second tube.

If the frequency of the applied grid potential is low the frequency of the pulsating plate current is low and will easily pass through either the telephone magnet windings or the primary winding of the transformer. There is a stepping up of voltage in the transformer, so that higher grid potentials, variations are applied to the second tube, and the plate current in that tube will have greater amplitude of pulsation than in the first tube. There is, then, amplification of the signal, and a louder sound is heard in the telephone receiver when connected into the plate circuit of this second tube. This tube should, of course, be connected, so that a positive potential is applied to its plate or there will be no current in the circuit.

It has been assumed that only low frequency potentials were applied to the grid of the first tube. High frequency could be applied under certain conditions and also amplified. In the first case, amplification is at audio frequency and in the second case at radio frequency. If it is desired to amplify audio frequency oscillations, it is necessary to first apply the incoming signal oscillation to a detector tube whose plate circuit contains the primary of a transformer. The transformer secondary is then connected to the grid circuit of the first amplifier tube. Iron core transformers could be used instead of vacuum transformers, but it is customary to use transformers because of the stepping up effect of voltage.

In the drawing it is seen that if the grid potential variations are applied with the tube operating on a bend of its characteristic curve, there will be distortion of the plate current in the amplifier tube. While this will be satisfactory for detection, it will not be satisfactory for amplification.

A Herald-Sun Feature.

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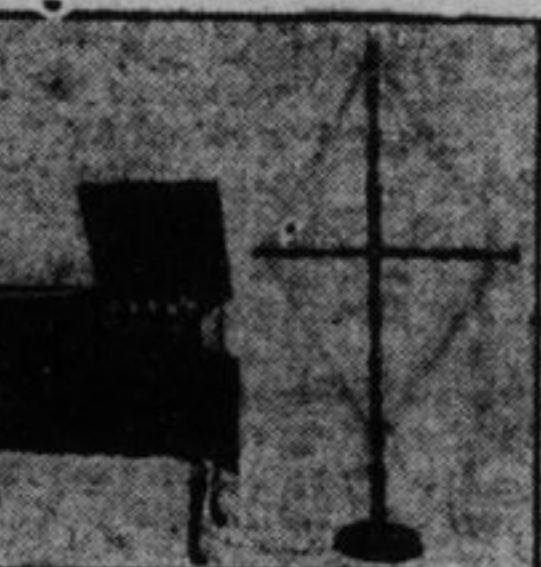
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APPARATUS AND DEVICES

By RALPH BROWN, RADIO ENGINEER A HIGHLY ORNAMENTAL LOOP RECEIVER.

Many people who live within a comparatively short range of a broadcasting station can satisfactorily use a loop receiver if it has been intelligently designed to produce the desired signal strength in the head telephones. The telephones may be replaced by a primary of an iron core transformer, whose secondary is connected to the grid circuit of a second tube.



and so forth, is dispensed with. There is also no necessity for a ground connection, so that installation is simply a matter of moving the set into the house, connecting up and operating.

When a coil or loop antenna is used it is necessary to provide radio frequency amplification because the loop cannot pick up sufficient energy from the passing waves under ordinary conditions. Two stages of radio frequency are used in the cabinet set illustrated. This steps up the voltage, so that the detector tube may be operated in order to make the programs loud enough to be heard without

Will readers interested in these radio articles kindly communicate with the editor by mail?

Music in the Home

Engraving Musical Plates. Perhaps the only man in Canada who has mastered the art of engraving music plates from the often poorly written original manuscript is Mr. E. Besser, of Whaley, Royce & Co., Toronto. Mr. Besser had a pupil once, but he did not stick to the close and trying work necessary to do music engraving. The tools used in music engraving are costly, a case of the necessary ones running to between three and four thousand dollars. Germany was at one time the only country in the world where these tools could be obtained, although now France can supply them.

The process of music engraving is a very difficult one, requiring an intimate knowledge of music, splendid eyesight and great patience. When Mr. Besser receives a manuscript, he first takes his metal plate, and drafts the layout. This includes ruling, measuring the bars, figuring out for size and position and keying. The notes are then put in by a system of punches with note heads and musical signs. The words are also put in with punches or stamps. The slurs, accents, phrasing, etc., are indicated by signs produced by free-hand engraving. When the plate is completed, a proof is pulled, and sent to the composer, who indicates any omissions, or corrections. If there are any of these, they have to be made by filling in that part of the plate and re-punching it. The music is then transferred to a lithographing stone and printed in due course. What adds greatly to the difficulty of the work is that it has to be reversed. Just try and write backwards on a piece of paper so that when you hold

it up to a mirror it reads correctly and you will have some idea of the difficulties of the music engraver. Mr. Besser has engraved music from manuscripts of Dr. Vogt, Dr. Han, the late Humphrey Anger, and many other celebrated musicians in Canada, besides having re-engraved many of the works of the great classic masters. He has been doing this sort of work since he was a boy, or, as he put it, "for a little better than forty years." It is hardly necessary to add that there is usually a great deal of work piled up for Mr. Besser's attention.

Who were the Troubadours? We have all read stories of the chivalrous knights of the Middle Ages in Europe. They were renowned warriors, we know; and our history books tell us a good deal about their bravery in the battlefield and their skill with lance and sword. But how many of us know that many of these same knights were also great musicians and poets—who after returning from the wars, sang of their gallant deeds or the fair ladies they had met? These singing knights were called troubadours—an old French word meaning "makers"; that is, they were makers of music and poetry. Troubadours were found all over Europe in the middle ages, but most of all they flourished in Provence, the territory in the south-east corner of France.

In the eleventh century, Provence was the happiest and most peaceful spot in a not very happy or peaceful world. Though England and Northern France quarrelled continually with each other, and though the Crusades against the Turk were raging in the Holy Land, no wars came to

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disturb the prosperity of Provence. So the knights and nobles there, having no battles to prepare for, turned their thoughts to music and poetry and began to make their songs, thus earning the name of "troubadours." Just as other knights went forth to war, so the troubadours of Provence went forth to sing; for they were born wanderers, and loved the free life of the open road. They made their songs in the winter time, when the bad weather kept them indoors; but, when spring came, they mounted their spirited horses, and off they went from castle to castle and from town to town. Very picturesque they must have looked in their polished armour, and many were the exciting adventures they had by the way. The troubadours were attended on his journey by three or four servants. These were called his minstrels or gleemen; and each carried a musical instrument, on which he would accompany his master's songs. The instruments used in those days were chiefly lutes and viols, both in shape somewhat like our modern viola. The main difference between them was that the strings of the lute were plucked with the finger, and those of the viol were played with a bow. When the troubadour arrived at a castle (and he usually contrived to do this about nightfall), he was ushered into the banquetting hall, where the lord and his guests were sitting at dinner. He was warmly welcomed and given a seat of honor at the table. After the feast came the music. The troubadour went into an anteroom to change his suit of armor for a rich robe of fur, edged with gold; and his minstrels, after having tuned their instruments, made this little speech to the audience: "We some bringing a precious balm which cures all ills, and heals the troubles both of body and of mind; this balm is the music of our master." The Mormon Tabernacle, Salt Lake City, will accommodate 8,000 persons. One lighted gas-jet is said to consume as much air as four adults.

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