

# RADIO

## INTERFERENCE OF RECEIVING SETS

Each, When Tuning for Distant Station, Acts as a Continuous Wave Transmitter.

We have explained that the continuous, fairly steady whistles, usually heard while tuning for the distant stations, was due to a combination of the carrier waves of two stations which were very nearly on the same wave length. There is another series of whistles always present which very much resemble the whistle of a mosquito high in tone and amount of annoyance produced. These are caused by the receiving sets of other listeners. Every receiver using a vacuum tube detector with a regenerative circuit is a potential transmitter. In fact it contains all the essentials of a radiophone transmitter on a small scale.

The detector tube when oscillating produces oscillation exactly similar to the carrier wave of the radiophone stations. The frequency or wave length of this wave can be varied by changing the tuning of the receiving tuner.

The usual procedure in tuning for a distant station is as follows: First the detector tube in an oscillating condition after the tuner has been adjusted near the point where experience has taught us to look for the broadcasting stations, then move the dial slowly across the approximate point where the stations are usually heard. The carrier waves are located by a whistle which starts at the upper limit of audibility and goes down the scale until it becomes so low that it is scarcely longer a note. At this point the set is in exact resonance, and if the tickler, coupling or plate tuning is adjusted it is decreased until the detector tube stops oscillating, the very best adjustment is obtained for reception of that particular station.

Unfortunately while this listener is going through this operation his receiving set is acting as a continuous wave transmitter, and is producing some inharmonious whistles in the phones of his neighbors who happen to be already on the wave of the same station. This continuous wave sent out by the receiver combines with the carrier wave of the transmitting antenna, producing an audible note. If the operator could tune his set as simply as was described above, there would be very little interference, but he usually whistles back and forth across the wave of the transmitting station several times. Often several listeners who have been getting the contact perfectly will get restless between sections and get their tubes to oscillating and whistle up and down a few times.

All listeners should be very careful to keep their detectors in a non-oscillating condition as much as possible to reduce this annoyance of interference between receivers.

Opinions seem to vary considerably as to the comparative amounts of energy inducted into the antenna by the "single circuit" or conductively coupled, and the "three circuit" or inductively coupled receiving set. Previous to the introduction of the single circuit very little trouble had been experienced with beat notes from receiving stations. This was no doubt due to the fact that receiving sets were rather few and far between; also up until a few years ago there was a very small percentage of c. w. telegraph and phone stations so that there was no reason why an amateur should keep his tube in oscillation condition. On the contrary, he was very careful to keep it just below the oscillating point, that being the most sensitive adjustment for spark signals.

With the telephone and c. w. telegraph transmitting stations, i. e. tube transmitters, came the single circuit tuner with its extreme simplicity of adjustment, which was so well adapted to the very sharp tuning of the new transmitters. And with the advent of these new transmitters came the necessity for the "single circuit" receiver. Naturally then the interference between receiving sets became noticeable at about the time that the single circuit sets became numerous, and this helped to prejudice the minds of the public against this type of receiver. However, the fact that the single circuit arrived at about the same time with the interference was by no means the only reason for believing this tuner to be the main cause of the trouble.

If we must have single circuit tuners the thing to do to reduce the radiation to a minimum is to reduce the size of the antenna series condenser and increase the number of turns in the inductance. This will give sharper tuning and there will be much less trouble in getting the tube to regenerate.

In many localities there is a great deal of interference from spark stations, especially in the cities on the coast or Great Lakes, where there are commercial stations to handle the ship traffic. These spark stations do not tune very sharply, and even if the station is located several miles away it is often impossible to tune them out with the average tuner.

When tuning for a faint station and using amplification there is nothing more nerve-racking than to have a spark station roar in unexpectedly. There is little that can be done about this interference. If the station is close a change of wave length would do little good even if this were possible. If it is a commercial station it is doing a much more important work than our broadcasters are, and of course cannot be expected to stand by for them.

### FIRST RADIOPHONE EXCHANGE

Opened at Croydon, England, to Make Connection With Pilots of Air Expresses.

What is said to be the first radiophone exchange in the world was recently opened at Croydon, England, the point from which the air liners to the European continent take their departure, according to Consul Linnell.

The chief use made of this exchange is to connect the aerial traffic controller, who has his headquarters in a control tower at Croydon Cross, London, with the pilots of the air expresses flying between Croydon and the continent.

The wireless exchange can also connect the phones of the airships and airplanes while in flight with any office at the aerodrome at Croydon, making direct telephone conversation possible.

The pilot of each aerial transport is now required to report his position to the traffic controller every 15 minutes, so that the progress and position of each plane is known throughout its journey. The controller is of particular value in directing the course of the aircraft in cases of fog and in giving them special directions for landing.

Radio in the Prison. Trustees and officials at the Ohio state prison at Leavenworth, Ohio, are now able to keep in touch with the outside world through the installation of a radio receiving set, purchased from the entertainment funds of the institution.

The set, which has just been installed, will be enlarged within a few months by the addition of a transmitting set, through the use of which prison authorities hope to be able to bring about recapture of escaped convicts more quickly. The news of escape will be broadcasted immediately.

Court Adjourns by Radio. From his steamer, incoming from Europe, Justice Tompkins of the Supreme court of Rockland county, New Jersey, radioed to his secretary in Nyack the necessary formal notice for the adjournment of his court, which was scheduled to convene on the morning of his arrival. The justice realized that he would not have sufficient time to reach Nyack after the ship docked, and for the first time in history used the radio to arrange for adjournment.

Popular Demand for Bulletins. An interesting fact concerning the circulars issued and distributed by the bureau of standards was disclosed when it was announced that 20,643 copies of No. 120, which tells how to make a simple receiving set, had been sent out from the Washington office. They are sold at cost and may be obtained by sending 5 cents to the Superintendent of Documents, Washington.

The Hot-Wire Ammeter. A hot-wire ammeter is used to measure the current in the antenna system of a transmitter. The value of the current flowing in this system is usually indicative of the performance of the apparatus. This meter is employed in tuning a transmitter to resonance, so that the maximum value of current may be induced into the antenna circuit.

Radio Aids Einstein Tests. Special radio time signals sent from NBS, Annapolis, for the benefit of scientists in the Indian ocean, working on a test of the Einstein theory of relativity during the recent solar eclipse, were nearly twice as audible as those from a commercial station, the navy has been advised.

Radio Headquarters High Grade Murdock Radio Outfit Complete \$10.00 Includes a special Murdock Headset And all necessary parts.

Rudolph Schmidt Co. 51 Main Street East. Subscribe for the Journal.

### NON-FREEZING MIXTURES

Ninety per cent water, 10 per cent alcohol, freezes at about 25 degrees Fahrenheit. Eighty per cent water, 20 per cent alcohol, freezes at about 10 degrees Fahrenheit. Seventy per cent water, 30 per cent alcohol, freezes at about 5 degrees Fahrenheit. Sixty per cent water, 40 per cent alcohol, freezes at about 20 degrees Fahrenheit. A little lubrication prevents a lot of overhauling.

### DRIVERS LOOK BOTH WAYS AT CROSSINGS

Many Accidents Happen Because of Carelessness.

There is No Virtue in Being Careful Just Once—Get the Safety Habit and It Will Stick—Trains Run at All Times.

Tests made at railway crossings show that less than 10 per cent of motor drivers look both ways before crossing railroad tracks. Many accidents have happened on double track railroads, because the man at the steering wheel, after waiting to allow a train to pass, failed to see a train coming from the opposite direction and drove onto the tracks just in time to get caught by it. Such a driver does not make good use of his eyes, and so pays the penalty for his inattention.

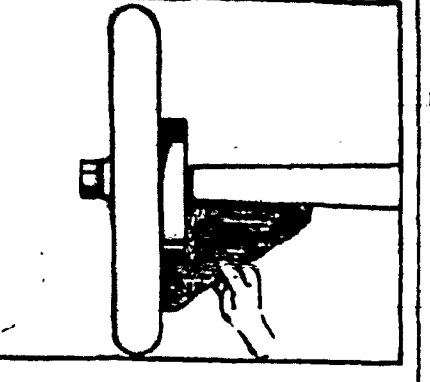
It is not a difficult matter to drive safely across the tracks every time. There is no virtue in being careful just once in a while. Get the safety habit, which, when once acquired, will stick like a burr.

If you live in the vicinity of a single track railroad, where only a few trains are run, do not allow the thought to enter your head that no train is due at that time. Sometimes a train runs late, and don't forget that an occasional extra is run over the track.

The driver who sees a train coming, near enough to raise any doubt about his ability to cross ahead of it, will, if he remembers that his life is worth a billion times more than his farm, or bank account, shut off, set the brakes, and stop right there. Better to shut off the gas than to run the risk of having your breath shut off.

Often a driver has a sudden whim to try to beat his way across. If he reaches the far side in safety, he waits there to see the train whizz past him. Out of 5,000 men, women and children killed or injured at railroad crossings last year, there were scores upon scores of innocent passengers, helpless to do a thing, merely depending upon drivers who failed in the duty so plainly resting upon them.

### Alignment Tester



When the car is still new a couple of metal templates may be cut to fit the axle and wheel joints at front and rear for testing in the future. They are convenient permanent checks on the alignment of the steering knuckles and axles.

### FINE EXAMPLE OF 'RED TAPE'

French Official Surely the Limit in His Demands on Senders of Message to Pope.

A diocesan congress at Marselles recently resolved to send a message of greeting and homage to the head of the church, and after the draft had been read and approved two members of the congress took it to the central post office for transmission. The official in charge took it and began reading the address:

"To His Holiness the Pope, Rome." "The address is incomplete," said the sapient functionary, "and I cannot send it unless you supply a fuller address."

The two men stared at him, wonderingly. "Pope," he explained "is not a name; it is a quality. As for 'Rome,' that is the name of a city, but you have neglected to give the name of the country in which it is situated, or the street and house number where your correspondent lives."

It was impossible to dissuade him from his resolution and the message was accordingly not sent.—Exchange.

ONE GOOD TURN. It is Dan Cupid's prank For a woman to find If she marries a crank That her life is a grind.

### Dolly, the Hospital Baby

By ELLA SAUNDERS

"Dolly, if you're not a good girl, I shall send you back to the hospital because you're not my real little girl, you know." Tears sprang into Dolly's eyes. She ran to Mrs. Whitcomb's side. "Mamma, mamma, say I am your own little girl."

"Well, there, darling, of course you are," said Mrs. Whitcomb penitently. "It was a threat foolishly used upon occasions to control a refractory child. Mr. and Mrs. Whitcomb adored Dolly, their only one."

The coming of it all had been six years before, when Dolly was born in the hospital. Mrs. Whitcomb, with a sick woman's fancy, had declared that Dolly was not her child; that hers was the other little girl who had been born the same night to another woman.

It was for a long time in vain that the nurse, the matron, and the doctor expostulated. There could be no possibility of mistake, they all declared. Something convinced Mrs. Whitcomb that Dolly was not hers.

She asked to see the other child, but was told that it was delicate and had to be kept in the incubator. Even her husband was not permitted to see it for several days.

When Mrs. Whitcomb was able to walk about it was shown to her, in tiny thing wrapped in bandages. That at last satisfied her. That child could by no possibility be hers. She turned with new tenderness to Dolly.

Both of them adored the little girl, but nevertheless they foolishly recalled the incident to the child when she was naughty. It preyed upon the little girl's mind. Often she would awake screaming in the night and run into her mother's room to be caressed and reassured that she was actually her own child.

"We shouldn't say anything more to Dolly about that," said Mr. Whitcomb. "I suppose it was foolish of me," his wife admitted.

There was a scandal at the hospital a little later. No one knew just how it originated, but the governors were at odds with the doctors, and the doctors with the nurses. In the end there were wholesale resignations, and the matron, Mrs. Peyer, found herself out of a place after 12 years of service.

Feeling in the town run high about it. There was great sympathy expressed with Mrs. Peyer. She herself, burning with resentment, announced her intention of showing up the way the hospital was conducted. A newspaper war followed, and there was even talk of a public investigation.

Mr. Whitcomb met her in the street one day. She dilated upon her grievances. "Certain things took place there that wouldn't be tolerated in any decent place," she said. "About your little girl, for instance."

"What d'you mean?" demanded Whitcomb. "I suppose you know she's not your child at all?"

"I know nothing of the kind. That was a fancy of my wife's." "Oh, was it? Well, it happened to be a true fancy," the woman retorted. "Her child—your child—died an hour after birth. It was a pitiful position, with your wife so anxious to see her baby and so Mrs. Bannock—who hated her baby, because she had been already—she was told hers had died, and the substitution was made."

"You're lying, woman!" shouted Whitcomb. "Oh, no, I'm not. Afterward we showed your wife another baby that had been born and pretended it was Mrs. Bannock's. You go and ask the head physician; he'll tell you the truth now."

She smiled triumphantly. But Whitcomb was staggering away, struck dead by the news. And he knew now that he had always known it.

What was to be done? His wife would go mad when she learned. Yet, could he in honesty conceal the fact from her?

He went into the house. He heard Dolly screaming. "Dolly," said his wife's voice, "if you're not a good girl, I shall send you back to the hospital, as I'm always telling you, because you're not really my own little girl, you know."

Whitcomb appeared. "How often have I asked you not to fill the child's head with such nonsense?" he demanded. "She'll end by believing it."

"You're quite right," his wife answered penitently. "I will not try to tell her such nonsense again."

Dolly was screaming: "Am I your girl, mamma? Am I, daddy?" "Well, I guess so," Whitcomb answered.

### Mary's Rich Aunt Mattie

By CLARA DELAFIELD

The Trelawneys waited with some trepidation at the train. Neither of them had ever seen Mary's Aunt Mattie, who had written from California that she was coming to pay a visit to the newly married couple.

"She's supposed to be very cranky," said Mary. "And immensely rich. If she takes a fancy to us, John, our fortune's made. So you must be just as nice to her as ever you can be."

"Look," said John, "there are the Harringtons."

The Harringtons were neighbors of the Trelawneys, and a certain amount of social rivalry existed between them. Each aspired to the leadership in the little community.

"I wonder whom they're waiting for," said Mary. "Oh, what does it matter?"

"We don't care," said John. "I guess when they find out how much money Aunt Mattie's got they'll open their eyes. Here comes the train!"

The train came puffing into the station. Among the last of the passengers to descend was a gray-haired old lady, carrying two enormous oblong parcels. "I bet a dollar that's Aunt Mattie!" said John. "Come on, Mary, and let's get around the old harridan!"

They went up to her. "Aren't you Aunt Mattie?" they asked. "You must speak louder. I'm just a little deaf," answered the old lady. "Aren't you Aunt Mattie? Aunt Mattie! Aunt Mattie!" they shouted in chorus.

At length comprehension reached the old lady's understanding. "Be you my niece and nephew?" she demanded. "Yes, come along!" they shouted, and each taking the old lady by the hand, they led her to John's waiting car outside the station. A short drive carried them to the house.

"This your house? I don't think much of it," sniffed Aunt Mattie as they entered. They pushed and pulled Aunt Mattie up into the best bedroom. Once in their home, Aunt Mattie proved to be the worst kind of tyrant. She sent them flying for hot water and towels. She was led down to the dining room, where she turned up her nose at the dinner Mary had cooked. Worst of all, Aunt Mattie was almost totally deaf, and therefore the conversation was more or less of a monologue.

"Dear Aunt Mattie, won't you try some of this soup? I made it myself," said Mary.

Aunt Mattie, who had not heard a word, deliberately emptied the scalding soup over the potted plant upon the table.

"Dread your soup!" she screamed. "I didn't come here to be given thick soup at my time of life. I want some cold tinned tongue."

After vainly attempting to make Aunt Mattie understand that there was no tongue, Mary, who was nearly crying, went out into the kitchen and came back with a dish of sliced ham.

Aunt Mattie took a single glance at it and, with an indignant sniff, rose from the table. "You bring them things of mine down," she cried. "I ain't going to stay in a place where they don't know the difference between tongue and ham."

With which she stalked out of the dining room. John and Mary looked at each other in consternation. "Well, all I can say is, good riddance," John remarked. "I wouldn't have that old harridan in my house for a hundred dollars a week."

"Oh, John, what can we have done to vex her?" Mary sobbed. "Just wickedness—pure, plain wickedness," her husband answered.

A ring at the door startled them. Mary, hastily wiping the tears away, went out to open it, followed by her husband. Aunt Mattie was sitting in the dining room, scowling, her hands folded on her lap.

Outside they found the Harringtons, with a pleasant, gray-haired lady. "Have you, by any chance, got our Aunt Mattie here?" they asked. "Your Aunt Mattie?" bellowed John. "Yes, she—she—well, she escaped from a nursing home this morning, and I—I think we took your Aunt Mattie by mistake. We've been notified that poor Aunt Mattie was on her way here, and—"

"Oh, Aunt Mattie!" sobbed Mary, falling into the old lady's surprised but motherly arms. She turned to Mrs. Harrington. "I guess that must be your Aunt Mattie," she said. "Take her away. We don't want her, and we—we didn't try to steal her—did we, John?"

### SAMPLE OF CHINESE JUSTICE

Possibly a Little of This Might Wake Up Some Town Authorities in America.

It appears that when one has lived in China for some time and studied its institutions the one thought that strikes him is the feeling of responsibility that pervades every phase of Chinese life. This sense of responsibility makes useless the ordinary excuses that weigh with American or European.

"Two men were gambling in an obscure part of one town, in a room hidden away from observation. A dispute arose over the game; it ended in a fight, and one of them got a fatal stab. It was 2 o'clock in the morning when the incident took place. The whole city was asleep, and the thug, the headman of the ward, and his family were in bed, so that he was entirely unaware of what was going on. His protestations were received with a sneer and with the remark, 'Well, you ought to have known.'"

"But how could I?" he asked. "Never mind, now," was the official answer: "that is your business. The ward is in your charge and you are the responsible person to look after it."

With that he was thrown upon his face and a couple of sturdy fellows, who had been looking at him with hungry and expectant eyes, proceeded to administer with their bamboo a lesson in the art of ruling, a ward that would keep him in a recumbent position for at least a week to come.—Exchange.

### DANCE IS PART OF CEREMONY

Norwegian Wedding Would Not Be Complete Without the Merriment That Custom Has Prescribed.

There is nothing Norwegians love as they love dancing. At a wedding celebration three generations often dance together, and the bridegroom dances with each of his bachelor friends. Then he is lifted high upon their shoulders, and they "run" and "jump" with him, over chairs and stools, upon tables and chests, out of windows, through doors. After them run all the married men present, except the two newly-made fathers-in-law. Then comes a mad but good-natured scramble. Each side—married against unmarried—fight to secure the bridegroom, the Benedicts, of course, always winning in the end.

When this is all over, the bridegroom stands quietly among the married men, while the bride "dances off her crown." She is blindfolded, and after a time lifts the crown from her head and places it upon the head of any maiden she can contrive to reach and securely crown. The girl thus selected steps into the center of a ring formed by the celebrators, who sing: "She will be married next; she will be married next."—Detroit News.

### Fish Uses Fins as Feet

A walking fish inhabits some of the small streams of St. Thomas Island.

The head is somewhat like that of the ordinary freshwater sucker, with a round, full-lipped mouth and no teeth. Just back of the head, on either side, is a large, well-developed fin, armed with a strong bony spike. The fish uses these fins to crawl or "elbow" their way out of the water and to cling to half-submerged logs and stumps. The name "walking fish" is derived from this faculty of actually walking or climbing out of the water.

Perhaps the strangest feature of all is the tail, which is soft and boneless, and composed almost entirely of a most delicate arterial network, for it is through the tail that this fish secures its necessary supply of oxygen while out of the water. While in the water respiration takes place through the gills, as with other fish. As long as the fish can keep its tail in the water or in contact with wet sand or mud it can remain out of the water indefinitely.

### That First Impression

Mrs. Burton was paying a social afternoon call on Mrs. Templeton.

"And what do you think of your new neighbors?" Mrs. Burton asked. "Well, you know, I haven't called on them yet, but from what I've seen of them, I can't say that I think very much," Mrs. Templeton replied.

"Maybe you shouldn't form an opinion so soon," Mrs. Burton ventured. "Oh, yes, I'm perfectly safe in that," Mrs. Templeton assured her. "The opinion I form of anyone at first sight is usually correct. Yes, ma'am, what I think when I first see anyone is nearly always what I think later."

Little Marjorie was interested in this last statement, and took a hand in the conversation. "Oh, mamma," she exclaimed, "what did you think of me when you first saw me?" Kansas City Star.

### Spotting a Future Politician

I observe a group of small boys in a West End street. One had been annoying another who was a little bigger. Finally the bigger boy chased the smaller one, who ran for protection to the biggest boy in the group. The smaller boy obviously deserved chastisement, but his pursuer was much stronger than he was. The biggest boy thought it over a moment, then rendered judgment: "No hard feelings!"

There's a boy who is going to be a judge or a political boss some day.—Boston Post.

### Nothing Doing

Mr. Longsuffer—If I don't lend you the money to pay the installment on your phonograph, what will happen? His Upstairs Neighbor—The dealer will come and take it away. Mr. Longsuffer—Sorry, but I really can't spare the money.

### White Slavery

White-slave traffic was formerly extensive in Europe, America, parts of Asia, Africa and Australia. The suppression of the traffic was agreed upon by an international treaty signed May, 1904, by representatives of France, Germany, Great Britain, Italy, Russia, Sweden, Denmark, Belgium, Holland, Spain, Portugal, Norway and Switzerland. The United States signed its adherence to the treaty in 1908.

War Against Housefly. Nobody loves the housefly; its dirty feet have got it a bad name, and not even pacifists will lament that Alder shot command headquarters has declared war against it. Winter may seem the wrong season to begin a campaign, but the army tactics in this case are wise, for though flies may not be then so much in evidence in the jam-pot and sugar-basin they lie concentrated and sluggish in their winter health resorts, and are more easy to outflank and destroy. If the hibernating flies and their eggs are destroyed in winter we shall not have to face their troublesome guerrilla bands in summer and autumn.—London Times.