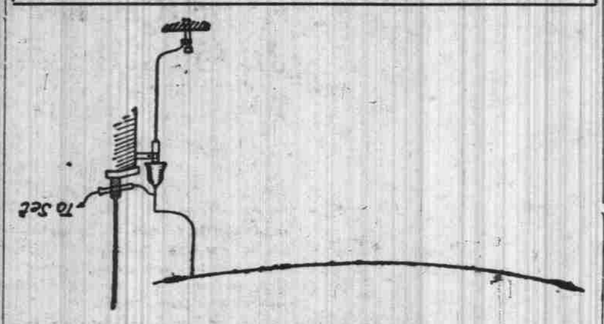
Every village had a young intellectual in the old days, but people called him a Smart Aleck.

Correct this sentence: "'Let the infant yell,'" said the old bachelor; "I don't mind it."

This department is conducted by special arrangement between Churchill's Radio Station and the American Radio Relay League, Inc., the national organization of radio operators and experimenters.



Proper Antenna Installation

A few years ago the ambitious citizen who took it upon himself to build a radio station had some very real problems ahead of him when it came to putting up an aerial. To be sure, we in this country have been far more fortunate than our European cousins in not having licenses required for receiving sets, but, at the same time, the Fire Underwriters' rules concerning the erection of antenna were very hard to comply with. Life was far from a bed of roses for the radio man of 1918.

In the first place, after you put up your antenna, you had to procure a big 600-volt, 100-ampere single-pole double-throw knife swith for lightning protection. These switches were expensive. The antenna was connected to the central switch arm; the set leading ran from one terminal and the lightning ground from the other. The wire lead from the switch to the lightning ground was supposed to be No. 4 copper, and this was also very expensive, in addition to being hard stuff to handle. The lightning ground was preferably a number of pipes driven into the earth. It had to be located outside the house, too. You could not use this lightning ground for your set ground. Lightning "gaps" were not allowed.

Since the broadcast craze started, however, it was found that these precautions—long known to be unnecessary—were also too much of a financial strain for every citizen to bear, which meant that if the law was left alone there were going to be many violations.

The result was that the regulations were changed, and putting up an aerial is now the easiest thing about the whole operation.

In the illustration we have shown a typical antenna system. As will be seen, two insulators are employed at each end of the antenna wire. These should be selected with care, especially if you are in a rainy locality, and should preferably be either porcelain or pyrex glass. The antenna wire may be almost anything from No. 12 bare copper to No. 22 d.c.c., but we suggest that you get enameled wire, about No. 12 or 14, because this will not corrode in the air, as will bare copper wire.

The protective lightning gap is shown mounted outside the house, but under the terms of the underwriters' requirements it may be mounted indoors, if desired. Notice that the lead to the set is run from the same contact on the gap to which the antenna is connected. The ground wire from the gap is shown leading to a buried pipe. This is a good form of ground, but you may use water piping, or some other kind of ground, inside the house if you wish. The use of gas piping, either as a lightning or set ground, is forbidden.

Note that the lead-in is run through the window sash through a porcelain tube. This tube should be slanted down toward the outside, as shown, as that fain water will not collect in it or run down into the house.

If you wish to, you can use the lightning ground for the set ground connection also.

In spite of all the care that may be taken by the builder of a set, there are times when, by accident, the "B" battery wires get crossed with the filament wires for a moment, and the next day your nearest radio dealer sells you some new tubes.

Tubes, unfortunately, are the most expensive item of upkeep in a set, and it will pay you to arrange your apparatus, and take such precautions, as will make the possibility of burnouts from crossed wires a slim one.

There are several things to do. First, it is a very good idea to use spaghetti on all battery wiring. Rubber tubing is also good. Use either one or the other on all the "A" and "B" battery leads, and make sure that there are no loose sections that can slide around on the wire and leave bare spots.

Of course, you should make the battery wiring inside the set as rigid as possible, and also keep the "A" battery wires away from the plate battery wiring.

There are now on the market several brands of "tube fuses" which can be attached to the pins on the bottom of the base. These are usually excellent protective devices, and are worth the cost. The theory of such fuses is the same as for the fuses you use in your house wiring: When the current gets up to a certain point, a further increase will cause the fus wire to melt, thus breaking the connection getween the battery and the tube.

Perhaps one of the best protective measures—and at the samo time one of the simpliest—is that illustrated at the head of the column. It simply consists in connecting an ordinary electric light socket in the "negative" or "minus" lead of the "B" battery, as shown. In this socket put an ordinary 110-volt electric bulb, the exact size of which is not important. If your set uses UV199 tubes, an 8-watt lamp will be about right; if you are using any other kind of tube, a 10 or 15 watt lamp will sere.

The purpose of this lamp is to act as a vale. An electric lamp will pass but a given amount of current when used in a 110-olt circuit. An 8-watt lamp, for instance, will pass about .07 amperes, and no more. Therefore, since a UV199 uses about .06 amperes, if the "B" battery should be shorted around the tube it could only push .07 amperes through the tube, which would not be enough to burn it out. The lamp would light up in the process, by the way.

If you use a 110-volt bulb in the socket, do not use more than 110 volts of "B" battery; if you desire to use a higher voltage, between 100 and 200 volts, use a 220-volt bulb.

The lamp will not interfere with the working of the set in the slightest, so do not let that side of the matter worry you. If desired, a .001 mica fixed condenser may be hooked up as shown in the dotted lines, with perhaps slightly better results.

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WISCASSET, Me., Oct. 5.—During the fifteen months that he has spent in the Arctic, Captain Donald B. MacMillan has never been troubled with the unavoidable question: "What is going on back home?" If you can imagine the feelings of a man who has been so out of touch with events that he would not know if a world war were in progress, you can appreciate the explorer's "thirst for news." Radio has spared the MacMillan party the mental hardship of complete isolation.

When members of his expedition reach here September 21st, they will have almost as much knowledge of the important events that have transpired in their absence as the business man who gets a digest of the news through the daily newspapers. Almost every major happening, from the result of a prize fight to the outcome of a recent Maine election, have been transmitted to the "Bowdoin". Radio has been a faithful servant, providing many subjects for thought and discussion.

Before leaving on his hazardous undertaking, MacMillan told his friends that he hoped his radio set would relieve what he emphatically called the "curse of the Arctic". He described conditions on previous trips when men huddled together in narrow quarters, were utterly and completely bored with one another's company. When men have "talked themselves out," he said, they immediately start trouble.

The situation can be compared with that created by a guest who comes to spend a weekend and finally decides, since he is having such a good time, that he will stay about two months. Boredom is the inevitable outcome and friction is sure to follow.

What has happened in connection with MacMillan's party? Not only has radio given the crew subjects for conversation from week to week, but it has also enabled them to communicate with their own families and thus be relieved of countless worries that otherwise would have had a tendency to make their lives miserable. Last winter several broadcast stations made up special programs entirely for their benefit, and President Coolidge, through the American Radio Relay League, sent Christmas greetings to all on board.

This is, indeed, a contrast to previous expeditions when members of an exploration party have returned literally overflowing with questions about their families and conditions, such as the average person has answered for him daily. The thoughts of what might have happened on such occasions are regarded as much worse than the truth when it becomes known. Radio in a moment wipes away the cause of worry.

Now the time has come when MacMillan is returning the favors that have been extended to him for months. On his way down the Labrador coast, he is using radio to describe to the world in detail his Arctic adventures. No longer handicapped by the aurora and atmospheric conditions, Donald Mix, radio operator, is in direct communication with the special A. R. R. L. station, 1MO, at this place.

The local people who are planning a reception in MacMillan's honor have advised him of their intentions by radio and are able to exchange messages with complete details from day to day. They will know to the hour and minute the time of his arrival and should, at any time, anything happen to delay the voyagers, the reception committees will be able to change their plans accordingly.

How different this is from the return of Peary! Perhaps radio has really made those days distinctly "old fashioned".