off his key chain. (Sour grapes).

We're still waiting for Roy to make a .15 version of his wild mills.

● Speaking of grapes, I hear by the vine that Johnny Brodbeck — the curly headed Colonel of K&B — is toying with a new idea, or two, throttle wise which should be a big boost for R/C. More power to ya Johnny.

● As more and more modellers start working with the little wet cells in R/C, more and more modellers desire to know more and more about them. (We're in a rut!)

What stalls some is the question of whether a two-volt cell can be used as a filament source? Will the filaments take two volts as is, or should the source be reduced, and if so, how?

Most tubes that we've experimented with will stand more than their rated heater voltage, which, in the case of the majority of subminiature hard tubes is 1.25 volts. In fact, you are, in effect, over loading them by using a 1.5 v. dry cell. But this extra .25 volt is more of a safety factor considering the voltage drop you can stand before the tube stops conducting. Can you go higher without damage?

We are using a Silvercel on a three-tube circuit without use of a dropping resistor. The circuit has been in steady use for periods in excess of an hour, with a combined usage time of over 50 hours, and all tubes are happy and healthy. Now let's go one step further and jump to 2 v. as in a Magna Lux.

Here, we chickened out. We experimented for brief periods without a dropping circuit but decided that discretion was the better part of valor. We dropped the 2 v. down to a 1.5 v., which still gave us a safety factor of .25 volts.

Now, after a long and devious route we get down to cases. The question is how to figure what size resistance to use, to drop the source voltage and where to put it.

Using Ohm's Law (E equals I times R), we have to know two values to get the third. Starting with a 2 v. cell and desiring to drop to 1.5 v. we have to remove .5 volts from the source. .5 v. is E (Electromotive Force . . . volts). I is Intensity (amperes) and R is Resistance (ohms). R is what we are trying to figure out so we will have to know what I is. That can be determined either with an ammeter or, by checking the filament drain of the tubes in the spec sheets that accompany your receiver.

For example, let's say your receiver has two tubes in parallel. One has a known drain of 15 ma. and the other a known drain of 40 ma. Therefore, you have a total filament drain of 55 ma. This is the I of the formula. Substituting values for symbols our original formula looks thusly now. .5 equals 55 X R. Transposing it so we can work it the formula would be R equals .5/.055 or, R equals .5 volts divided by 55 ma.

Ohm's Law is computed using amperes so 55 ma. is .055. When we divide

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.055 into .5 the decimals can be set over so that equivalent working figures of 55 divided into 500.00 can be used. The answer is 9.09. Meaning we will need a 9.1 ohm resistor to drop 2 volts to 1.5 volts in a circuit having a 55 ma. (.055 amperes) drain.

In many instances, it will not be possible to get a resistor of the exact value your computations indicate. It would be our suggestion to obtain the next lower value rather than a higher value. One ohm less than is actually needed will in no way harm the rig, and it will give a little leeway for aging.

The resistor we have just described should be installed in series with the filament battery and can be installed within the receiver, if desired. However, we rig ours up to the socket in the plane which still allows us to use our receiver in another installation (plane) where dry cells are employed.