

anyone coming into contact with the project. These suggestions really apply to any line-voltage-powered project. To ignore them is to invite a needless, and possibly lethal, hazard where none need exist.

D.S.

Addison, IL

APPEARANCES COUNT

I have just completed building a binary clock, following the instructions in the article in the January 1991 issue of **Popular Electronics** and using the kit sold by Electronic Kits International, Inc. The kit is certainly complete in every detail, and the instructions are more than adequate. I found the assembly to be quite straightforward, and free of any special problems. The finished clock works flawlessly, and is quite impressive in appearance. I have had a lot of fun with it since it is most puzzling to my friends, few of whom know anything about binary numbers. Once the number system is explained to them, most think it is clever, and a nice addition to the household. However, a few have said, sourly, "Why don't you use an ordinary clock?" I enjoy their reactions.

I do have one suggestion for improvement, however. I don't think the quality of the wooden case supplied is a match for the rest of the clock. Mine was not square, and was $\frac{1}{8}$ -inch wider at one end than at the other. In addition, it was made of pine, which is not widely perceived to be a cabinet wood. I would suggest the use of Philippine mahogany, which costs the same as pine around here and is a much prettier wood. In addition, it can be finished very simply with a clear wood sealer, since it already has some natural color—particularly the variety called "Narra." I made my own case, giving it a very neat, finished appearance. The skills required were not significantly greater than those used

in making the pine case supplied with the kit. My wife and my friends think the finished clock is beautiful and well deserving of a place on our mantel.

Thank you for your efforts in putting together and writing about the binary clock. I consider it to be one of the most satisfying electronic devices I have ever built, and I would expect many others to feel the same way.

W.P.H.

Richland, WA

SETTING THE RECORD STRAIGHT

I have a few corrections and comments on two articles that appeared in the April issue of **Popular Electronics**.

In "dBm Debate," which appeared in the "Letters" column, both letter-writer T.L. and author Joe Carr are wrong. Allow a Bell Labs retiree to set the record straight. The term dBm is defined by the Bell System *et al.* as the decibel ratio of some power level with reference to one milliwatt. *It has no relation to impedance.* In my 36-plus years in the Bell System, I observed that misuse and misunderstanding of dB and dBm was rampant. When working on telephone circuits, it was common to use meters with a 600-ohm impedance, but on some carrier systems the dBm meters had 135-ohm impedances and the dBm-reading power meters had no defined impedance at all. And (Joe Carr notwithstanding), VU is not another term for dBm. The VU, or volume unit, is used to measure peaks of power in complex waves, such as speech, relative to some specified reference level. In general, that reference level, 0 VU, indicates no precise electrical quantity, but the volume indicator is calibrated to read 0 VU on one mW of 1000-Hz power dissipated in a 600-ohm resistance. The VU level is read on a D'Arsonval meter with