

Journal. The remaining three finalists were Judith Agnes Dav-enport of Chattanooga High School, Katherine Ely Martin of Miss Hutchinson's School, Memphis, and Winston S. Marshall of Isaac Litton High School, Nashville; it has not been possible to obtain descriptions of their exhibits.

### THE REMOTE CONTROL PANEL

FRED A. BREEDING

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Most everyone hates to have to leave his seat to adjust the record player or to turn it off but that is far as it usually goes. With this in mind and other inconveniently located switches made me want to change this situation in my own room.

I got the idea for my panel thinking that with this I would not have to get out of bed after reading to turn the light out or radio off. If I said goodnight to the rest of the family, I had to leave my room. This could be prevented with an inter-com, but commercial models had to be placed on a table and had a switch that must be pushed so that would not have been the answer. So I made my own along with the rest of the panel to suit myself.

Maybe I am a little lazy but most of us are, I guess. My little sister would move my record player to her room and I would have to move it back. With my panel she can play records through her own radio. We have a large house and keep some boys that go to college. They get phone calls and have to be paged to the phone. With my panel I can both answer the phone and page the boy that is wanted on the phone without even getting out of bed. Since my parents go to bed early this makes it very useful to us all.

I started to build the panel about five weeks ago and my friends thought it would be a good entry to the Science Fair. Each thing that I thought would be useful I tried it. If it proved all right I would install it permanently in the panel. I have found that it has many uses that I never thought about, as talking to Dad in the car when he gets home from work—like maybe telling him to go get some groceries for dinner. This saves him from getting out of the car and coming in the house. I know now that other radios in our house receive my records while I play them.

A lot of the panel I built not knowing just how useful it was until I got it in use. Now I can control just about everything that I need to from one place, my fan, lamp, etc.

The first step in building it was to build a chassis big enough. I thought that I had the thing a lot too big and would never

use all that space. Now I need more, since the last part of it has been added. As more things went in it to more complicated it became. I needed more shielded cable to get rid of the a-c hum that was feeding into my amplifiers. The high side of a transformer was arching across a switch and the seeming simple job of installing the waffer switch turned out to be more complicated than I ever imagined. All this was my own idea. I bought no wiring diagrams or kits. I built what I wanted and I built it the way I wanted it built. The most aggravating thing I had to contend with was the fact that I live in a small town and could not get the parts that I wanted. Most of my parts came from an army surplus dealer in my town. I would rather be working with improper equipment than not working at all. So many of the things I am using are not really what I wanted but they work and that is what counts in my case at least. I plan to keep adding to this entry even after the Science Fair is over. I plan to be able to control every electric thing in our house just about without wires. I have some of the tubes that I need now but don't have the money to build the switch relay receivers just yet. I intend, as I have built the first part, to work out each step by myself my own way.

The only book that I have used to any extent is a tube manual. I have made use of some of my own ideas to save money. When I did not have the money to buy a crystal mike I just used 3 V.D-C in series with the carbon mike and the primary of an old speaker transformer. The secondary had the small A-C current when I talked that the expensive crystal mike would have had. I have the panel fused and equipped with a master switch. Each different circuit or unit has a pilot light to show that it is either on or off. I am making use of three amplifiers, having each of them in potential use of more than one thing at one time.

### CONSTRUCTION OF A TELESCOPE

CHARLES J. SCHWARTZ

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My entry in the National Science Fair was a  $3\frac{1}{4}$  inch equatorial telescope which I constructed over a period of about twenty months in my spare time. In order to keep the financial end of this project moderate, I employed such items as curtain rods, spent bullets, and towel tubes in the design. Although half of the fun in a telescope is the construction, upon completion, this instrument has afforded me with numerous pleasant evenings of spectacular celestial entertainment.

To begin with, the most important part of a telescope is the tripod. This I made from one inch pipe. It will fold up for