TELEVISION is in about the same stage of development as radio was in the 1920's when receivers were expensive and many thousands of mechanically minded men and boys built their own sets. You can buy a television set today ranging in price from $100 to $800, but those prices are beyond the average man's pocketbook.

So right now in basements, garages and attic workshops in America's major television areas, mechanically minded men and boys are building their own sight-and-sound sets. Most of the television "hams"—amateurs—have had some sort of experience with radio, for constructing a television receiver is far more complicated than was putting together a crystal set.

Los Angeles and New York are the two main television centers of America today and it is in these areas that most of the television hams are to be found. W6XAO, the Don Lee television station in Los Angeles, has been telecasting for nine years, and W2XBS, the RCA station, and W2XAX, the Columbia station in New York, are actively cooperating with amateurs. Recently it was announced that $8,000,000 would be spent in New York and Los Angeles, as well as several other American cities, in a program of research and experimentation.

How many television amateurs there are
in the United States is a question hard to answer. The Los Angeles and New York areas each boast around 200. In other cities such as Boston, Philadelphia, Camden, Kansas City, Chicago and San Francisco there are smaller groups.

In the beginning the television hams annoyed the professional engineers. They snooped around to watch television demonstrations, they asked foolish questions, and only clamored for help when their homemade sets wouldn't operate. Finding they could not get rid of the hams, the engineers began to cooperate with them. They furnished diagrams and advice on how to build sets; they appeared at meetings of the amateurs and explained telecasting. The results were amazing. Engineers found that the amateurs could be extremely helpful. The hams checked on the programs and sent in reports and comments. This cooperation has been an important factor in making Los Angeles and New York the leading television centers.

Television amateurs have also contributed important information on television reception. In Los Angeles, a group of amateurs has plotted the entire city for miles in various directions. They know what sort of reception can be expected and how
powerful a set is needed to pick up W6XAO. They have also learned how to eliminate interference from automobile ignition systems and physicians’ short-wave diathermy machines. Many experiments have been made with different antennas.

Sometimes “ghosts,” double images, appear on the television screen. They are thought to be caused by high-frequency waves which bounce off the sides of large buildings and produce not one but two images in the receiver. The amateurs have learned how to eliminate these “ghosts.”

Not long ago a television amateur, greatly excited, phoned engineers at Los Angeles’ W6XAO:

“Say, what’s the matter with you fellows? You’re sending out your program upside down!”

A couple of engineers jumped into their car and drove to the ham’s workshop. Maybe this was some new trick of the high-frequency television beams. They discovered, however, that the amateur had merely put his cathode-ray tube upside down. When it was righted, everything was O.K.

Candid camera fans have turned to television as an interesting source of picture material. They train their lenses upon the television receiver screen and snap photographs of the actors. Not long ago a University of Southern California anthropology professor was pictured—holding a glistening white skull against a black background.

Telephone calls poured into W6XAO:

“Keep the professor before the television camera a little longer so we can get a good candid camera picture.”

Television hams are continually experimenting with various types of receivers. Several types of portable receivers have been built and Thornton Chew, in Los Angeles, has built an automobile receiver.

Television amateurs have been building
Meet the Television "Hams"

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Complete pictures in the form of electrical impulses every second. Each picture is actually millions of tiny dots, each of which is transmitted separately.

The 120-line pictures transmitted by the iconoscope, while not of the same quality as the 441-line television images being broadcast in New York, are remarkably clear and sharp—being equivalent to newspaper half-tone reproduction. The new iconoscope transmits a television picture about one and one-half inches square which may be enlarged at the receiver. The receiver may show a picture having many times the iconoscope picture area.

Two-way television was demonstrated for the first time last summer at the New York World's Fair amateur radio station W2USA. An amateur-type television camera and receiving set, furnished by RCA, flashed pictures with voice between the Communications Building at the Fair and the New York Daily News building eight miles away. Successful reception was reported by other amateurs up to thirty miles. One feature was the two-way conversation carried on by two deaf-mute girls using their sign language over the picture channel.

In its research and development work, RCA collaborated with the American Radio Relay League, which has been seeking for several years to make it possible for the amateur radio enthusiasts to enter the television field. All the necessary equipment has been available for some time for amateurs, with the exception of the iconoscope.

The opening of the electronic television field to amateurs will serve to widen existing popular interest in the new art, and at the same time accelerate progress in television development. The radio industry today points to a number of important steps pioneered by American amateurs, including the development of new circuits. Radio amateurs were among the first to demonstrate the enormous possibilities of short waves—a region which at the time was not highly regarded for radio purposes.

See index, page 4-A, to find where to buy articles described in this magazine. Say you saw it in Popular Mechanics.