

# POPULAR MECHANICS

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WRITTEN SO YOU CAN UNDERSTAND IT  
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## POPULAR MECHANICS PRESENTS *An Original Television Production*

**By Clifford B. Hicks**

"PLACES!" calls the director, her voice rising above the flurry of last-minute preparations in the big television studio.

Actors step quickly to the three sets, muttering their lines in a final rehearsal. Technicians inspect the cameras and sound boom. Overhead, an electrician adjusts banks of bright lights that wipe every shadow from the big room.

The director peers critically at five small television screens along one wall. "No. 1

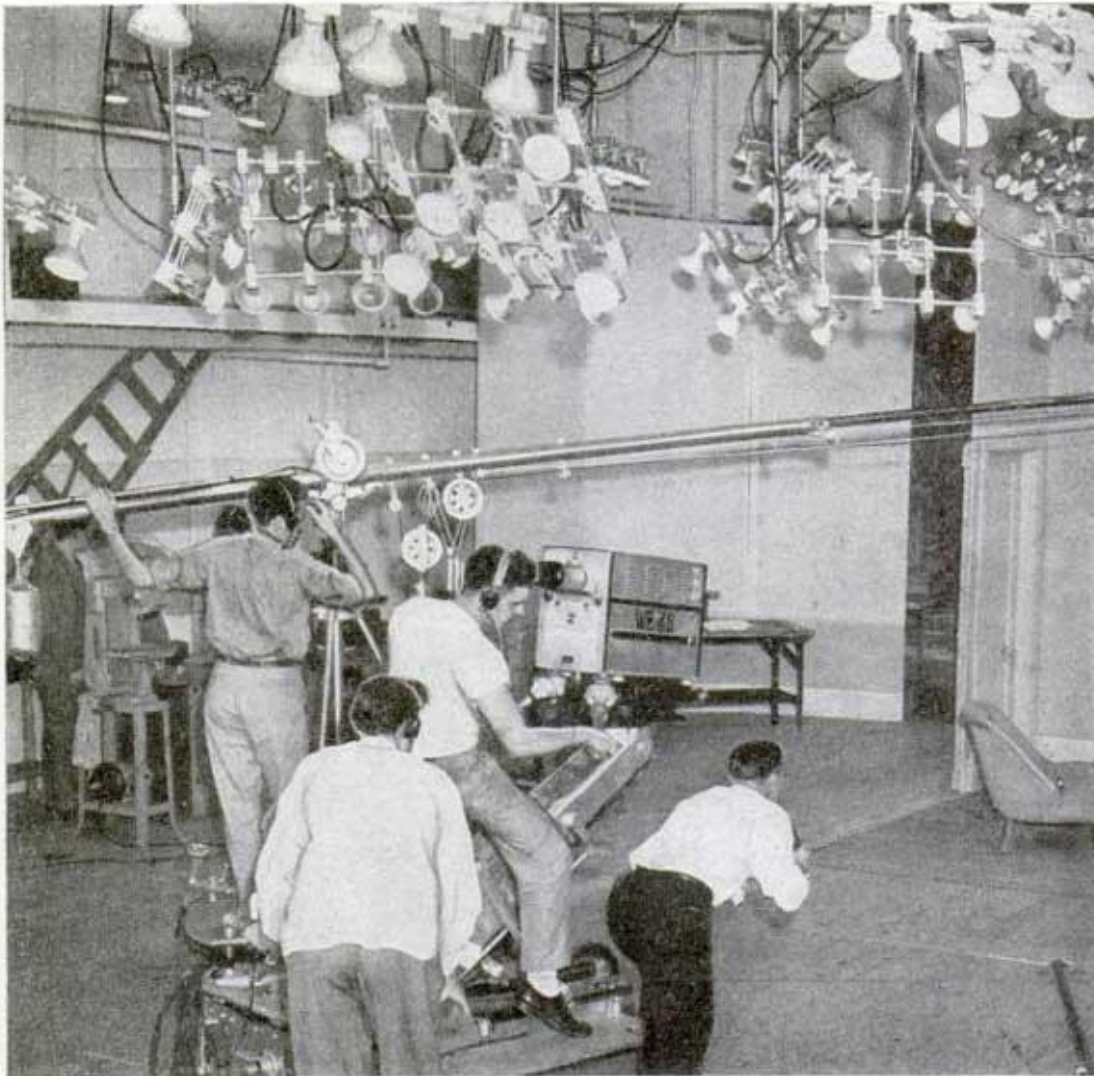
"MR. FIX-IT  
EARNS A  
HOLIDAY"

dolly in!" she says into her mike.

Her words travel through a network of wires to the dolly-pusher's earphones. He shoves the heavy dolly toward one of the sets, while atop the dolly the cameraman squints into the eyepiece of the big camera, focusing on one of the actors.

"No. 2 pan left!" orders the director. Immediately there is a flurry of movement toward the second set in the bright studio.

"Sound boom on the living room set!" The sound engineer turns a crank to twist



Sound engineer runs out the mike while the cameraman at left adjusts his camera for a long view. Camera at right is equipped with a telescopic lens and can take continual close-ups without obstructing other cameras

the long boom across the room and over the set. He runs out the mike until it dangles just above an actor's head.

At one end of the big studio two actors take their places in a living room complete with furniture, lamps, draperies and a rug. Along another wall a third character putters around a workbench in a cluttered basement scene. An actor on the third set stands in a model workshop, power tools grouped around him.

"Watch the red light!" The big studio instantly becomes quiet. Only 10 seconds to go.

A bulb on the front of No. 1 camera glows red, the actors start well-rehearsed movements and the show is on the air.

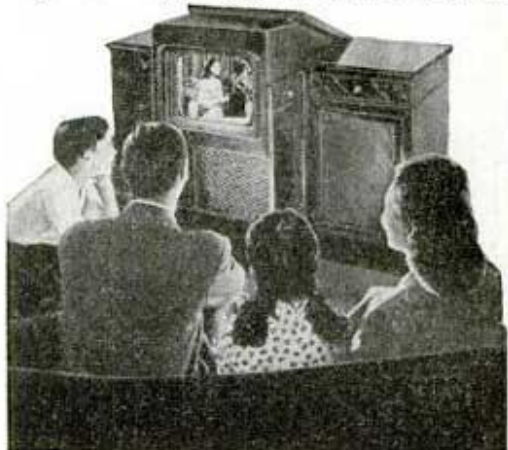
That was the minute-before-performance scene when **POPULAR MECHANICS** recently

broadcast an original television play, "Mr. Fix-It Earns a Holiday," over Station WBKB in Chicago. The show was one of the first to be produced in WBKB's new studio, a soundproof room big enough to hold a dozen sets at a time.

**POPULAR MECHANICS** wrote, produced and broadcast the show to get inside, straight-from-the-shoulder answers on postwar television. Tossing a moving image into the atmosphere and snaring it on a receiving screen 50 miles away is a magic trick that was oversold to the public a decade ago. Yet not one person in 100,000 knows just how a program is televised or how good postwar television is. Getting your feet wet in television is a novel experience confirming optimistic reports that have circulated for



† Image is reflected by mirrors to a screen almost as large as a newspaper page in the RCA Victor console



† Westminster teleset by DuMont has a large cabinet

↓ Experimental Philco receiver uses direct-view screen



Small Farnsworth set includes television and standard radio, phonograph and record cabinet



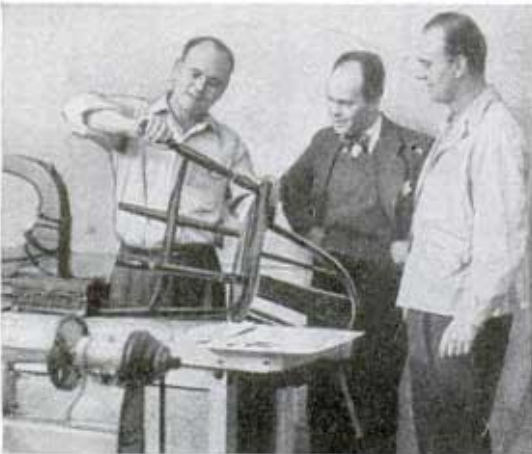
SCENES FROM THE SHOW



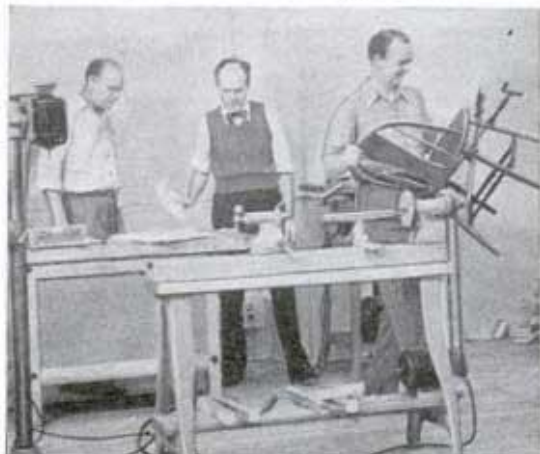
Bill Jones plans next day's fishing trip but his wife insists that he fix a broken chair before he can leave



Bill goes to friend's home where they attempt to carve new chair leg with hand tools, finally give up in despair



Worried about fishing trip, they take chair to Jim Ward, Craftsman editor, who's amused at wood carving efforts



Jim salvages Bill's trip by turning new leg in his model workshop. Bill leaves, elated that he can please his wife

When he returns home he finds his wife in tears because she can't fit his fishing rod into suitcase for the trip

With chair fixed, luggage packed, and fish waiting they read copy of Popular Mechanics that Jim has given Bill





Director supervises broadcast from booth at left. Screen at far left is reserved for remote pickups, the second is a movie film, the two at right show what studio cameras see, and center screen shows what's on the air

years that video is ready to meet the public.

There's a scarcity of good television writers during these pioneer days in video so the POPULAR MECHANICS staff decided to write its own show. Radio authors, accustomed to writing "blind" programs, tend to forget the eyes of the audience in scripting a television program.

Production personnel of Station WBKB took charge of the program after the script was written. Captain William C. Eddy, di-

rector of the station, named Kit Carson producer-director of the show. Miss Carson is a television pioneer who helped video weather the war years when growth was impossible because improved equipment could not be manufactured.

The wire from the director's mike carries the pulse of any telecast. All production personnel except actors wear earphones and the director can personally instruct the

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**Color television** is now possible with all-electronic equipment that does not make black-and-white receivers obsolete. In a recent demonstration the Radio Corporation of America used a new television camera to broadcast still pictures in full natural colors. When the electronic equipment is used a light beam is focused through the picture and then separated into component colors. Rapid-fire electrons then scan three colors—red, blue and green—and transmit 30 pictures a second for each of the color images. At the receiving set the three images are projected on a screen to reproduce a single full-color picture. Today's black-and-white sets will receive transmissions from future color stations by the addition of a converter, but the pictures will not be in color. Company officials say that years may pass before electronic color television is perfected for widespread use.

↓ Orthicon is general-purpose camera. Iconoscope gets more detail, image orthicon makes remote pickups



## Popular Mechanics Presents An Original Television Production

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cameraman to move forward for a close-up or tell the production engineer to swing the sound boom farther on stage.

In front of the director are five monitoring screens. One of these screens carries a motion picture film that can be switched on the air at any time, another shows nothing during studio broadcasts but is connected with a remote control pickup camera for outside programs. A third, the screen in the center, shows the picture that is on the air and the remaining two show what each camera is picking up. By flicking switches the director can put on the air the picture appearing on any of the screens, varying the angle and distance of view.

James R. Ward, Craftsman editor, was one of the leading characters and played his own part in the show. Professionals were hired to play the other three parts. In years to come when more programs are broadcast the professional player will need the memory of an elephant. A telecast is a one-shot show. The actor must memorize two or three scripts at a time, then two or three more the following week. Mr. Ward learned firsthand all the problems of professional players. The overhead lights make the studio as hot as a summer day in the tropics. And during these frontier days in video the actors are sometimes neglected in the preoccupation to "get a good image."

Some strange quirks in telecasting were discovered in producing the POPULAR MECHANICS show. A few colors don't appear on the screen in their usual black-and-white values. Red usually goes much lighter than it would in a photograph, while any black material with a sheen appears silvery and sometimes white on the screen.

The camera often goes beneath the surface to produce startling effects. For example, all three male characters in the show were clean-shaven, yet the screen showed a dark shadow on each chin. In the first teleshows this effect was even worse and some romantic leads appeared on the screen with dark beards. Natural tears won't register so milk is used sometimes. Occasionally an actor dressed to contrast with the background dissolves into it and only his head shows on the screen. Some synthetic materials practically disappear in the camera and it's been reported that a bathing beauty show early in television history was quickly canceled when the bathing suits looked like Cellophane.

These peculiarities result from the cam-

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era's ability to photograph invisible as well as visible light. Infrared rays go beneath the surface to find pictures that aren't meant to be shown. An improved camera has been developed by RCA that filters out infrared light. The same camera will filter out visible light and photograph only by infrared rays. With such a camera the recent show could have been produced in total darkness and still appeared bright and clear on the screen.

Most of the other technical problems have been licked, too. Pictures of the POPULAR MECHANICS show on receiver screens were more distinct than home movies. The days have passed when actors looked like reflections in a fun-house mirror or disappeared in video snowstorms. For remote control broadcasts the new image orthicon camera will pick up anything that the unaided eye can see, will broadcast a scene lighted only by candles or the flare of a match, and can follow a baseball out of the park on a cloudy day.

Postwar receivers are keeping pace with other improvements. Direct-view screens of the new receivers average about six by eight inches in size with reflected images much larger than that. Manufacturers are tapping the working man's pocketbook with prices down to about \$200 to \$350 for table models, although you can sink as much as \$2400 in a fancy console. A spokesman recently set the industry's production goal at "not less than 750,000 and if possible 1,000,000 receivers in 1947."

To a public sold on television a decade ago it's a distinct disappointment that telecasting, despite technical improvements, is still in the barnstorming phase. There are a few good programs today but much of the time the air is filled with second-rate entertainment. Some authorities estimate that five years will pass before high-class visual entertainment will flood the air waves.

Why will there be a lag in good programs, now that good pictures can be broadcast? Video is chasing its own tail in a vicious circle. Sponsors won't invest big money in first-rate entertainment until there are several million receivers in the hands of the public. And a penny-wise public won't buy many sets until entertainment is first-rate.

From the sponsor's standpoint it's just poor advertising to spend as much as \$14,000 on a lavish show that will reach only 1400 people. Several large companies have spent thousands of dollars on telecasts for much the same reason that this magazine broadcast its show—to discover video's possibilities. One spokesman says "as far as we can tell in our company, our hours

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and dollars in television have not yet made a ripple in our total sales."

Coaxial cables may help television stand on its own feet. They make network broadcasts possible, opening promising new fields where no television receivers can now operate. Last October there were 2700 miles of coaxial cable already in the ground. Coast-to-coast links by 1950 are planned. Transmitters without studios can be set up anywhere along these cables and programs piped to areas outside the 50-mile broadcasting radius of present telestations.

But old-timers at Station WBKB say there's only one way that television can emerge from its vicious circle and climb into an upward spiral. Broadcasting stations themselves must lift the industry out by its bootstraps. They must provide the finest possible entertainment despite penny-pinching budgets. When programs are a little better a few more people will want receivers. When a few more receivers have been sold, advertisers will invest a few more dollars in better programs.

Will television ever replace radio and moving pictures? Experts doubt that any present form of entertainment will be outmoded. The housewife can listen to the radio while she works, but she can't watch a telecast. Television programs will be extremely popular in the evening and open broad opportunities for mass education. But most "television families" still will seek entertainment elsewhere. Half the fun of attending a movie or a stage show is "going out" for the evening. Television is a spanking new and different medium cutting across every field of entertainment but traveling its own road.