

Television's Bag of Tricks

CLEVER DODGES BRING WIND AND WEATHER, BATTLE FLEETS, GHOSTS AND OTHER WEIRD EFFECTS TO YOUR LIVING ROOM

By GILBERT SONBERGH

A REGULAR movie-goer can call to mind many clever photographic stunts Hollywood has used. Camera viewpoints zoom in for close-ups over the heads of a crowd. Titles animate and write themselves. One picture "wipes off" another like a growing soap bubble. Slow motion, stop motion, reverse action, and dozens of other special tricks lend spice to the program. If you're a gadget fancier or a student of motion-picture techniques, you know that most of these effects are created by technicians in laboratories equipped with special projection printers, some time between the filming of the action and the time the print is delivered to your theater.

Television isn't like that. Whatever takes place before the electric eye of the telecamera appears in the living rooms of the audience about one ten-thousandth of a second later. There isn't much time to work on it in between! Because it lacks cutting-room privileges, "live" television technique is distinctly handicapped, as compared with movies. However, there are a few tricks peculiar to telecasting, and many agile minds are at work experimenting with ways to get

around this limitation of instantaneity.

For example, how would you go about producing animated maps for news telecasts, or animated cartoon characters like Donald Duck? In the movies, thousands of man-hours go into the careful preparation, frame by frame, of such material. On television, there are two distinct ways of animating a map. The first requires a large map on ordinary translucent paper. While the commentator comments, pointers and arrows in brilliant light appear as if by magic at preselected locations. Battle lines surge forth and back. Symbols of tanks, artillery, or planes flash up and move slowly towards their objectives. It's easy if you know how. Assistants behind the map switch on and move about tiny light sources shaped like the objects to be shown. Or they may tear opaque tapes and strips away from previously cut-out masks covering the back of the map to shield it from larger light sources.

The second method of map animation calls for two telecameras. One shows the map, and the other is focused on a black "key sheet" that carries the arrows, symbols, or battle lines. The second camera is flashed off as new animated markers are

SPECIAL EFFECTS. In the cobwebbed corner at the left below, title and credit pages are turned by threads pulled by a concealed operator. The conflagration in the center is created by white powder, compressed air, and bright lights. The rain on the miniature castle, right, is made by sifting down mica particles.



Photos courtesy of the

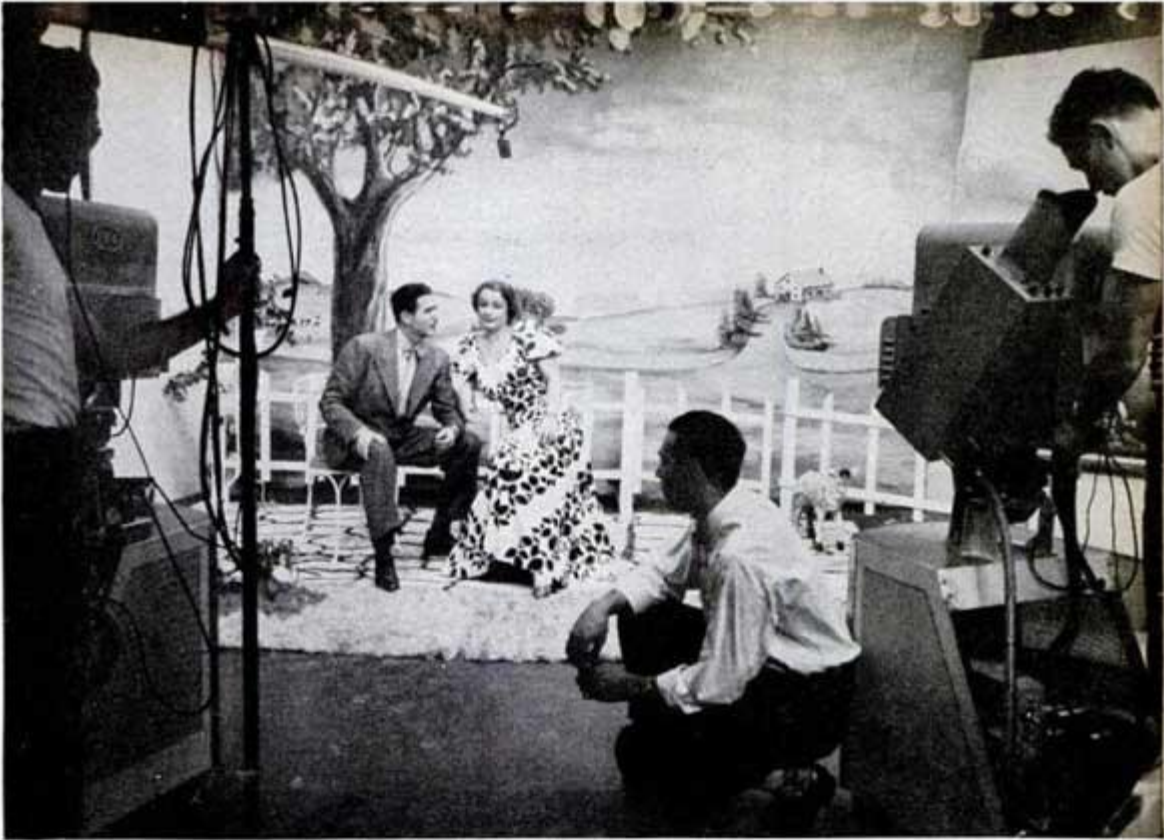


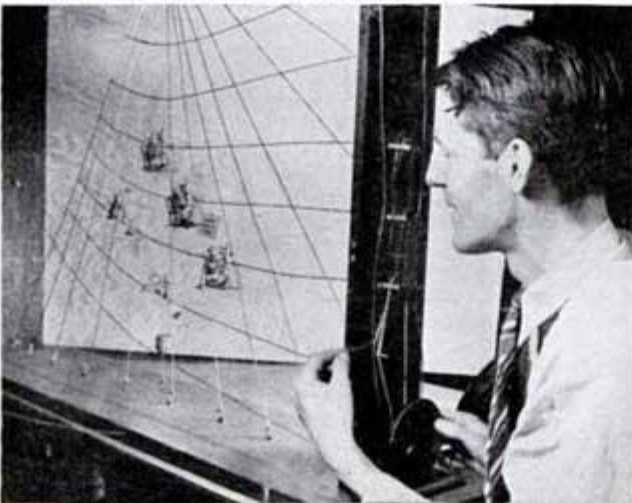
Photo courtesy of Dumont Television

The painted outdoor background in this drama with Judith Allen and Michael Whalen was designed with the peculiarities of the telecamera in mind. The result is a video image that gives the illusion of reality.

added, while the first continues to telecast the map itself. The electrical signals from both cameras are combined before being broadcast, giving the desired double-exposure effect.

Animated cartoon characters are not so

The spidery figures in this web were utilized for humorous titling on one recent production. An arrangement of chains, gears, and flexible shafts moved them before the telecamera.



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simple, but the old profession of puppeteering comes to the rescue. A teleshow may be entirely with puppets, or it may use puppets or hand-type marionettes to turn title pages in a book, or the figures may appear life-size along with flesh-and-blood actors. This

last trick is accomplished again by the double-exposure technique. One camera takes a long view of the human characters while another gets a close-up of the puppets. In your living room, they seem to be the same size and to be acting in front of the same camera. Precautions are taken to use proper backgrounds and to limit the relative movements in order to prevent the ghostly effects that would occur if two characters occupied the same space at the same time on your receiver screen.

Sometimes, of course, you want ghosts. "A Christmas Carol," Dickens' famous sob-evoker, was presented by live actors recently. When the ghost of Marley appeared before Ebenezer Scrooge, the audience saw faint outlines of the room right through the body of the returned spirit, and these



TABLETOP HARBORS and other miniature sets have been constructed by television craftsmen to add a punch to special shows. The motor at the left is geared to rotate the beam of a tiny lighthouse...



...while model ships are slowly moved by means of chains on guiding tracks beneath the water level. To the telecamera lens, the model craft riding at anchor resemble the real thing seen from the air.

ghostly lines created a convincing illusion.

Carefully built working models of anything from a battleship to a tarantula have a place in television. Whole sets have been built in miniature to simulate large-scale outdoor events in the confines of the studio. When convenient, television, by means of the motion-picture camera, actually does go outdoors to obtain shots difficult to create inside the studio. A 16 or 35-mm. film scene is shot and then sandwiched into the telecast between the "live" sequences. But here's the trick: the film negative may be used on the telecast! No need to wait for reversal processing or positive prints of outdoor scenes. The negative works just as well, because the video (image) signal can be electrically inverted simply by throwing a switch. Similarly, any actual live scene being telecast can be shown in your living room as a negative instead of a positive when some unusual effect is desired.

Although television has only lately emerged from the experimental stage, numerous special-effects techniques are as well established as the familiar ruses used in radio sound effects. Fog drifts across a scene when a bit of dry ice is allowed to evaporate close to one camera while another camera portrays the action. Snow can be presented similarly by letting finely divided white material settle slowly through a glass tank of water placed before the effects telecamera. A blizzard effect can be achieved by swirling the contents of the tank. Rain is easy. Finely pulverized mica drops through the mesh of a piece of window screen. Any of these effects can be done on a miniature set or, through the two-camera technique, performed before the close-up camera while the main camera picks up the life-size action.

There are two ways to produce fire. Fine white powder can be blown upward out of a miniature building, lighted brilliantly from inside, or actual fire—chemicals or oily

waste—can be ignited on a small scale before the No. 2 camera. It will engulf the studio set and the actors from where you sit comfortably at home, but there's no need to be alarmed. The ten-foot sheets of flame are only three or four inches high in reality, and not nearly as hot as the studio lighting!

Lap dissolves—one scene fading out while another fades in—are a lot of work in film-making. They are made by stopping down the lens of the camera to fade the first scene, rewinding a short length of film, and then opening the lens gradually as the second scene is filmed. Or they can be shot straight and dissolved when a positive is printed. On television, no such legerdemain is necessary. A simple knob like the volume control on your radio may control two variable resistors on the same shaft—one to fade out No. 1 camera and the other to fade in No. 2 camera simultaneously. Another electrical stunt is one whereby a rather complicated box of vacuum tubes in a special hookup creates for television the familiar "wipes" of the cinema. One scene or title is wiped off by an imaginary vertical, horizontal, or specially shaped line, leaving the new scene in its place. Equipment is also being developed for creating montages—pictorial crazy quilts with a number of different scenes going on at the same time.

Here's a puzzler for you: You're watching a psychological thriller on your receiver screen. A man and a girl are struggling for possession of a gun. He overpowers her and shoots. She falls to the floor, dead. The murderer adjusts his tie and steals quietly away. But do you think he avoids television justice? Not by a long shot. The ghost of the dead girl rises from her body, adjusts her ghostly frock, and haunts and taunts the villain everywhere he goes. Meanwhile, we see the authorities come and pick up the lifeless body. How come?

During a rehearsal for the show, a large "still" photograph is made of the girl lying



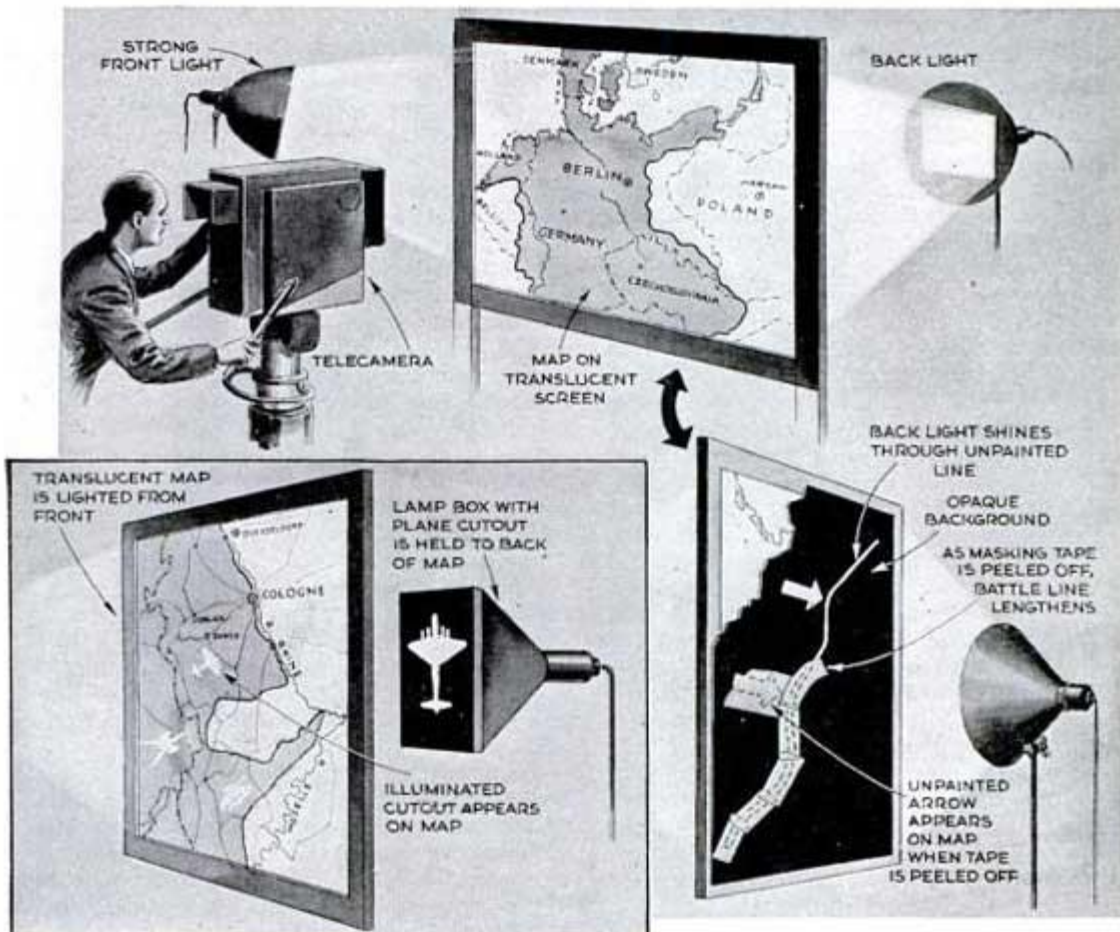
With the telecamera following the action, the ships get under way as the lighthouse beam sweeps the scene. Any kind of weather, from an Arctic blizzard to a tropical deluge, can be made to order as the script may demand.
Photos courtesy of N & C

on the floor. When the scene is put on the air, a second telecamera is focused precisely on the photo. After the girl has fallen dead, the picture signals from that second camera are mixed with the signals from the camera following the action. Now the girl can get up to do her haunting, but we still see her motionless form on the floor—from

the photograph. If done skillfully, the illusion is just such a one as must have confronted Macbeth when the ghost of Banquo put in an appearance. To make it effective, the girl's ghost in our teledrama can be fed into the subsequent scenes from a separate camera so the details of the scenes will show through her in approved ghostly fashion.

Bud Gamble, television consultant for Farnsworth Television and Radio Corp., used this still-photo technique in a somewhat different way. A little girl sat at a table and fell asleep. She dreamed she was a canary bird dancing with great glee after escaping from her cage. The girl laid her head on her arms and, unknown to the television audience, the previously prepared still photo then took her place, while the real girl quickly changed into her canary-bird costume. Gamble introduced another touch in the interim, to ease over the 15 seconds required for the dress-change. The picture had been mounted on a rotary disk, a heavy

SPECIAL TECHNIQUES FOR ANIMATING TELEVISED NEWS MAPS





Photos courtesy Dumont Television



cloud of cigarette smoke was made to drift across it, and the whole scene of the girl asleep at the table began spinning faster and faster, as suitable music built up to a crescendo. At the final instant, the scene stopped to reveal the girl poised in bird-like grace for her dance. Make you dizzy? It was a convincing way to burst into a dream world.

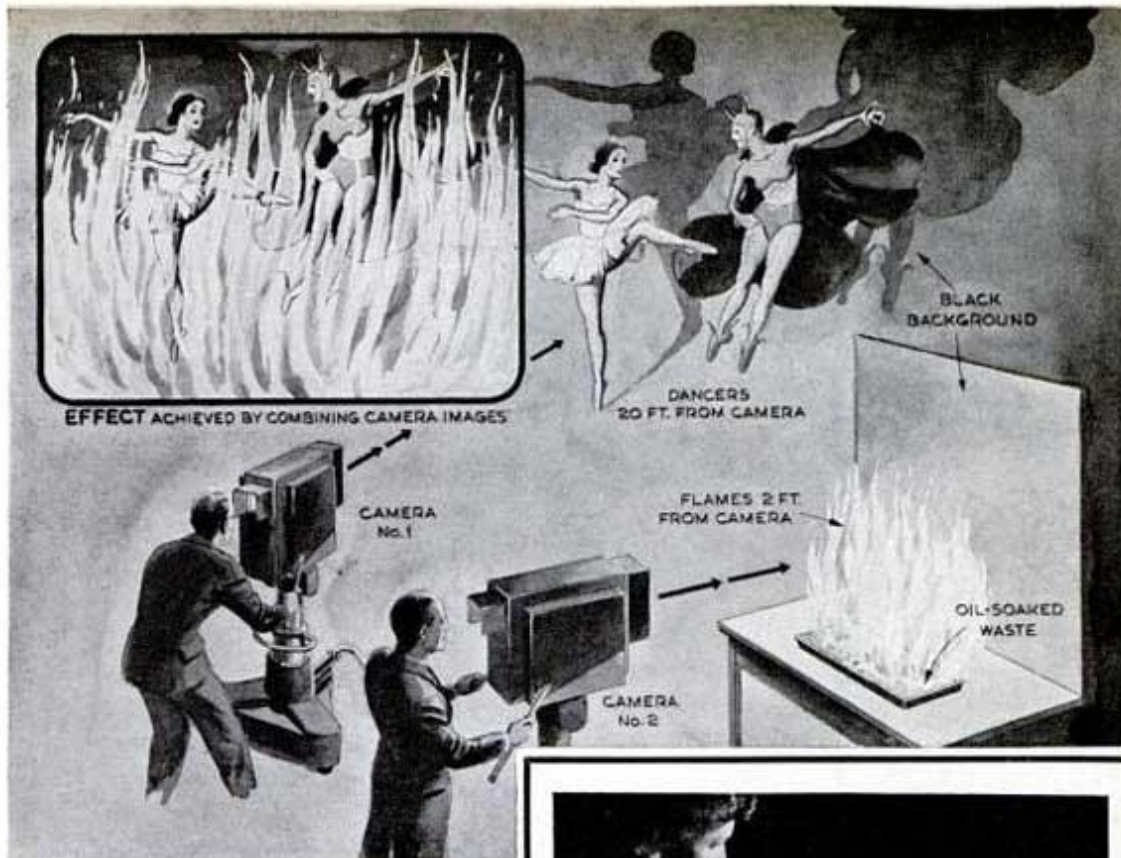
Television already has its own counterpart of Hollywood's "dubbing" technique. Since some singers don't look their best when they strain throat muscles to hit a high C, they're filmed singing easily for looks, then later make the final sound track while watching their own pictures. They don't have to worry about looking pretty and singing well at the same time. Several television shows have had actors, scenery, music, and sound effects which seemed entirely normal to the audience, though not one of the actors was obliged to know his lines in advance. The entire sound track for the show was recorded before the show went on. The studio set was "dead" from the sound standpoint, and the director, standing out of camera range, simply told actors when to start and stop talking! What they said didn't matter, since it wasn't heard outside the studio. Very few watchers detected the occasional slight discrepancy between lips and speech, since few close-ups were used. Pre-recorded sound is used in many ways to make for smoother

performances or to permit fewer rehearsals.

Pre-recorded video background is coming, too. In the movies, scenes requiring backgrounds of sky, clouds, and landscape are filmed indoors with stock shots of outdoor scenes powerfully projected, from behind, onto a large translucent screen before which the actors move. Experiments with this idea haven't been particularly successful for television because the enormous amount of "front light" required on the actors washes out the background film. Highly sensitive camera tubes promised after the war will make this stunt possible for the telecamera.

Where there's light there's heat. Television actors may have to be able to withstand 120-deg. temperatures working under banks of high-power incandescent lamps. Fluorescents and water-cooled mercury-vapor lights help, but are not entirely satisfactory yet. The poor actors can't even enjoy a dish of ice cream when the script calls for it. Real ice cream wouldn't last in the studio, so they have to pretend to like scoops of vanilla or chocolate mashed potatoes!

Even at this early stage, television has had its share of well-remembered accidents and incidents. Some of them are funny. An announcer overenthusiastically wields a hammer against a sheet of unbreakable glass—and smashes it all over the studio! Easy-to-use mending tape scorches, burns,



and curls up while being inexpertly demonstrated. No-rip pants part neatly in a tug of war. One commercial called for a big dog to turn up his nose in disgust at dog food No. 1 and gobble up dog food No. 2 happily. To insure success, they starved the dog for a day or two so he'd eat No. 2 with the proper gusto. To make sure he'd turn up his nose at dog food No. 1, it was sprinkled with ammonia!

The color response of television cameras is another source of curious mischance. Under certain conditions, a white man in a blue serge suit has been known to televise as a bearded Negro in a white suit! Infrared light penetrates some skins and "brings out" an apparent beard. Ultraviolet light is readily reflected from some types of dark blue material, giving a "white" signal to the television tube. Girls' lips must be made up in a dark purple shade that is out of this world.

But these are details, some of them unimportant. Television is no longer around the corner. It's here now, today, and it's ready to go places on a big scale as soon as materials and manpower are available. Technicians, actors, producers, and advertising agencies are ready, and as you've seen by now, television even has ready its own special bag of tricks!



BEAUTIFUL, constantly changing patterns are projected for the telecamera by the device shown above and below. Developed by Captain Bill Eddy, USN, Ret., of Television Associates, Inc., Chicago, the projection kaleidoscope makes a soothing "bridge" between acts of a show, or as accompaniment to a musical interlude. Replaceable disks permit an infinite variety of patterns.

