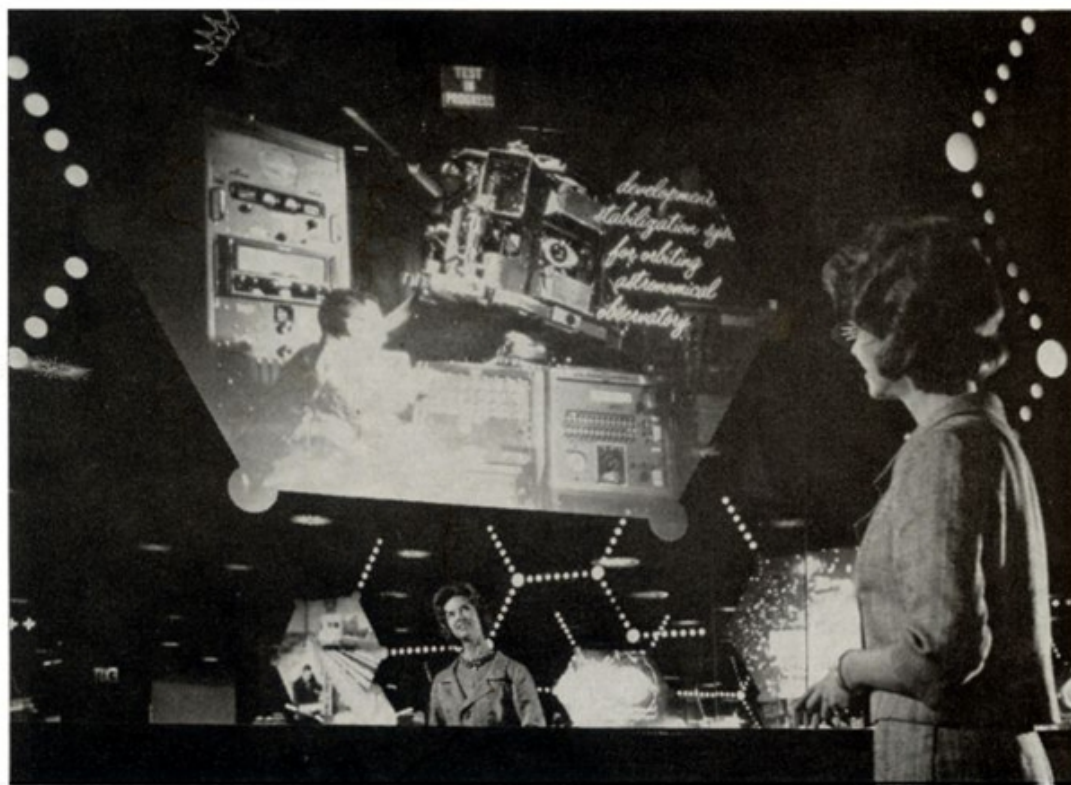




General Electric's Fair pavilion includes a free-flow area dotted with reflected, ever-changing photographs. This "corridor of mirrors" is known as the Galaxy of Science and Engineering.

G. E.'s "Progressland"

General Electric shows the progress of presentation by projection.

General Electric's World's Fair exhibit is concerned with showing the progress of electricity. In the course of doing it, it also shows the progress of presentation by projection.

For one thing, visitors will see man's progress in harnessing nature's sources of energy played out in a symbolic skydome spectacular on what is believed to be the largest projection screen in the world.

The full-circle screen actually is the interior of the 200-foot-diameter dome which roofs the 80-foot-high "Progressland," as the G.E. pavilion is called. Completely free of obstructing pillars, the 140-ton dome constitutes one of the most unusual planetarium-like facilities ever devised. It was designed to make possible a smooth inside surface for projected effects without a

hung ceiling. The projection surface is sprayed-on acoustical material.

A lightning storm and the flames on the surface of the sun are among the 20 awesome effects projected on the vast screen during the six-minute presentation that was designed by Walt Disney's WED Enterprises. They are thrown there by a battery of four Bodde slide projectors and 87 specially-modified Thermofax overhead projectors. The latter carry the burden of the show.

Too many good presentations have been disrupted because a projection bulb has failed. That's not likely to happen in this presentation. Each overhead projector has been equipped with two quartz iodine bulbs. There is a full-time projectionist on hand to cope with any other problems.

The Walt Disney specialists

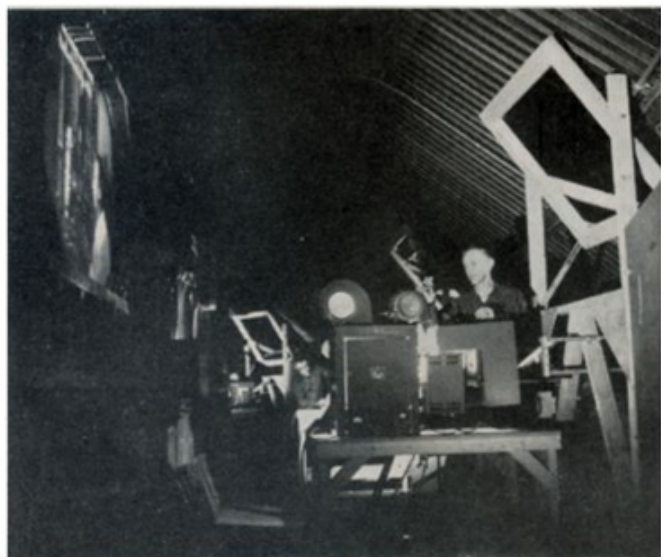
also added effects turntables to some of the overheads. They turn distortion and cloud disks, which impart animation to the slide show.

There is just one 10 by 10 slide on the stage of each projector. All are artwork. They have been designed to compensate for the curvature of the dome.

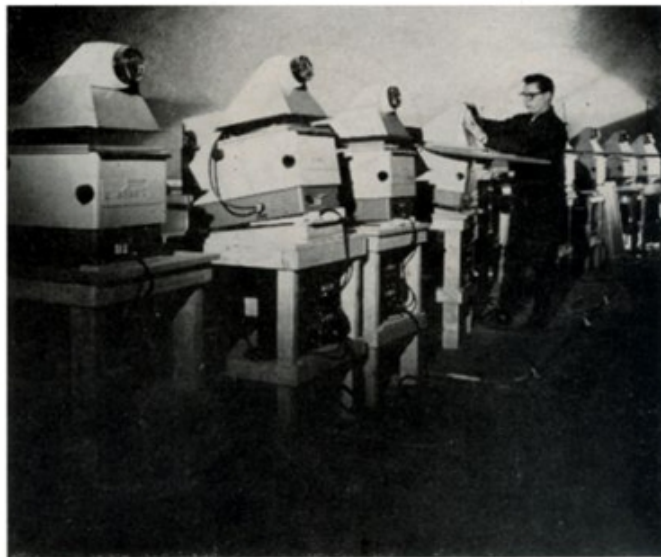
Projection is controlled by intricate tape programming. Narration and sound effects are on the same 35mm tape.

It takes about seven overheads working at one time to cover the dome. This presentation took about a year to work out on a miniature dome, eight-feet in diameter.

Visitors view the presentation while standing on a terrace, reclining against pedestals in which are located speakers.



Because of space limitations, most of the rear-projected Galaxy pictures are thrown onto mirrors, which bounce the pictures to the screens.



G.E.'s Skydome Spectacular employs 87 overhead projectors. They tell the story of energy on the interior of the pavilion's 200-foot-diameter dome.

Projected photography produces another Progressland highlight—the Galaxy of Science and Engineering. Silvered from floor to ceiling, this free-flow area is a “corridor of mirrors” dotted with reflected, ever-changing, photographs of actual General Electric scientists and engineers doing basic and applied research and development—research in space, in electronics; research for electric utility companies and for industry, for the home and for the nation. The walls and ceilings of the corridor are embellished with Technamated abstract designs.

16 Screens

Captioned color pictures appear in 16 various-shaped “screens” (about six by six feet in size), linked by animated elements. They stay on the plate-glass mirror screens from three to five seconds, are wiped away by a warm flood of complementary color (rather than going to harsh white), and are replaced by other pictures.

The screens rotate from two to six pictures each, out of synchronization with one another, so that the effect is that of pictures fading on and off in seemingly endless vistas.

Concealed behind the lenticular no-fall-off screens are the sources of the pictures, 16 2000-watt Bodde rear-screen projectors. Each has been equipped by

the Disney organization with a prism that produces the wipe effect mentioned above.

Bounce Projection

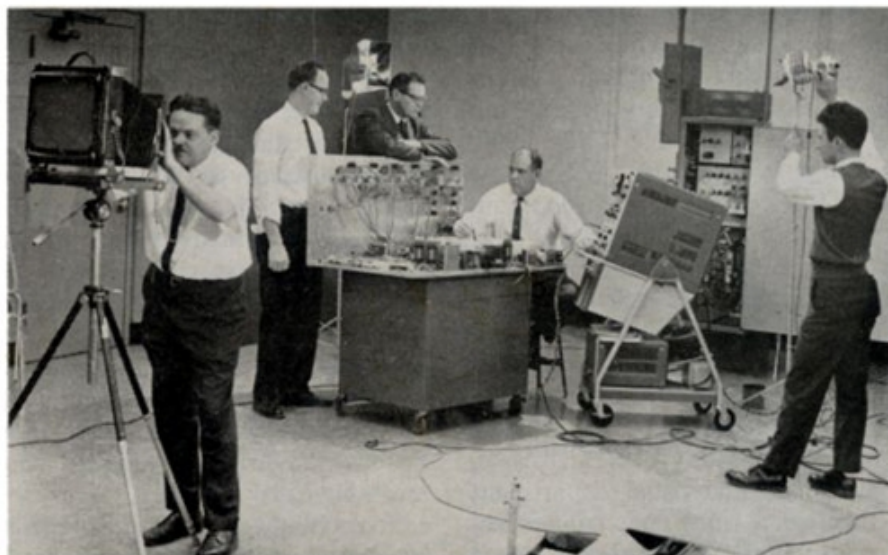
Some of these units project their 4x5 slides directly onto the etched glass screens they serve. However, most, because of space limitations, project onto first-surface mirrors, which bounce the images to the screens. In the case of some, a triple throw is involved: projector to mirror to mirror to screen.

Both the projectors and the mirrors are securely anchored, so vibration is no problem. Air-conditioning filters out most of the dust that might settle on the mirrors and cause distortion.

The rest is blotted off with chamois cloths and distilled water.

About two-thirds of the photographs in the Galaxy were shot specifically for it by the Burns Brothers: George, Jim and John, headquartered in Schenectady, N.Y. Others were provided by in-planters at G.E.'s Schenectady research laboratory, and other facilities, and by prominent freelancers, such as Art D'Arazien.

Paul R. Heinmiller, Director of Communications Associates, Schenectady, N.Y., and consultant to the G.E. New York World's Fair Operation, served as advance man for the Burns Brothers. Traveling across the



Most of the pictures in the Galaxy were shot by George Burns (left) and his brothers. All are of actual General Electric researchers at work.

country from one G.E. installation to another, Heinmiller, in consultation with local experts, pinpointed subjects for George, Jim and John. His scouting reports were illustrated by photographs shot with a Polaroid Automatic 100. These enabled the Burns boys to "see" their subjects and do some preliminary planning before they actually came on the scene.

George describes the assignment as "a real romp." Many of the hops from Burns' headquarters in Schenectady to G.E. installations were made in the brothers' corporate airplane.

Most shots were interiors, and some of the equipment used to light them was, to say the least, unusual. For example, as many as a half-dozen childrens' aluminum snow coasters wired with four No. 50's enabled the photographers to shoot Ektachrome at $f/22$ in large areas.

Before "shooting for the money," test shots of each subject were made with a Linhof on 4x5 Polacolor. The final exposures—the ones that counted—were made by an 8x10 Deardorff.

Each photograph was made for a particular bay; consequently, the shape of a bay—round, square, triangular. . . , had to be taken into account when composing the picture for it. Similarly shaped masks were mechanical aids in coping with these composing problems.

Usually, the Burns Brothers would make 10 exposures of each subject, with minute variations in all 10. From these, three were chosen for exhibition purposes, a master and two backups. Generally, these three were identical views but with variations in lighting. Dupes made from the master became the actual projection transparencies. Only time will tell how long these dupes will hold up, but they are expected to hold up well.

From a projection standpoint,

the Skydome Spectacular and the Galaxy of Science and Engineering are of major interest. However, other highlights of Progressland should not go unmentioned, especially one which introduces whole new dimensions of visual presentation.

Visitors first enter a 250-seat theater. Before them, refracted colored lights play on the stage in synchronization with stereo music. Minutes later, the audience begins to move, for they are on the Carousel of Progress, a Walt Disney creation composed of six auditoriums which circle from fixed stage to fixed stage.

On the stages, a remarkable cast of characters act out the history of electricity's contribution to the progress of man. The "players" move, talk and almost seem to breathe. Yet, they are "Audio-Animatronic" figures — electronically-controlled robots.

At the last stage, twin walls of Technamation, each 24 feet long and 10 feet high, funnel spectators through a giant symbol onto a moving ramp toward an actual demonstration of fusion. Visual aids used in this demonstration include oscilloscopes, which register graphic evidence of the fusion reaction and back-lighted word panels.

Projection equipment can also be found in the Newsreel Theater in Medallion City, a technologically model town, and in the VIP Meeting Room, which is not open to the general public. ■