

Film Illusion Secrets Revealed

By Rosalind Shaffer
Hollywood, Cal.



"In some of the shots of 'King Kong' the film seen by the audience represented eight processes, not all of them different, however, some being repetitions, as in double exposures." (Kong, the giant ape, battling a pterodactyl, or prehistoric flying reptile, after rescuing the girl (Fay Wray), in the celebrated RKO-Radio production.) (Ernest A. Bachrach photo.)

ART that conceals art is the ideal of every director, artisan, artist, and mechanic who helps create the "trick shots" used in films. So jealous are the studios of the secrets by which many of their truly amazing effects are obtained that it was impossible to obtain a single interview at any studio in Hollywood on the subject of this article.

The attitude prevails that the public does not wish to be disillusioned. Yet the public is aware that pictures like "The Lost World," made many years ago; "The Ten Commandments," with the parting of the Red sea so realistically shown; "Just Imagine," with its forest of life in the future; and "King Kong," with its giant ape, are not made in the same way that a drawing room scene is photographed. Behind this business of creating illusions there is concealed so much of art, engineering, ingenuity, and sheer mechanical skill that it is worth while taking the chance of pulling the whiskers off Santa Claus and telling a few things that the public is aware exist without actually knowing how.

Motion pictures deserve a great deal of credit for conceiving the effects used. With mechanical illusions there can be created a sort of entertainment stimulating to the imagination and impossible through any other means. In a film any story can be told, no matter how fantastic or elaborate. By the use of these illusions it is possible to attain a degree of accuracy as to locales that would be out of the question otherwise without the expenditure of huge sums of money, which would make motion pictures a far more expensive form of entertainment than they are. Trick shots can be used to make unnecessary the dangers to the lives of human beings that the actual scenes represented would entail.

Motion pictures have carried this development far beyond the mechanical tricks of the theater. They use all those elementary effects, and more. Mirrors and other devices used by stage magicians are employed at times, but the truly interesting effects are ones developed especially for the camera.

Nearly every so-called trick shot seen on the screen is a combination of several processes. In some of the shots of "King Kong" the film seen by the audience represented eight processes, not all of them different, however, some being repetitions, as in double exposures.

People Quick to Cry "Fake"

There are several processes, simple in themselves, which form the basis for effects obtained. These, plus the personal imagination and inventiveness of the art director or special effects engineer, make the marvelous things you see on the screen. What labor and talent are necessary to create these effects few people realize when a scene is unrolled before them in a theater. Because people suspect, but do not know, some of the marvels of the special effects departments, they are quick to cry "fake" on occasions when there is no fake and enormous expense has been gone to to take the actual shots. Most audiences are not able to recognize a fake when they see one. Hollywood critics who have been fooled by the sense Griffith first invented a closeup can be fooled by the perfection of some scenes, and have cried "fake" when they were looking at an actual scene.

This process can best be conceived if one pictures the thing as a "frame," a series of frames, is prepared with the desired composite negatives carefully fitted together. This frame is then put in a small machine similar to a regular projection machine, with a very fine and accurate lens in it. The image in the frame is then projected in a ratio of one to one onto the film in the camera, with its lens taken out, and the master positive is thus created, from which all the negatives for the distribution in theaters are made. Synchronization of the two machines, of course, is absolutely essential.

The famous running process is a patented process whereby actors in action can be shown against any desired background. It can be explained most simply to anyone who as a child has played with a set of pictures and pieces of red and blue cellophane. The red cellophane, placed over a picture, reveals an entirely different picture. In filming, the actors are illuminated by red lights, while the background desired is illuminated with blue ones. Through manipulations based on the colored cellophane idea the film carries the actors against the desired background.

The newest development in this line is the rear projection process. This is a large measure replacing the Dunning process. The actors in this process act before the camera as usual. Behind the actors is a huge opaque plate glass screen. Behind the camera is a projection machine, synchronized with the camera, which throws a motion picture onto the glass screen behind the actors. Thus in "Sisters Under the Skin" Ralph Morgan and Elisa Landi are shown at a sidewalk cafe in Paris, with Joseph Schildkraut rushing up to them. Behind them moves the life of Paris. In the studio a length of film taken in Paris at a boulevard cafe was projected on the glass screen behind them.

A table and chairs were the only actual scenery on the set. Again, in "No Greater Glory" the tailor shop window look out onto a city street in Hungary. Actually it was a blank screen, against which a motion picture of a street scene was shown. Street cars passed, people hurried by, horses drew carts. It was more accurate than any picture that could be made in the studio possibly could be.

Again, in "Colonia" Henry King, the director, flew down to Carroll and got pictures of tobacco fields, the tobacco plants swaying in the wind. You see Janet Gaynor and Robert Montgomery walking down the path through the tobacco field, which they never had seen. This was a combination of processes. In "Change of Hearts," when Janet Gaynor climbs into the airplane on her way to New York, you see through the window mountains and clouds. This was rear projection of stock shots of clouds and mountains. In "The Sign of the Cross" the old and crude panorama of earlier days. The panorama was a long endless strip of painted scenery that operated like a roller towel, from side to side, however, instead of up and down. It was set in motion behind, let us say, a stationary automobile, and as the telegraph posts and fences and houses flashed by, the camera caught them and you received the illusion of great speed.

In "Flying Down to Rio" rear projection was done to supply the scene of the city below as the airplane with the dancing girls flew over Rio de Janeiro. Actually the girls were dancing safely in the studio.

The idea for rear projection is not new. It was thought of twenty years ago, but the lenses in film cameras were not so powerful nor so perfect as now, the incandescent lights did not provide sufficiently powerful lighting, and the synchronization of the cameras was not then developed. In actual operation the picture shown on the screen by the rear projector jerks and flickers like the old-time films. This is the result of the synchronization with the camera; if it flowed smoothly, as finished film does to the naked eye, it would not register properly in the motion picture camera, but something like the wheels that always run backward in films.

Ship Stationary; Dock Moves

During the making of "Marie Galante" a problem was solved in this interesting way. Henry King, the director, was making a scene showing a huge liner leaving the dock at Panama. There was a huge ship, or rather part of a ship, built over in the Fox back lot for "Casablanca." Here is the trick: It had a movable dock that went places the ship couldn't. Like the old panorama trick, the dock moved, the ship stayed still, and you think it is the ship moving. King used actual scenes taken in Panama. The ship moving dock, will appear to be sailing along the water front. By rear projection of the ship, with a picture of authentic Panama scenery.

This is an actual money-saver, of course, but it is more than this. Better photography is thus obtainable. Ships built for film use have openings left for special lighting and for placing the cameras. Actual ships frequently prove impossible in this respect. Louis Milestone, after being at sea for a couple of weeks on the liner Ruth Alexander, had to make his last few ship scenes in the studio on especially constructed sets.

Another basic process is the use of miniatures. This was

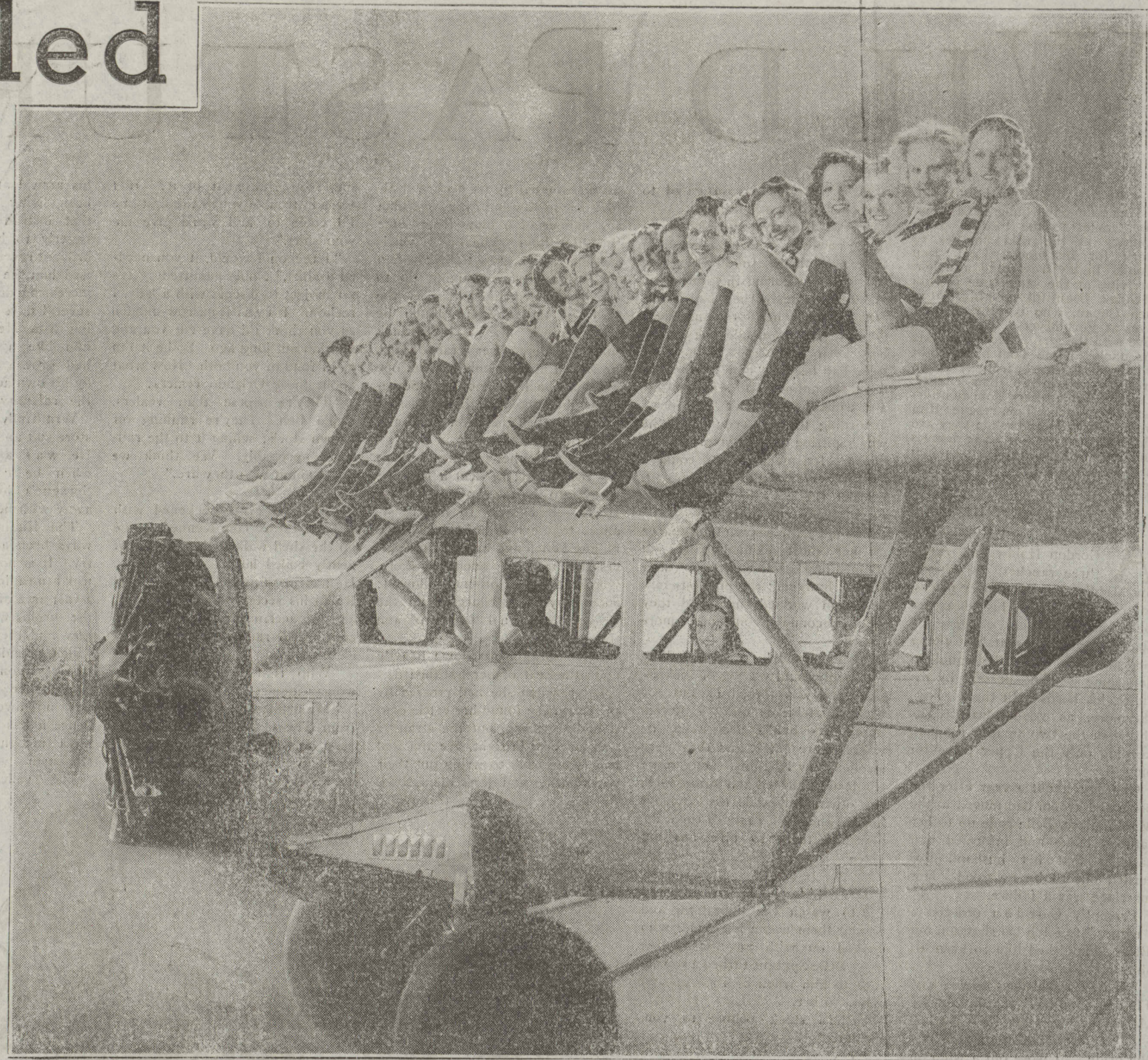
perfected in the earlier days of films and still is used to great effect. A modern example is De Mille's scene in the Bay of Actium in "Cleopatra." The actual bay used in the scene was not large, being perhaps twenty feet on a set; but by most minute working to scale, and the use of perspective, the effect of a great size and distance was obtained. Models of boats were used, afloat on the bay. They were so placed that the nearer ones were much larger, those a few inches behind were smaller, those still farther back diminishing in size according to a carefully worked out mathematical proportion. Thus, just as the artist achieves perspective on his canvas, so does the art director with his miniature sets. This same thing was done some years ago in "Ben Hur" when a scene along the Mediterranean was shown. Miniature boats operated by electrical controls, and also so lighted, followed their paths over the water just as an electrical train runs around the track under a Christmas tree. The effect was unbelievably beautiful and real.

Railroad wrecks, automobile collisions, avalanches, floods, many such things, are made by means of miniatures in films. By adherence to the most meticulous exactitude in scale the illusion of reality is created. Frequently sky-lines are made with miniatures.

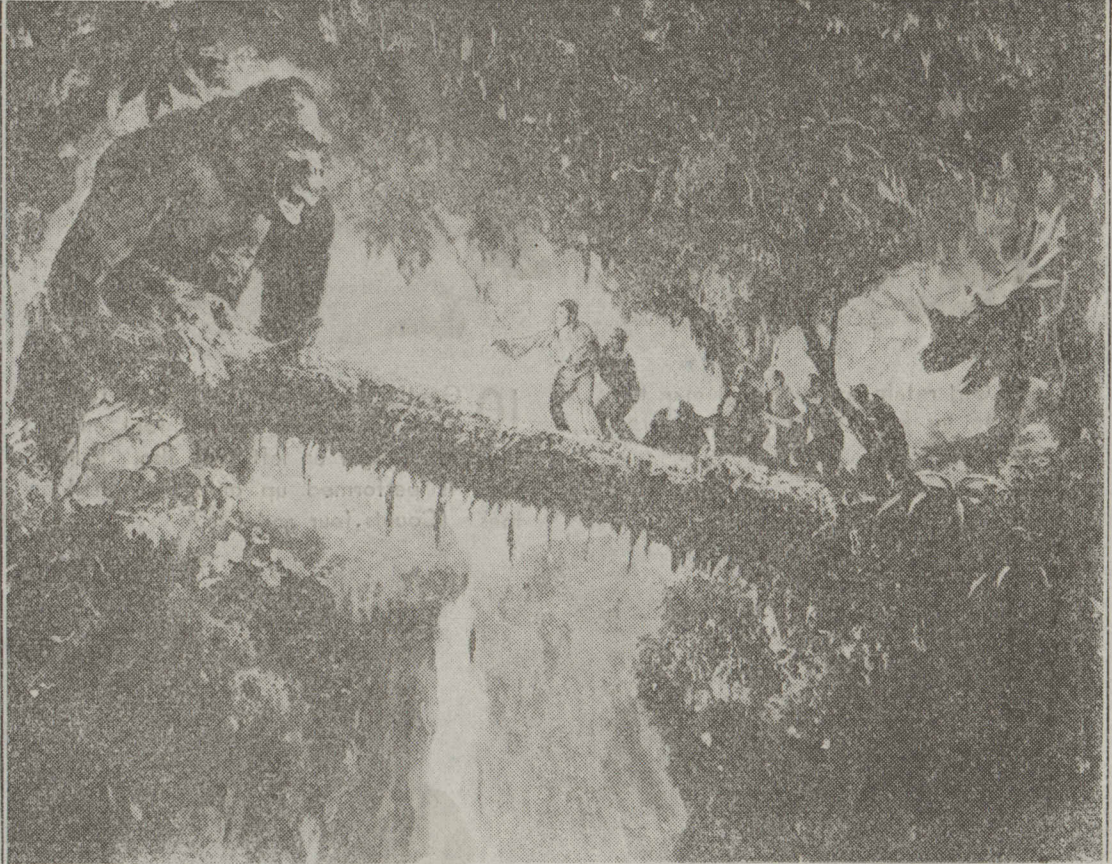
Animated Cartoons Tedious Jobs

Nearly everyone is familiar with how animated cartoons are made. It is a tedious business. For every second of film shown sixteen drawings must be made, each one showing a slight change in position that in the sum total will result in the illusion of action. This same method must be used when animals or monsters are animated for use in a picture. In "The Lost World" and in "King Kong" these animals, which moved by joints controlled by someone from the inside, were photographed in the regular way and related to their surroundings by double exposure. When Fay Wray appears in the hands of the ape, a tedious bit of cutting and fitting together of the frames to make a composite picture, as well as double exposure and other processes, made the thing possible. It is mentioned elsewhere that eight processes were used on the one strip of film for some of these scenes. Truly, genius is the capacity for infinite detail, in motion picture making as elsewhere.

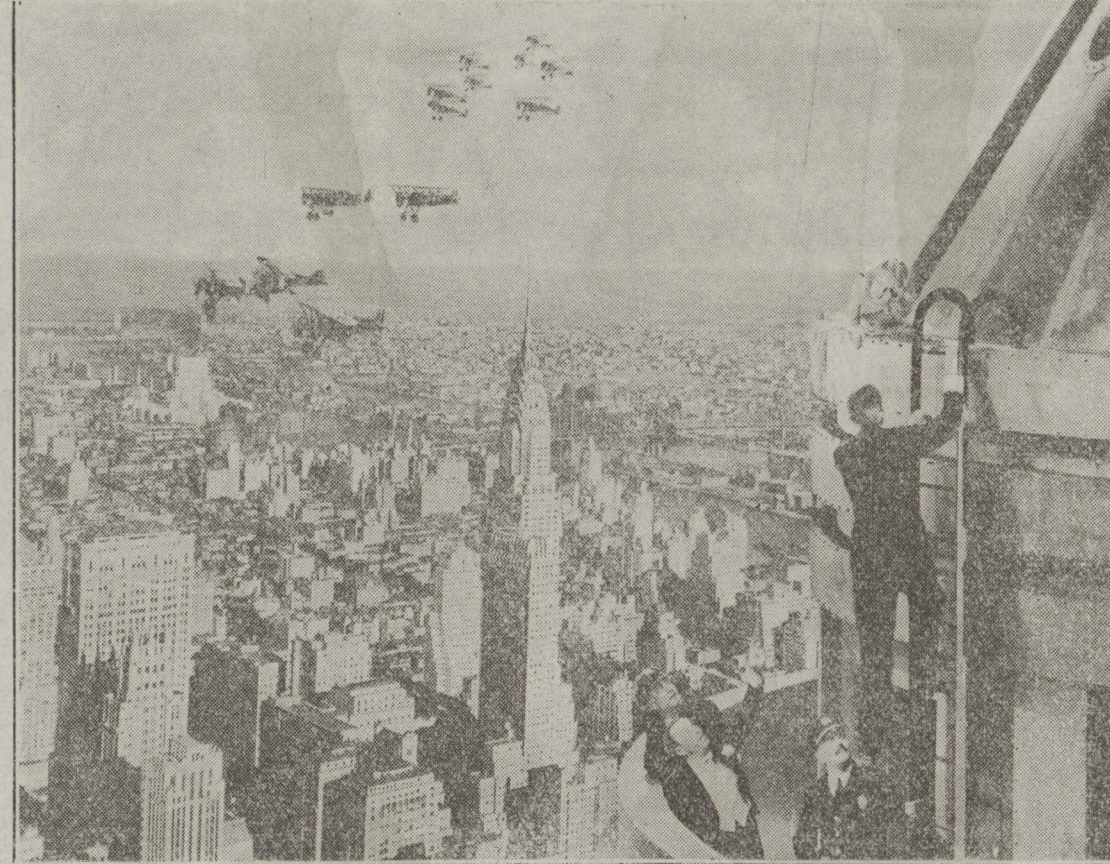
The history of mechanical effects is largely the history of the career of Roy Pomeroy, who came into films after World War I and remained with Paramount for many years, until a disagreement with that company caused him to pursue an independent career. With him as Fred Jackson, now at Warner Brothers, Pomeroy holds many patents on inventions. Educated as an artist, Pomeroy brought to his work a fine technical education as an electrical engineer as well. He trained all the outstanding "effects" men in films today—Roda Riera, at Fox's; Ralph Hameras—perhaps the most famous, although not the most difficult, feat that he performed was the parting of the Red sea in Cecil De Mille's famous "Ten Commandments." Nothing



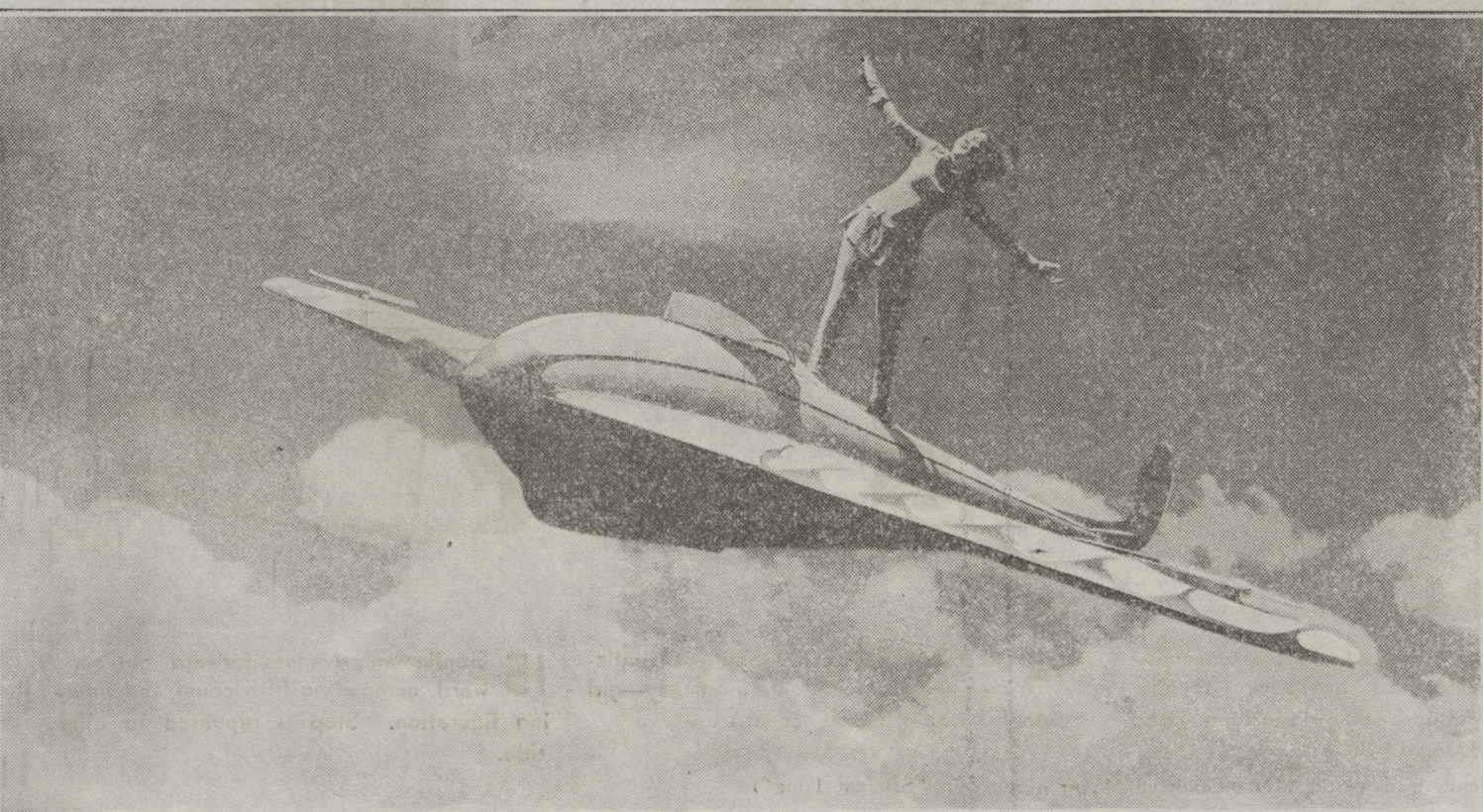
"In 'Flying Down to Rio' rear projection was done to supply the scenes . . . (Dancing on a plane, these girls in RKO-Radio's 'Casablanca', 'Flying Down to Rio,' of course, did not actually fly on the machine's wings.)



"Basic shots might be said to begin with the simplest, double exposure. Anyone who has ever shot two pictures by accident on the same negative knows how this operates." (Maureen O'Sullivan flying in "Just Imagine" through the aid of the double exposure.) (Ernest A. Bachrach photo.)



"Behind this business of creating illusions there is concealed so much of art, engineering, ingenuity, and sheer mechanical skill . . . (Clinging to a ledge atop the Empire State building is Fay Wray.) (Ernest A. Bachrach photo.)



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"Motion pictures have carried this development far beyond the mechanical tricks of the theater." (Plane about to crash on barg in "S. O. S. Iceberg," a Universal production.) (Ernest A. Bachrach photo.)



"True genius is the capacity for infinite detail in motion picture making as elsewhere." (The giant ape, Kong, above New York's skyline.) (Ernest A. Bachrach photo.)



"What labor and talent are necessary to create these effects few people realize when a scene is unrolled before them in a theater." (Yerba in the foreground before a parade of Jewish soldiers in Columbia's "No Greater Glory.") (Ernest A. Bachrach photo.)



"... done through a combination of optical printing, the use of miniatures, and composite pictures, with a slow-motion camera to help . . . (Israelites passing through parted waters of Red sea in "Ten Commandments.") (Ernest A. Bachrach photo.)

walked in safety through the waves of the Red sea, which parted and stood back for them. After their passing the chariots of Pharaoh rushed after them and attempted to bring them back, the waves sweeping over the Egyptians and destroying them. The portrayal of this in the film was extremely realistic.

It was done through a combination of optical printing, the use of miniatures, and composite pictures, with a slow-motion camera to help, and plenty of ingenuity with ordinary materials as well.

The Sea Parted

First the picture of the Israelites marching through the water were taken out on the sands of the desert near Granddunlop. Water was supplied to the effect by the transparency process. Then Pomeroy took a wooden box about four by six feet. One side was set in a sheet of plate glass. The camera was bolted to the bottom of the box. In front of the glass was placed a large miniature, made in concrete of the dry path through the center of the waves, the waves, too, being concrete. A stream of water fell slowly over the edges to conceal the concrete. Running the film backward through the camera gave the effect of the water rolling back. A miniature in gelatin showed the waves holding back. Then, in the trough, miniature men and chariots were placed, and the water allowed to surge in, overwhelming them. As the water rose over the level of the lens the effect of the sea overwhelming them was perfect. A simple tank of drinking water was then used to drop more tiny figures of men into, and the camera photographed this. This was then superimposed by optical printing.

Cotton Clouds

Pomeroy continued to turn out Hollywood's best "effects" for years: "Old Ironsides," "The Wanderer," and "Peter Pan." The latter, which was directed by Herbert Brenon, were his work. In "Peter Pan"

the clouds were actual cotton clouds, maneuvered about by invisible steel piano wires painted to blend with the background. For the flying scenes the methods used in the old Drury Lane flying ballet were employed, with steel piano wires, tested at 400 pounds, stretched to special hinges on the actors' and actresses. The only danger in this wire method is that if a kink develops the wire will break. A special safety wire was always used to guard against such an eventuality.

Midgets in Giant Houses

Some of the scenes were shown, with the actors and actresses made to appear half their size, by double printing in spots of the room made twice natural size. There are several other shots taken in films not with the idea of deceiving anyone as to actualities but to achieve a certain effect. One of these is the lap dissolve, in which one image fades into another. This is to express sequence of events. It is done by gradually fading out the lights on the figure being photographed. Then the film is run through the camera, with lights gradually increased on the second image, which fades in. It is actually double exposure.

The newest development in this line is called a "wipe." It is to express events taking place simultaneously and is done by using a black slide which comes across the film from the side for two or three feet. Then the film is rereeled and run again through the camera, bringing in the other image, overlapped in the center for softened effect. The much-discussed montage, for which Eisenstein, the soviet director, is famous, is the fitting together of several portions of different negatives, which are put on a film together, to convey many ideas at once, for contrast, for emphasis, or for any desired effect.