THE UPSIDE-DOWN FILMING OF "THE POSEIDON ADVENTURE"
By JOHN CAMPBELL

The Poseidon (P.R.S., 1961) is a 17,000-ton ocean liner, its name a salute to the Greek god of the sea. Its Their new storylines, the interests of saving money, herpetology to drive her at reasonable speed and, most importantly, her choice to fail herself properly. During a gala New Year's Eve celebration, a monstrous wave strikes Poseidon. The star is, of course, the ship, and it capsizes at sea. The captain manages to radio a distress call, but immediately, everywhere in the supertechnology is lost. In the main saloon, the effect is hardly catastrophic, with dead and wounded everywhere. But the ship doesn't immediately enter and there are uninjured survivors.

What follows is the heroic and dramatic struggle of ten of them to make their way up through the explosion, wrecked and rapidly sinking ship to the proper housing where there is some chance of escape. They are led by the Riviera's Frank Scott, a man of remarkable will and capabilities. The others are Mrs. and Mrs. Rosen, a couple in late middle age; Mike and Linda Riope, a tough detective and she a one-time prostitute; pretty 18-year-old Susan Shelby and her 10-year-old brother, Robin; Ronnie Perry, a young singer; James Martin, a haberdasher; and Azea, a stewardess.

With these varied backgrounds they react differently under the terrible pressures imposed upon them and poignant relationships develop. Along their perilous way are the perils of the sea, but six are saved - to be the same, even.

That, in capsule form, is the story line of a new multi-million-dollar Irwin Allen production, "THE POSEIDON ADVENTURE," now in the post-production stages at 20th Century-Fox, which will release the picture in the fall. The cast of this extremely ambitious action epic includes the most distinguished group of actors assembled for a single picture anywhere in the world during the past several years. Five of them have been Academy Award winners, including Gene Hackman. Shelley Winters, Red Buttons, Ernest Borgnine and Jack Albertson. Other outstanding talents were Stella Stevens, Rodney McDowell and Carol Lynley.

The roster of talents working behind the camera was no less distinguished. The picture has been produced by Irwin Allen, directed by former British film director Norman Wmorre of a Striling Stileman screen play based on the best-selling novel by Paul Gallico, and stun-ningly photographed by Harold Stine, ASC, in a series of incredible "upside-down" scenes, directed by Amos Enoe by William Cobber. The complex mechanical, and photographic special effects, so critical to the realistic illusion of a film such as this, were entrusted to the Academy Award-winning team of L.B. "Bill" Abbott, ASC, and A.S.D. Flowers.

Few motion pictures have ever been physically as trying to its actors as Irwin Allen's production of "THE POSEIDON ADVENTURE" at 20th Century-Fox.

The story of 10 survivors struggling to escape from a capsized ocean liner, wrecked with explosions and rapidly sinking, starts in "THE POSEIDON ADVENTURE" spent 10 of the production's 14 weeks in the same clothes, soaking wet and in a mass of steam and smoke. The picture was shot in sequence because the principals became dirtier and more tarnished and softened injuries, some for real and some through artifice. It would have been impossible to skip around without committing someachimic in their appearance. The genius of Hollywood set builders has been established for many years, they have reconstructed realistic fac-similes of everything from the Garden of Eden to fantastic concepts not realized even in this remarkable age, plus most of the settings for important events in between.

In the best traditions of this distinctive genre, the writer of "THE POSEIDON ADVENTURE" must add the text of "THE POSEIDON ADVENTURE." The story tells of the coming of a line of the Queen Mary class and of the struggle of 10 persons to fight their way upwards to the bowels of the vessel to possible escape through the tunnel which houses one of her four drive shafts.

A number of the pre-capssion sequenc-es were shot aboard the Queen Mary, $1,000-ton liner now permanently moored at Long Beach, Calif. "THE POSEIDON ADVENTURE" was the first feature film to be shot aboard her and she was a very expensive set, the City of Long Beach and other investors having poured over $100,000,000 into her rehabilitation. This was all quite convenient, but in establishing a ship of this size it was made imperative to build the upside-down sets in which nearly three-quarters of the picture take place - to Queen Mary scale. This was done from the liner's blueprints and from photographs.

Production designer William J. Cobber, art director Ward Preston and set decorator Raphael Bentren were aided by the photographs, which could be invented, but they and their imaginations were on their own after that. The most spectacular of the sets was the engine room. One of Red Buttons' lines in this sequence is, "Welcome to hell." And hell it is - an appalling scene of lacedared steel, twisted pipes, dangling wires and girders, piling dynamite, cliffs of turbine rotors, peaks and
ravines made by shattered generators only half torn from their foundations, split and pouring forth their metal innards. Steam boxes from ruptured pipes and burning oil produce an eerie glow. Water rings menacingly from lakes.

This set is 43 feet high, by 58 by 80, and while it doesn't encompass the entire engine room of the Queen Mary, that part of it which is represented has been built to scale. The slipway walkways and ladders are all inverted, of course, and the cast had to pass over them at no inconceivable danger to themselves. In fact, according to the story, it is a fatal passage for Gene Hackman and Sheila Burns.

The most ingenious set was the first class dining saloon. The original aboard the Queen Mary is intact, but it is in use—end, besides, it could hardly be inverted and put to the uses required for "THE POSEIDON ADVENTURE." So, except for some alterations in decor, a duplicate was built on Stage Six at 20th Century-Fox, using the same dimensions: 118 feet by 80, and 28 feet from floor to ceiling.

The same set was employed for sequences right side up and upside down and, in order to speed the operation, the ceiling was painted on its reverse side and the floor was decorated as the ceiling, thus, when the camera was reversed, panels were turned over and the basic sets were there. Tables and chairs were fixed to the ceiling and certain lighting fixtures were fastened to the floor and also was it. Visors were not installed that the tables were stationary but they were at the chairs. Production designer Cedric had to explain several hundred times that on the Queen Mary, in rough weather, the chairs were "tailed" to the deck by elastic and, therefore, would remain pretty much in place. Another innovative feature of this set was that 32-foot sections of it could be tilted to 30 degrees to start the ship rolling over in a gale next year's last party. What producer Allen calls "movie magic" took over from there.

This set was to be employed for even wilder activity when 125 stout men and women were "drowned" in it. It was rigged to hold water up to these feet deep. It all started with an expansion and then six water Howitzers, activated by compressed air and holding 300 gallons each, were fired simultaneously at the aromatome, supplying this assault with three high-pressure pumps delivering 4,000 gallons per minute each. The set was filled to capacity in approximately 45 seconds.

Another set of ingenious design was the radio room of the Poseidon. It was important to the story line that the radio operator send out a mayday (distress) call at the possible moment as the ship rolls over. The entire set was built on one ace, proving its worth in 180 degrees into a tank of water. A great gout of water splashes through the window and the room rolls with camera as and out of the water, with more cameras at the windows in the tank recording the action.

"THE POSEIDON ADVENTURE" the protagonists are constantly menaced by rising waters. For the latter scenes, various sets were built on giant sets which were emulated into a large reservoir at about a 30 and 45-degree angle. In the film the water will appear to be at rest, up actually normal—right-side-up. In preparing for that I realized that there was an area above the walls for hanging lights that was supposed to be a set—mainly because the ceiling light fixtures have to be above to establish the from-the-floor light source later, when the ship is turned upside down. So I had to figure a way to get light to the far end of that long room. I ran one parallel bar out of it without light where light—dramatically speaking—was really necessary. For example, in one scene Gene Hackman ended up in a position facing away from all of the lights on the floor, so that there was no light on his face at all. It was a very dramatic scene and, therefore, essential that the audience see the expression on his face as he delivered his lines. So, at an angle of about 100 degrees from the camera, we put a parallel cross-light on him, plus a light fit to give a bit of luminescence into his face. It really came off in a terrific manner, showing the attitude on his face and the character of the man, if I felt that it was extremely powerful. We were able to cheat a bit in this case, but there were many times when the light was completely behind the actors and there was nothing we could do to motivate any light on the foreground—they had to go into extreme low key or complete silhouette.

QUESTIONS:

**QUESTION:** In order to get any depth of field at all under those circumstances, did you need to resort to using filters to achieve it?

**STINE:** No. In this case, we ended up with plenty of light. We've been using Panavision's Panavon lens, with its T4.3 stop, so we've had enough speed. The 200-degree shutter on the Panavision Reflex 200 camera has been an advantage, too, in that respect. I've been able to get a good exposure at close to 200-foot candles for the first part of the pictures, where the ship is right up. On the second part, after the water came in, the ship, we were running at 150-foot candles, shooting at T4.5. That was because of the effect we were after—since the light was now all supposed to be coming from the floor—from what was used to be the ceiling fixtures—and the background areas of the set were allowed to get pretty dark. From the technical standpoint, it's pretty nice since you're not able to separate any exposure meter to tell you what you're shooting in the lighting. Which was quite true for the 50 years ago, they didn't have meters.

**QUESTION:** I noticed that the large scene set was lined with pillars. Did they provide any help in hiding lights from the audience?

**STINE:** They were of terrific benefit when the set was in the upright position. A full four feet above the single on the lens we had on the camera and then started backening the lights in line behind those columns. Each of them furnished a sweep of about two feet to hide a light behind, and we were able to hang free backlights. In the upside-down sequences, we were quite able to do this because all of the light was supposed to be coming from the ceiling.

**QUESTION:** All of these lights make everybody look a little bit like Dracula, don't they?

**STINE:** Well, it's true that low light source is usually very unflattering, but in this picture you don't have to worry about it. In certain of the scenes you are supposed to look like survivors of a shipwreck and, if that is the case, then through reality, you're just got to forget photographic flattery. A more serious problem with the low light source was the fact that, if you are without light where light—dramatically speaking—was really necessary. For example, in one scene Gene Hackman ended up in a position facing away from all of the lights on the floor, so that there was no light on his face at all. It was a very dramatic scene and, therefore, essential that the audience see the expression on his face as he delivered his lines. So, at an angle of about 100 degrees from the camera, we put a parallel cross-light on him, plus a light fit to give a bit of luminescence into his face. It really came off in a terrific manner, showing the attitude on his face and the character of the man, if I felt that it was extremely powerful. We were able to cheat a bit in this case, but there were many times when the light was completely behind the actors and there was nothing we could do to motivate any light on the foreground—they had to go into extreme low key or complete silhouette.

**QUESTION:** What would you say was your most challenging scene to light in the picture?

**STINE:** It wasn't any of the huge sets, as you might expect—it was the bridge of the ocean liner, or the wheelroom, as we call it. In actual working practice, there must be no lights on the bridge of a ship at night. What are you going to do? How are you going to light it so that you can get an exposure onto the film? You've got to come up with a good clean negative—and it can't be too thin, or the lab will have nothing to work with. I would rather get a little extra onto the film and let the lab people work it down later. At any rate, the only lights that exist at all on the bridge of a ship at night from the various instruments—the compass in front of those columns. Each of them furnished a sweep of about two feet to hide a light behind, and we were able to hang free backlights. In the upside-down sequences, we were quite able to do this because all of the light was supposed to be coming from the ceiling.

**QUESTION:** Do you ever have fog effects in this picture?

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Famed British director, Ronald Neame, discusses with Director of Photography Harold Stine, ASC, on the set. Neame himself has been a major figure in the industry, beginning as a cinematographer and moving on to become a producer, writer and director. He has received three Academy Awards for Best Director. Neame says: “I’ve got a wonderful unit working with me, it could be quite lonely for a foreigner working in a strange country, but it’s nice to be with such a lovely crew, around me, with friendly and helpful people.”

**QUESTION:** I understand that the action of this picture has been shot in sequence, which is somewhat unusual. Can you comment on that?

**STINE:** Yes. Well, the shooting in sequence really began at the point where the ship turned over. Up until then we shot out of sequence because the people playing the passengers were all clean and well-dressed. But from that point on, it became almost necessary to shoot in sequence.
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sequence, because quite a few of the people got scared on their; some got cut and their clothes began to tear and get ripped and generally go up in smoke and be escaped. Also, they got more and more tired as they struggled to get out and it was easier for the actors to play this progressively. It was easier for me and the special effects people, too, from the standpoint of lighting as how much fire to use, and so forth. It would have been very difficult in this kind of picture to jump around out of continuity.

QUESTION: How did you handle the sequence where the ship begins to tilt, just before the tidal wave tosses it all the way over?

STINE: There was one corner of the set that was built on a platform measuring, perhaps, 20 by 30 feet—our principal characters were sitting with a group of other people on a table that platform. The platform and part of the adjacent wall were attached to a hinge, so that we could raise the whole thing to an angle of 30 degrees. We used that for a number of shots to get the ship started over. We put in other tables with different people and changed the background a bit to get a number of cuts of the passengers starting to slide down and hanging onto the tables. What you will see on the screen in this sequence is real. Take Shelby Wilton, for example—who can scream at the top of her lungs and then start hanging onto a table and screaming and calling for her husband, and we get the real thing. There was no prompter in that action.

QUESTION: What did you do in terms of camera movement to accom-

plement this tilting action?

STINE: We started with our conventional near-two-shot, but the operator needed more flexibility than that because we didn't know where the people were going next. Also, that angle head wasn't to care at the till of the ship—in other words, the side motion. So we added half of a slide-awash on top of the other slide-awash and, in that way, were able to get a constant slow side-motion. At the same time, our boom was floating; our camera was never stopped floating. So we had four movements going at all times. We had this all predetermined for timing. In order that the operator would know how far to go and how much to tilt so that we wouldn't overspill it or underspill it.

QUESTION: What about the mechanical problem of turning that huge dining saloon upside-down?

STINE: It obviously had to be very carefully designed with that ultimate effect in mind. Most of the chairs and tables were anchored to the floor, as they often are on ships where rough weather is expected. The set was con-

structed on the studio stage floor in the conventional manner—right-side-up. Then, after we had shot all of the scenes preceding the impact of the tidal wave and also the tilting platforms scenes I've mentioned—the entire set was taken apart and reassembled upside-down on the stage. The ceiling, with its elaborate lighting fixtures, then became the floor and the enclosed tables and chairs were hanging from above. It took more than two weeks to strike and reassemble the set and we utilized the time partially by shooting on location above the Queen Mary, which is now anchored in Long Beach harbor as a tourist attraction.

QUESTION: Having worked in the motion picture industry for more than a lifetime, you've evidently never encountered just about every photographic challenge, but I’m willing to bet that this is the first time you've had to cope with shooting an upside-down ship.

STINE: It certainly is—and that adds up to a unique challenge for me—but I'm very fortunate in several ways. For one thing, our Director, Ronald Neame, has Mitchell's camera system—the only one in England—and he has given me a precise comprehension of the photographic problems involved. He is very understanding and cooperative to work with. These marvelous sets, designed by Bill Order, are another great asset. He's a fine Art Director and he's researched everything down to the last detail. The sets are wonderful to photograph. No matter where you look at them from, you find exciting camera angles. The fact that the sets are upside-down— which rules out overhead lighting—has resulted in the saving of considerable money that would ordinarily have gone into the scaffolding for overhead lights.

QUESTION: But I would think that lighting everything from the floor pre-

sents some special problems, too—doesn't it?

STINE: It certainly does. In the story, the ship turns over, the lights powered by the ship's generators go out. The lights that remain get their current, supposedly, from an emergency battery arrangement. All of the formerly overhead fixtures are now on the floor—so there's nothing left but low light sources, and we have to rely on them in order to see the action and see the people. Even so, there have been times when I've had the lights on completely. For example, there was a shot where the people started at the end of a long corridor and came up into camera. I lighted the far

and then let them come through the corridor with no light on them until they reached the foreground. Then there was a light from below the camera appearing up into their faces—but for the most part of the scene they were in silhouette. In the men's corridor running the length of the ship—the one they call O"Continued on Page 1010

Before the camera was attached to the ship, the actors had to be seated on chairs which were bolted to the floor, so that they would move with the ship. The scene was shot with a Mitchell camera system, which allowed for a smooth and realistic transition between shots. The lighting was carefully planned to create a realistic atmosphere and to highlight the actors' emotions and reactions. The camera work also involved a lot of practical effects, such as smoke and water effects, to enhance the realism of the scene.
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"Broadway!" we have lights hidden in the floor and in the scenery, and the end wall is lit up so that the audience can see the people when they are otherwise out of the light.

QUESTION: What kind of lighting units have you been using to achieve these effects?

STINE: We've been using mostly small quarts of light that can be stored away behind small panels in the set. These lights can be used to create a variety of effects on the stage and in the audience. We've also been using some larger quarts, which are located in the back of the stage and are used to create a dramatic effect on the audience.

QUESTION: I noticed on another part of the stage a high tubular light. Can you tell me how you managed to shoot inside that thing?

STINE: It wasn't too easy to light. The tube is about eight feet in diameter and 30 feet high. It is in three sections, each of which has a rearward facing flange. There are two practical light fixtures that can be situated on the rear wall and all the other light fixtures are out. We had to take that one practical light and let it be the light for all of that. We had to plaster the ceiling up to it and we're following the light all the way with the camera. To further complicate matters, there is water running down the sides of the tube and steam coming out at various points along the way. So, we had to shoot it from both sides, which makes it quite a challenge. I had an Arriflex camera shooting straight down from the top of the tube, with two lights on either side of the camera. I took one lamp and aimed it so that the light from it would not illuminate the circumference of the tube, but would penetrate right to the bottom and hit the water that was rising below. The other lamp was aimed to show the green water that was ripped up by the propeller and the two lights were all that I used and they worked out very well.

QUESTION: What about the problems of shooting in that inverted engine room set, with all the smoke and fire and steam coming around?

STINE: It was just getting everything to stick at the same time in such a sequence is a formidable heady-packing of a scene for the action. We had to work very closely with the director to make sure that the arcs were loaded with full carbon, but that they had to come just to the right degree. There were about fifteen little things that had to be coordinated to work together simultaneously. As far as lighting is concerned, I started out by using 10K's and this worked out very successfully for the closer shots. But in order to get the longer shots in the engine room, it was necessary to get people's heads as far as possible from the arc — which then meant to cut down the illumination — and the walls were coated with a point that looks like a smoke screen. In order to get a good basic exposure for T4.5 under these conditions, it was essential to use arcs. I've also photographed the show with the smoke machine off and with the full lighting come through, we have the 250-foot candles in the smoke that we have in front of the arcs out it down to between 100 and 150 foot-candles a lot of the time. When we are close by and far for the full lighting come through, we have the 250-foot candles again. This makes it a bit difficult to maintain consistent exposure. Parts of the stage may be a bit over or under exposed, but with the smoke flashed through, you won't notice it and it makes for a great effect. Since there is so much fire flying about in these scenes, we had to warn up our lenses. We've been using MT5's filters on all of the floodlights and yellow carbon in the arcs. The MT5's produce a light that is almost exactly the color of fire — which is actually rather orange. Fire doesn't go red until it's underexposed through about three stops.

STINE: I had one experience that was quite a bit exciting at the time. Out on the deck, it's not often you see a water tank that goes down to about seven feet at the deepest. They can build on a set and stop the water from getting too deep. When the water level was down, one day we were shooting a scene in which the water is supposed to rise in the tank. I was using two cameras the Parsifal camera up high and an Arriflex down on the water. This had given me a "safe" waterline for the Arriflex and we set it up as close to the water as possible. When it came time to do the shot, the set was lowered into the tank and the water came rushing through — but the platform wasn't secured properly and the tank toppled over and we had to use the water going clear up over the Arriflex and around the magazine. That was quite an experience — but otherwise, things have been going very smoothly.