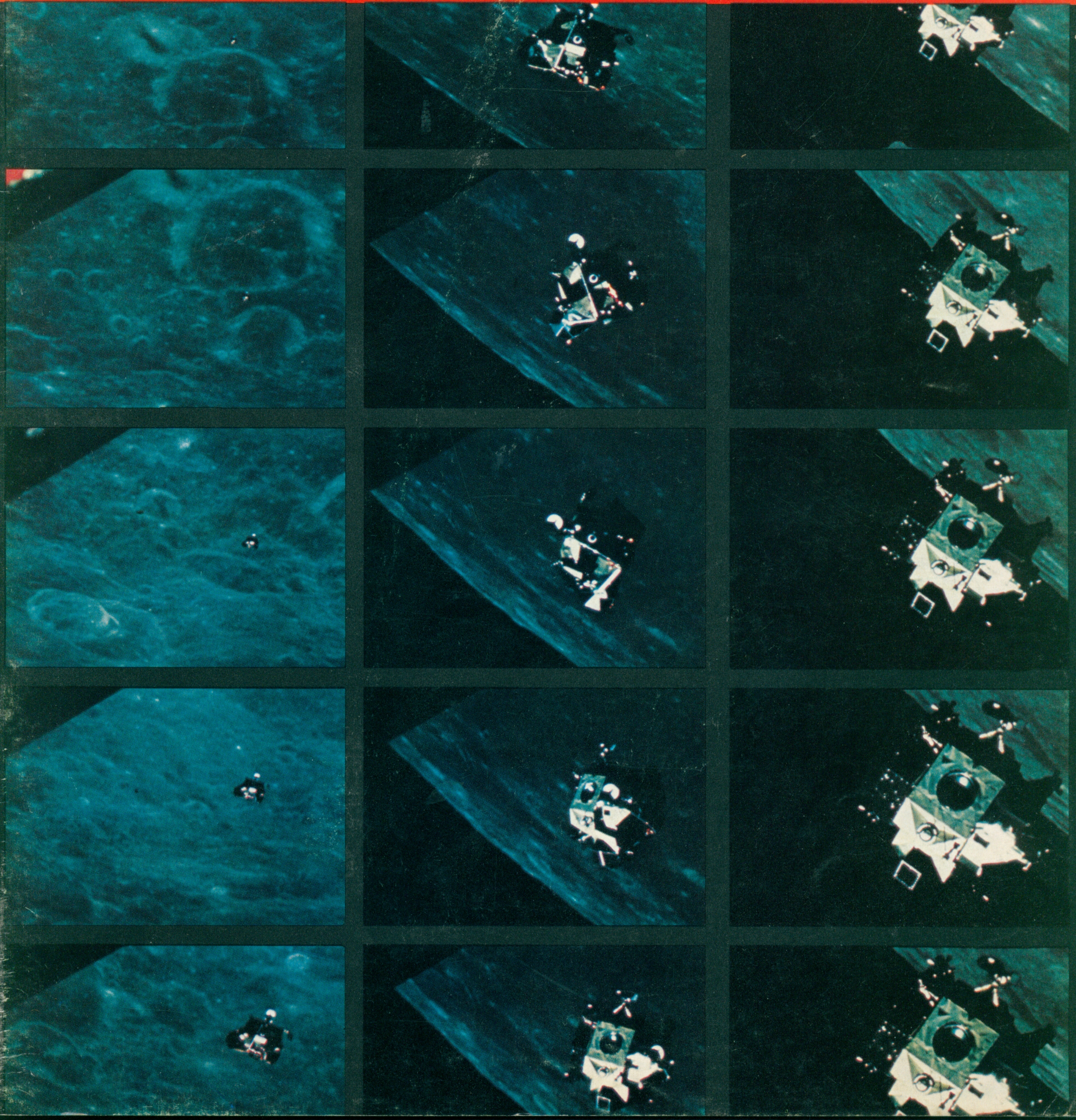
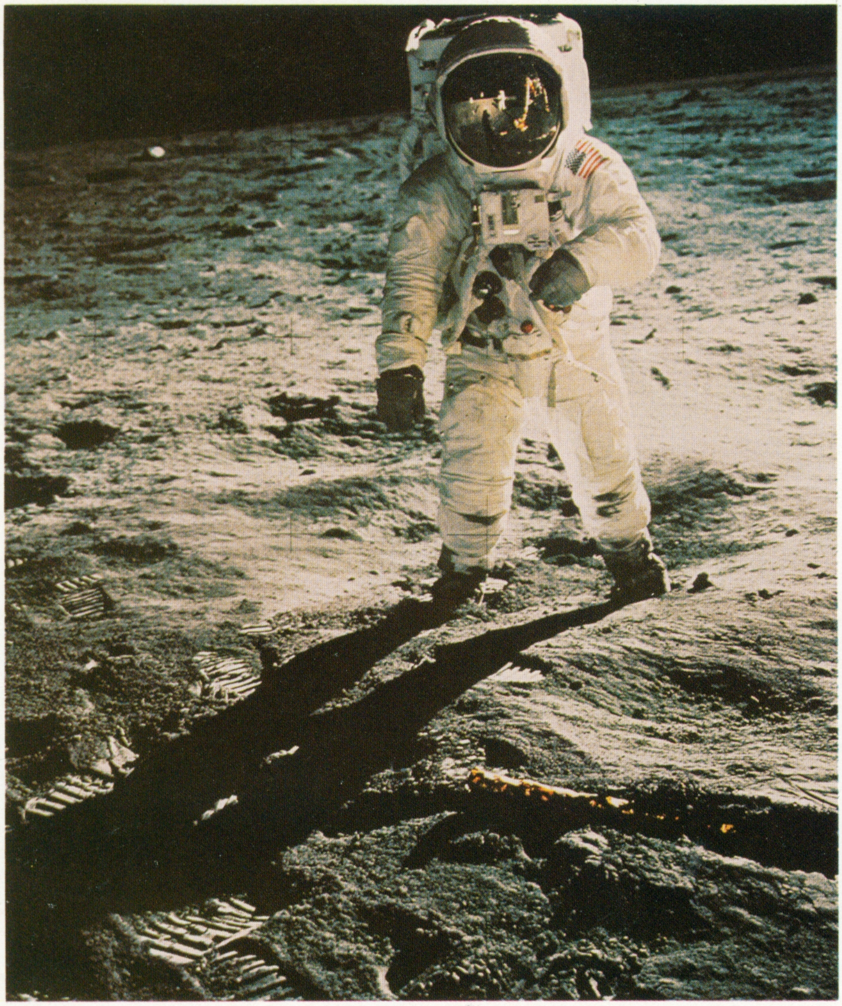
AMERICA'S LEADING MOVIE MAGAZINE

1969-1970

BOLEX REPORTER





MAN WALKS ON THE MOON

American Astronaut Neil Armstrong spoke for all men in every age when he proclaimed, "The Eagle has landed!" Man had reached the moon.

With the astronauts photographing their epochal journey three different ways, Apollo 11 reached a new zenith in photography. Turning a special TV camera, the Hasselblad 70mm still camera, and the 16mm camera on themselves and their surroundings, each significant step in the voyage was well documented for posterity.

Television broadcasts gave us on-the-spot looks; high resolution stills produced the spectacular spreads in the world's publications; the motion pictures provide another important dimension of viewing. They alone show us the astronauts' view of landing the LM on the moon and returning to the mother-ship, only some of the exciting footage from the mission.

These were the sequences released first by NASA and broadcast widely on television. The footage was so sharp even transmitting it through channels produced a clear image on the screen.

Motion pictures from the LM were taken with a 16mm Data Acquisition camera outfitted with Switar lenses. The camera comes from a long line of experimental aerial types developed by Mauer for the Air Force during World War II. It has evolved into a compact and lightweight camera with speeds from 1 to 24 fps.

Switar lenses don't need an introduction to Bolex camera users; they have served on Bolex cameras since their introduction in 1940. The consistent high-quality image produced by Switar lenses led to NASA's decision to ask the Kern-Switar factory in Switzerland to produce three special lenses for space use: a 10, 18, and 75mm.

The 10mm Switar was used to film the moon landing, the astronauts' activity on the moon, and the return to the Command Module. Mounted in the hatch-window of the LM, the camera was set up for remote control operation. A built-in intervalometer automatically timed the camera's speed, in this case, at 1, 6, and 12 fps. Astronauts Armstrong and Aldrin busy flying the LM had only to activate the camera to record one of the most historic events of our time. The single-frame sequences were later stretch-printed to 12 fps for release to the press.

After using the lens to expose 650 feet of special Ektachrome film, the camera and lens were left in the LM when it was discarded in space. Thirteen magazines of film were taken all together on Apollo 11. Each magazine contained approximately 150 feet of film. Twelve magazines were color and one was black and white.

Apollo 12's cinematography is scheduled to be carried out with three Switar lenses. The 10mm will be used on the LM camera and the 18 and 75mm on the Command Module.

Breathtaking pictures of man's first voyage to another celestial body reveal the drama of history's most startling technical achievement. Cover: Leaving the desolate lunar crust behind, Astronauts Armstrong and Aldrin fly their famous lunar module, "Eagle," toward a crucial rendezvous with command module, "Columbia". A blinking communication light can be seen as a white dot in early frames. The lunar horizon appears in the lower left. Above: Perhaps the most famous picture taken on the moon, this view of Aldrin as he was photographed by Armstrong captures man's first lunar footprints reflected in Aldrin's gold-plated visor. "Eagle" can also be seen in the sharply-detailed reflection. Next: "We came in peace for all mankind," the message on the lunar plaque reads, and to claim their great achievement the astronauts planted an American flag. Films of the dramatic event were taken with a Switar lens, mounted on a 16mm movie camera in the LM. While the astronauts carried out lunar activity, the camera continued to roll. Enlargements of actual 16mm motion picture frames shot with a Switar lens show Armstrong descending the ladder and placing his foot on the lunar surface. In some of the movie frames, the television camera (beyond flag) can be seen as it telecasts directly from the moon to homes on earth.

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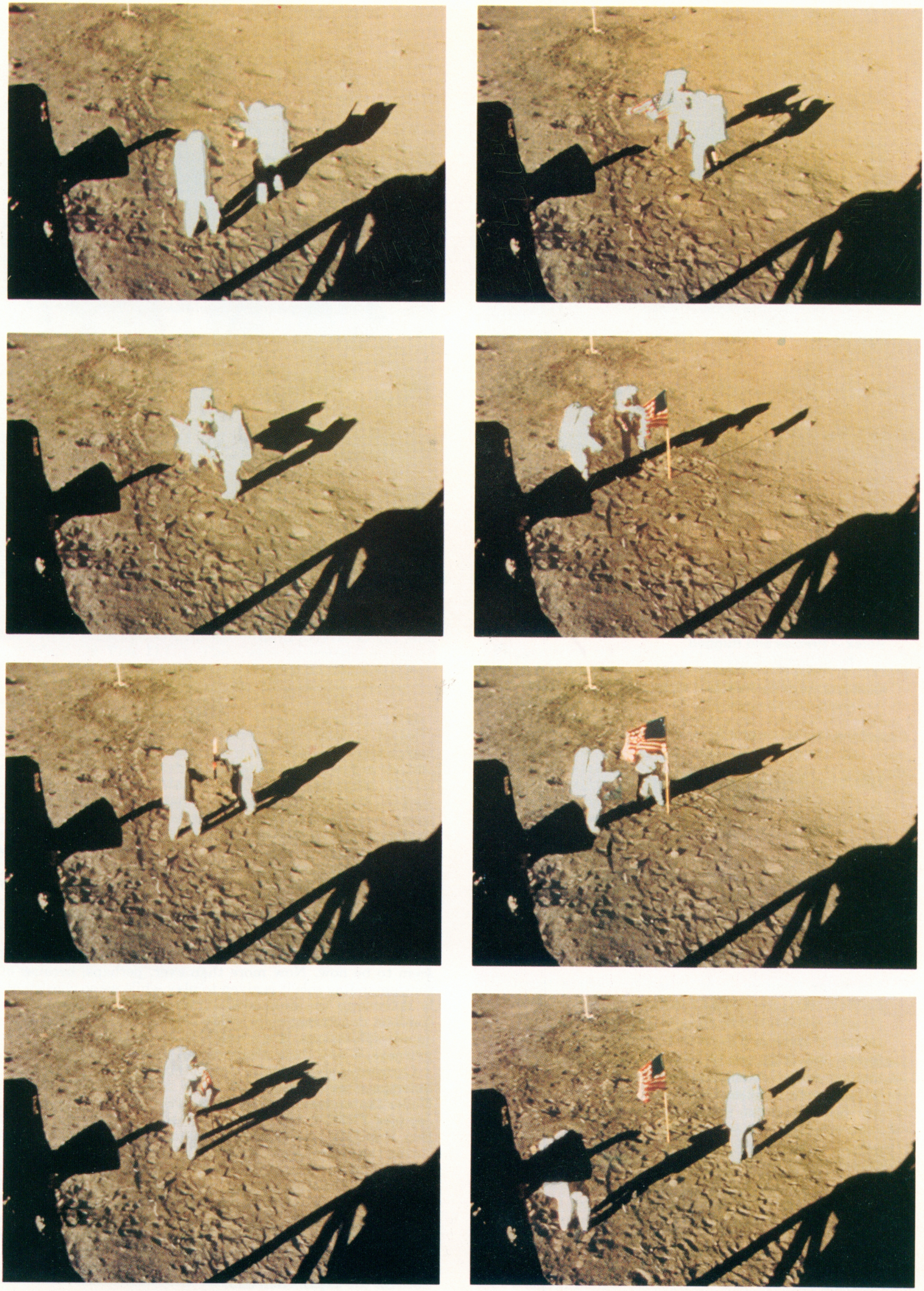

Photographs courtesy of NASA.

BOLEX REPORTER

Vol. 19, No. 2 1969-1970

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The Bolex Reporter is published by Paillard Incorporated, 1900 Lower Road, Linden, New Jersey 07036, (English edition) and by Paillard S.A., Ste-Croix, Switzerland (French and German editions). In the United States the magazine is distributed twice a year through Franchised Bolex Dealers. **Price 50 cents.** Subscriptions available from the publisher at $2.00 per four issues. The editors will be pleased to consider original articles and photographs on moviemaking. All manuscripts and photographs submitted become the property of the Paillard organization or its designees upon publication and payment at rate current.

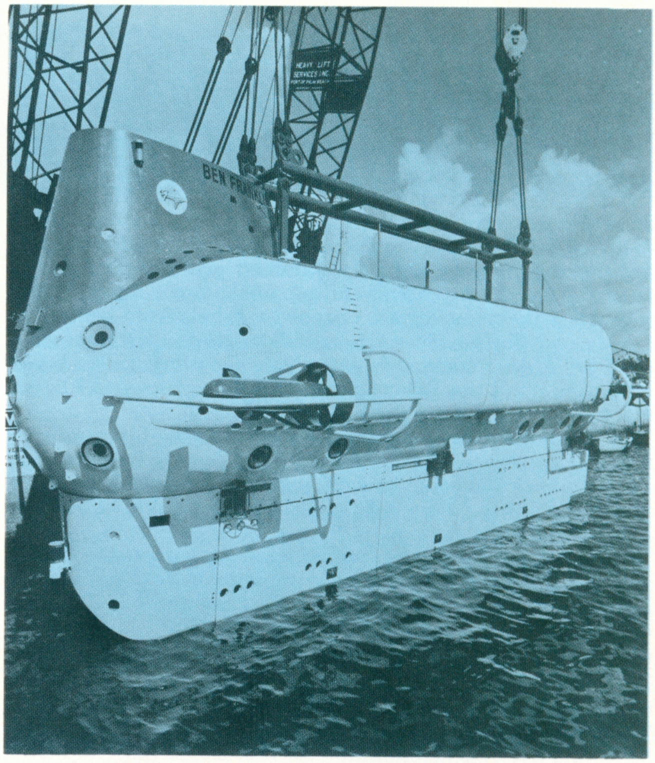
Gulf Stream Drift Mission

Editor's Note: During the time of Auguste Piccard's remarkable feats—even though he did make the first high altitude photographs in 1932 at 55,000 feet—recording events with photography was not as prevalent as it is now or perhaps a Bolex would have accompanied him on his scientific voyages as it has on his son's. We are proud to have Bolex photographic equipment chosen to safekeep historic accomplishments like Dr. Jacques Piccard's Gulf Stream Drift Mission voyage for future mankind.

If ever there was a "high-time" for photography, it would seem to be now. Now more than ever, perhaps, because of the demanding role it is given to play while we so consistently delve into the unknown. Photography has become the common denominator for study sources and record keeping on all explorations. It is a link between outer and innerspace journeys, a way their triumphs can be shared.

Certainly, photography was an integral part of the latest innerspace exploration, the Gulf Stream Drift Mission. Under the leadership of the famous Swiss undersea explorer, Jacques Piccard, the research sub, PX-15, christened the Ben Franklin, successfully completed a month of investigating the Gulf Stream while drifting with it.

Developed and built by Grumman Aerospace Corporation from Dr. Piccard's design, the Ben Franklin was well equipped for photography. On board was a Bolex 16mm Pro camera, bracket-mounted in a viewport, and Dr. Piccard's personal Bolex 16mm Rex and Hasselblad 2¼ square reflex viewing still camera. As on most Apollo flights, two 500EL Hasselblads (electrically driven) and a 10mm Switar lens were on the exploration sub.



NASA, participating in the mission along with the Navy, had its own sequence cameras set up where they could record the crew's activity. Crew member for NASA was Chester May, who conducted experiments designed to provide data on man's ability to live in confined space under stress. The results of the testing, he explained, may be important to future flights.

One of the tasks for the Ben Franklin scientists was the possible investigation of the Deep Scattering Layer: migrating marine organisms which reflect and absorb sound, rising to the surface at sunset and descending to mid-depths at sunrise. Sonar scopes record the DSL as false ocean bottom. Knowing mostly of the migration habit of the DSL, the Ben Franklin scientists were to determine its acoustical properties and its marine life. However, little DSL was in the path of the Ben Franklin.

To film during the voyage, Dr. Piccard used his Bolex extensively hand-held at one or another of the 28 viewports (three-inch plexiglass windows) throughout the 48 feet 9 inch long sub. "But also," Dr. Piccard explained, "I filmed through the viewport over my bunk—on my back!"

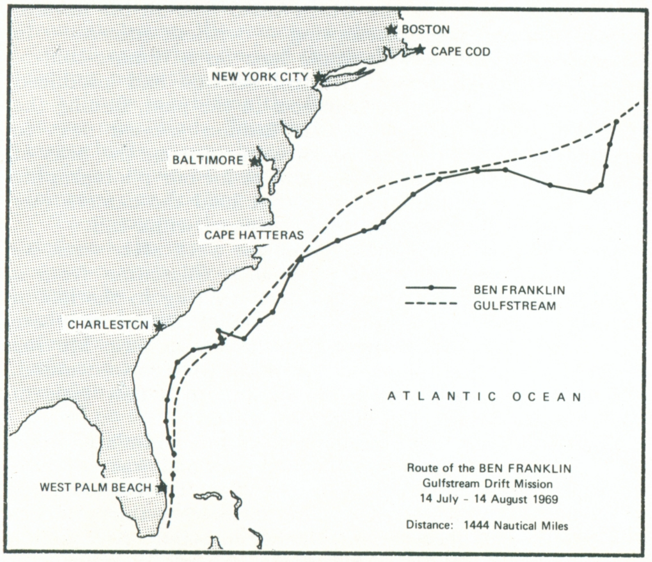
Dr. Piccard became a Bolex aficionado and amateur filmer, coincidentally, when he dived with the bathyscaph *Trieste* in numerous dives including one to 35,800 feet in the Marianas Trench (1960), and when he designed his first "mesoscaph" (sub for middle depths), the *Auguste Piccard*, for the Swiss National Fair in 1964. He is now an accomplished motion picture photographer with most of the footage from the Ben Franklin voyage to his credit.

At depths to 2000 feet where does the light for photography come from? Occasionally, some of the footage shot by Dr. Piccard at 500 feet and some lower depths was with available light. He would fix the 10mm Switar lens on the camera, open the aperture all the way, and just let the camera run.

The Ben Franklin was well outfitted with the proper lighting for photography when it was needed. There were many floodlights strategically located around the hull: some 1000 Watt (110 Volt D.C.), 650 Watt (110 Volt D.C.) and 150 Watt (28 Volt D.C.). They were operated for visual observation by the scientists as well as for photography, but cautiously so as not to exhaust the vital electrical power in the sub.

Lights were on for hours at a time, according to Dr. Piccard, who said all manner of marine life came to investigate the strange, brightly shining intruder. Footage taken while the lights were on shows a frantic movement in the life in front of the lens. Marine life turned into gold flecks darted about on the screen, moving so fast it was hard to keep up with them, but the footage is sharp and clear enough for scientists to slow down portions of the films and scrutinize them for more details.

Photography went hand-in-hand with visual observations and acoustic measurements on most of the Ben Franklin's scientific investigations. Studying the sea floor of the Gulf Stream was another of these. Finding the bottom (her maximum cruising depth is 2,000 feet), films and stills were made of the ocean floor during 24-hour studies. The first of these photo-making excursions was completed the first day out.



Photography resulting from the voyage will be put to various uses in addition to scrutiny by scientists. According to Dick Milligan, Manager, Photographic Department at Grumman, a half-hour documentary is being produced for local TV, educational, civic groups and lectures throughout the country. An hour film for television is being planned.

Supplemental footage will be taken during the first three weeks of December, when a series of dives to demonstrate the Ben Franklin's capabilities to scientists, researchers and possibly some congressmen is planned off Florida. And again, extensive photography, with the same equipment, will accompany the dives.

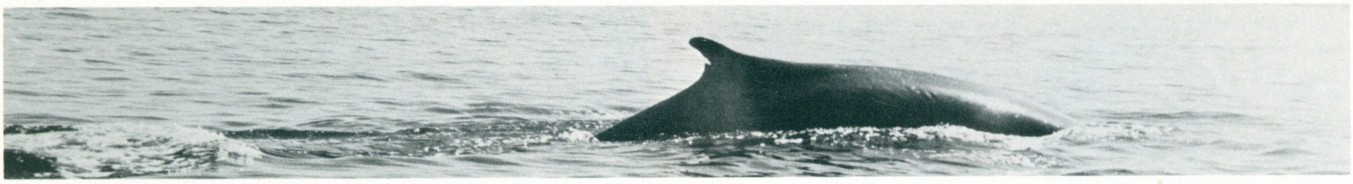
Bolex on the Sea of Cortez

by Charles L. Cadieux

Editor's Note: The author is a member of the Board of Directors, Outdoor Writers Association of America. Put those distinguished credentials with his considerable ability as a photographer and the versatile camera he uses—a Bolex H-16 with an 86EE lens—and you have the makings of a fine outdoor storyteller. Add finback whales and, well . . . as the author says, it's an exciting business. And thank heaven for the automatic exposure control on the 86EE lens. Who has a free hand to set the lens opening when a fifty-foot whale roars past a cameraman perched on the edge of an eighteen-foot boat?

"Here he comes!" Dan yelled.

"He" was a big black shadow rising through the cobalt blue waters of the Gulf of Cortez. Although I'd been taught that a tripod makes the big difference between amateur and



professional, I had no time for a tripod. I jerked the Bolex H-16 off the boat seat and got ready. I pressed the rubber eyepiece against my head and jammed my stomach against the cross bar on the canvas sun top of the boat. Frank Bush, a bearded young collegian, grabbed my belt from behind to steady me. The lens was set on wide angle to help locate the shadow. Then I zoomed in sharply to focus critically. I was glad that I had the Bolex so long that it now seemed like an extension of my arms.

With thumb and forefinger I twisted the big black animal into focus just as he broke the surface. We were so close that I had to back the zoom lens off about half way to keep from filling the entire frame with the shiny black skin of a fifty-foot finback whale!

For half an hour we played an exciting game of hide and seek with twenty of the huge mammals feeding in the beautiful Pacific between Isla San Esteban and Isla Tiburon on the Midriff of the Gulf of Cortez. The Gulf is a fish-filled extension of the Pacific which reaches six hundred miles northward from Mazatlan almost to the Arizona border.

The whales seemed to work in pairs. They would surface, expelling their pent-up breath in a white cloud of vapor. (We were close enough to learn that finback whales have a monumental case of halitosis!) They then would suck in a tremendous lung full of air with a whooshing gurgle and tip over to slide under again. Although we didn't hold a stop-watch on them, nor use our compass, we learned to anticipate the duration of the dive and the direction of their forward travel.

By deft maneuvering of our eighteen-foot Glastron boat, Dan was able to position me—ready and waiting with thumb on zoom handle trigger—each time the whales surfaced. Sometimes we were too close for good filming, and entirely too close for our own peace of mind.

I exposed three hundred feet of Ektachrome 7255, ducking under the sunshade to reload in hopes of minimizing edge flare. (It worked.) I was glad that the Bolex had its built-in loop formers and automatic film threading . . . it made the job much easier.

During the entire filming opportunity, I had never bothered to take an exposure meter reading. From long experience, I knew that the 86EE would compensate for the great difference in light values which occurred when the whales surfaced, first toward the sun and then away.

During the times I had stopped to reload, the fourth member of our party had taken some still shots with the Hasselblad, using a K1 yellow filter over the normal lens and Plus X film. Checking his shutter and aperture settings with the meter, he asked, "Did you have your camera set properly during all of that excitement?"

I didn't hesitate a second. "This lens is always set right," I answered.

We hadn't planned to photograph whales at all that day. We had left our camp on the estuary of the Rio Sonora in Bahia Kino, bound for Isla San Esteban with two specific filming assignments in mind. I wanted to shoot a sequence on the Sally Lightfoot crabs which are abundant in the Sea of Cortez. As the name implies, the Sally Lightfoot is a quick moving, agile, bright orange crab, as much at home on dry land as in the water. I had failed to get what I wanted on the previous trip simply because the alert crabs wouldn't let me approach close enough. Armed with the 86EE (and its powerful zoom), I had no worries about getting within good filming distance. The second assignment concerned the large sea lion colony which is at home in the waters around Isla San Esteban and Isla San Lorenzo.

After the excitement of the whales, I went ashore on Esteban and used the longest focal length of the 86EE to get some excellent film of the crabs as they ran daintily along the sheer face of perpendicular rock faces. While I was busy filming, my three partners went grouper fishing and took three beauties.

We then made a leisurely circle around San Lorenzo, photographing sea lions. The big males made especially interesting subjects for the Bolex. They looked like straw-colored logs, sleeping in peaceful rows on the beach. When the boat noise awakened them, one would turn and stare at the boat in shocked amazement, then start barking and yelping in panic as he floundered toward the water. The others would look at us in disbelief, then do a "double take" and join in the mad dash to water. Panicky on land, they felt perfectly safe in the water and would come within six feet of the boat as they played about us.

I went ashore with the Bolex on a light tripod and Walter ran the boat close to the beach, dead slow, while I filmed the sea lions playing around the boat.

When we headed back to Bahia Kino, across 26 miles of open ocean, I was confident that I had captured what I had aimed the Bolex at. We had added more than 800 feet of film to the forty-one minutes of tightly edited movie already back in Albuquerque, New Mexico. The whale and sea lion sequences turned out to be as exciting as the porpoise footage we had taken on the previous trip.

With the Bolex H-16 and the 86EE lens, I feel I have the perfect combination for wildlife photography, from closeup to very distant subjects. I can forget about f. stop settings and have two hands free to handle the camera as it should be handled.

I can use both hands on the camera, but I've often wished that I had three or four hands, especially when working from a small boat which just happens to be floating between two gigantic finback whales!

The Hummock

by Carl E. Scott, Jack Swedberg

The old saying, "Necessity is the mother of invention," was particularly appropriate when we first conceived the idea of the hummock.

In order to portray the white-tailed deer in his natural habitat, we had been attempting — without success — to "shoot" him with a wide-angle lens on a remote-control camera. Although remote control set-ups had produced gratifying results on other subjects in the past, filming the unpredictable white-tail in this fashion seemed next to impossible. Since the deer seeks water during the heat of summer, we selected a beaver flowage for our photographic attempts. The camouflaged box that held the camera was covered with grass to help fool the wary white-tail.

Everything seemed perfect, and yet week after week we made similar set-ups with no results. Watching from a nearby tree blind, we observed deer walking to the left of the camera and to the right of the camera, but never where we wanted them—directly in front of the camera. Moving our field a few degrees would net us the picture we wanted, and so it became necessary to dream up a new type of photographic blind—the hummock.

The base of our first hummock blind was an inflated inner tube. A piece of three-quarter-inch plywood was cut in a doughnut shape to fit on top of the tube. To the doughnut we fastened a chicken wire dome measuring thirty inches in diameter and about twenty inches in height. An opening large enough to photograph through was left on one side of the dome. After the chicken wire was interwoven with marsh grasses and the whole blind floated into position close to a real hummock, it became practically invisible.

In order to get into this weird blind, we had to build a launching platform. This we accomplished by driving four poles into the ground in the shape of a rectangle two feet by four feet. Two more poles were lashed to these uprights at a height of three feet. The result was a set of parallel bars four feet long, two feet apart, and three feet high. By placing the hummock on the platform, we were able to crawl underneath, push our heads, shoulders and arms up through the inner tube, lift the blind up by standing erect, and walk out between the bars.

Before getting in to the blind we had to put all our equipment inside as it would be impossible to do so afterwards. We have our 35mm still and Bolex 16mm movie cameras mounted on a block of one inch plywood which in turn is mounted on the fluid pan head. In this way we have either camera immediately available without any changes or shifting. On rare instances we have used them simultaneously. After putting the cameras on the pan head and bolting the head to the plywood frame, we stowed all loose equipment in a waterproof bag and tied it inside the hummock. When everything was ready, we donned coveralls and old shoes, squeezed up into the hummock, lifted it off the platform and walked out into the beaver pond.

The "shake-down" cruises had hardly begun when we discovered some serious defects. The problem which caused us most concern was lack of stability and the probability of a puncture, especially as we had about a thousand dollars worth of camera gear floating around with us. Another problem that we didn't anticipate was our becoming cold. This seemed strange because it was the middle of July, very hot, and the water in the pond felt as if it had been heated when we first entered it. It wasn't too long, however, before we started to feel chilled and, after three or four hours of floating around the pond immersed from the armpits down, the cold became unbearable.

In addition to these two main problems, we had several minor ones. Bees, searching for food amongst the natural hummocks, mistook us for prime hunting grounds and came inside to buzz uncomfortably close about our heads. Also, leeches were prevalent in the pond. Since our arms were up through the inner tube we were unable to reach down to brush them off and we were completely at their mercy.

The hummock had its drawbacks, but these were offset by its ability to foil our wildlife subjects. On one occasion it even fooled a fisherman and his daughter. We had been trying to photograph some ducks on a small pond when a man and his daughter suddenly came upon one of the blinds in a small boat. The young girl, noticing the hummock, asked her father what it was. He took one look and informed her that it was a beaver house and, pointing to the trail through the weeds we had made when we pushed it in to position, he told here that was the trail the beaver made going to and from his house. We remained absolutely still throughout the lecture and when he had finished they went on about their fishing, none the wiser.

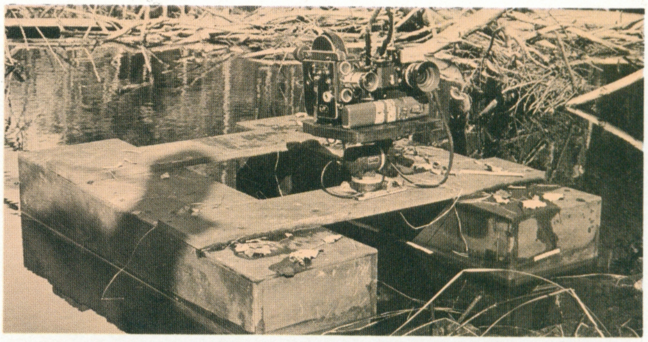
Animals inhabiting the flowage paid little or no attention to our new blinds. Songbirds frequently landed on them and larger birds of prey hunted and hovered over us without the slightest trace of suspicion. This encouraged us to try to improve our floating blinds.

To overcome the instability and possibility of sinking, we replaced the inner tubes with pontoons made of styrofoam covered with plywood. The pontoons measured 8 by 10 inches by 48 inches long and were joined together at the front and back with pieces of 1 by 8 pine. One of the cross pieces served as a mount for the pan head. To overcome the cold and leeches, we used long fishing waders. We fastened a wooden frame to the top of the waders and this in turn rested on the pontoons preventing us from sinking down too far. We could now float around the pond in warmth, without fear of capsizing, and free of leeches.

The blinds were further improved when we sewed a piece of canvas inside the chicken-wire dome to prevent dust and chafe from filtering down on the cameras. Hinging the dome to the pontoons made it easier to get in and out. We also changed our covering to dried cat-of-nine tails and in this way we did not have to apply fresh marsh grass every time we used the blinds. We now had more the appearance of a muskrat house than a grass hummock but we were readily accepted by the wildlife as a genuine part of the landscape.

We have given our improved version of the hummock a good test floating in various beaver ponds, photographing varied subjects such as frogs, turtles, beavers, and on one occasion a great blue heron. The heron, long noted for its keen eyesight and aversion to man's presence, was completely fooled. When we first spotted the heron, he was busily fishing about 400 feet away. The thought of trying to stalk close enough to make a respectable exposure seemed out of the question, especially as most of the route from us to the bird was across open water. Nevertheless, by extending first one foot and then the other, and by gently pulling the blind forward, the distance between subject and camera was gradually lessened. Several times when the heron grew suspicious, he extended his long neck to maximum height and stared intently at the odd clump of grass that seemed to be moving toward him. After what seemed like five or ten minutes, he was apparently satisfied and resumed fishing. Slowly the distance decreased: 300-200-100 feet; after another two hours of patient stalking, the picture of the heron accompanying this article was taken at a distance of only 43 feet!

Although we have used the hummock blinds for only a relatively short period of time, we see great potential in them. We hope that some of the more adventurous wildlife photographers and naturalists who read this will build their own floating blinds and try "hummocking". We are certain that they will find it an unique experience and one which will enable them to become more intimate with nature than ever before.








Focus on the Child-Made Film
by Barbara Rosser

Editor's Note: Imaginative fourth graders are getting into the educational filming act these days with Bolex equipment and versatile Super 8 films. This particular story is from Sparta, New Jersey, but tales similar to it come from cities big and small across the country.

"No experience required!" That's just the innovation teachers have been waiting for, and now with the unique Bolex 155 Macrozoom camera and reliable, easy-to-use Bolex projectors (sound as well as silent), the sky is the limit.

The quiet of the classroom was suddenly broken by a whizzing, buzzing, electronic-type noise that rose to a powerful crescendo and hung at a vibrating peak before gradually subsiding. "Like a flying saucer," one of the children said later, describing its sound.

It was the mating call of a toad.

Every head was raised in puzzled expectation. I dashed for the tape recorder, but it was too late—this time.

My class was in the process of making a sound movie, and the toads were to play a part in their fantasy.

College class? No. High school? Not at all.

This was a group of fourth graders on their first venture in filmmaking; and I, a novice and their teacher, was to be coordinator, director, cameraman (camerawoman?) and sound technician.

Working with money from a Teacher Innovation Grant from the New Jersey State Department of Education, I had decided to use Super 8 film along with a Bolex SM8 Magnetic Sound Projector.

I was on a limited budget, so every piece of equipment had to be selected for cost and maximum operating utility. Had I known about the Bolex 155 Macrozoom Camera at that time, I could have saved a great deal of heartache and headache with problems such as fuzzy closeups, limited titling techniques, and some underexposed footage of forest scenes where my electronic eye was outsmarted.

Because of the nature of the project, the SM8 was to serve as educator and innovator. It turned out to be a fantastic investment for the money. It was also good to know that the Bolex equipment was flexible enough to use with other brands of equipment that were already on hand.

The idea of the project was to use a child-made film as the central focus for other subjects that could be introduced painlessly as adjuncts to the film. The intensive learning that resulted led the children to a new kind of "three R's" (Research, Reading and Reports) that could be meaningfully related to the experience at hand.

Science, for instance, was a "natural". The story the children wrote, "The Enchanted Forest," involved the changing of a boy into a toad. This meant that at least two toads had to be kept on hand (one as a "stand-in") until time for filming. Consequently, the children had to learn the life habits and needs of the creatures in order to keep them alive and happy. As it turned out, they were male and female, and, once acquainted, they were literally inseparable.

Another problem was finding a way to slow down the toads' activity so as to be able to photograph them effectively. One of the youngsters came up with the solution. Relying on his knowledge that cold temperatures have the effect of slowing down molecules, he suggested packing the toads in ice shortly before the filming. With the approval of a Science Advisor, we followed his suggestion, and it worked. By the time we were through filming, both toads—Teddy and Terry—were sun-warmed enough to swim off together into the sunset.

The plotting of the children's story was rather loose, but rather than interfere too much by trying to tighten it up, I relied heavily on the use of sound as bridge and mood-maker. Some sounds were recorded to be used later, correlating with the action. The toads in our room, for instance, provided their own natural sounds, which could be recorded on a tape to be added to the sound-striped film at a later time. What was more important to me as their teacher, the presence of the toads led to new discoveries about animal life and further investigations about toads and other amphibians.

Our projector was also instrumental in teaching a science unit about light and vision. Because of the dual speed selector for 18 or 24 f.p.s., it was easy to show how the number of frames per second influenced the impression that the eye received. From there it was a short step to explaining "persistence of vision," a phenomenon whereby the passage of frames at a given speed gives the illusion of motion—in short, how motion pictures "move".

The children then gobbled up Muybridge, Edison, Eastmann et al like so much candy on Halloween Night, doing a fine job of research and still not thinking of their learning as "work".

Using our edited film as a springboard, Music Appreciation was brought into the act. Mood had to be established—should it be placid, suspenseful, dangerous?—and the children came in laden with records of all descriptions and every vintage. When we found music that seemed appropriate to a particular scene, whether a cascading waterfall rushing over precipitous rocks or weary children trudging through a forest glen ringed by tall hemlocks, the music was heard while the film was run. If the music seemed right, it was an easy matter to note the number on the frame-counter and connect the coaxial cable to a lead for the phonograph, playing it directly onto the magnetic sound strip.

When a more accurate correlation between music and picture was needed (such as in the Walt Disney films where music is matched to action), a stop-watch was used, timing the scene and the music to a split-second match. We did this with our animated scenes and some "speeded-up" shots most effectively. In fact, without the accompanying music those particular scenes lose at least 80% of their effectiveness.

I had proved the importance of appropriate sound to the children by showing a movie they had seen and enjoyed, first without sound and then with out-of-kilter music. The former made the movie seem drab and the latter, laughable. When the appropriate music was used, the film was "not too hot, not too cold, but just right."

As with appropriate music, one cannot overemphasize the impact of good sound effects. Once the musical addition was completed, narration, dialogue, and sound effects were superimposed over it with the microphone.

There is nothing quite like the plaintive call of a bird echoing the opening strains of the William Tell Overture or the snapping of a twig during a suspenseful woods scene to add credence to a good film story. Dark, fast-moving clouds seem so much more threatening when a thunderclap is added to the sound track. The free record of sample background music and sound effects proved useful here, although we did supplement from several other sources.

So great is the "willing suspension of disbelief" when appropriate sound is added to the film, that one of our viewers during "Premiere Night" asked how we managed to get our bird to keep still for photographing. Our bird was a stuffed cardinal. The only motion actually seen was a movement of the branch it was sitting on (moved by an attached green string—we found that "clear" nylon glittered in the sunlight), the ruffling of its feathers by a stray breeze, and the eye-and-head motions of the children who were supposedly watching it fly. All additional illusion was achieved through the use of sound.

We enjoyed experimenting with sound effects, using the demonstration record that comes with the SM8 projector. The scraping of an emery board against a stick suggested insect noises that helped to blend in with the sound effects of the crickets for our woods scene. "Hand-walking" on a pan of fresh corn flakes served admirably as the crunching of footsteps.

We found that using the microphone supplied with the SM8 projector was as easy as plugging in and pushing a button. And if we made an error, as we often did, it was no problem to reverse the film to the beginning of the sequence and re-do the dialogue, erasing our mistake. Most of the dialogue was sneaked in on a long shot, or where a head was turned, or when an object "being looked at" was on the screen, and we used only enough dialogue to fill in the plot or to clarify the ongoing action.

On just two or three occasions did we attempt "lip sync," and then only when obvious lip movements were seen at closeup range. It took several practice sessions to perfect, but we finally did it and we were quite proud of the results. So proud, in fact, that we sent out invitations to one and all to attend our "World Premiere".

The self-threading mechanism of the Bolex SM8 Projector was so simple to use that the children could easily demonstrate it to their audience, just as they did with the editor and the cement-splicer, both of which we used in editing.

Indeed, this adventure in learning was such a great success that when we feared the film would not be finished in time, the entire class offered to return to complete it on their vacation. Now, that's real educational interest!

Minute Histories–Family Style

by Portia Meares

Editor's Note: As we indicated in our last issue, Dan McLaughlin's clever film, "Three Thousand Years of Fine Art in Three and a Half Minutes," has inspired innumerable innovative films. The following remarks describe how an amateur photographer with imagination and a Bolex 155 Macrozoom camera devised one of the most endearing "home movie" ideas imaginable.

My high school sophomore English classes had been experimenting with filmmaking as an exercise in visual communication for two years when I decided that before I could carry them further in their understanding of the new medium I would have to make a film of my own. The students were already ahead of me with their technical know-how, and "teacher-as-learner" is always a good educational switch.

My goal was not to compete with Bergman or Antonioni nor even particularly to create a polished film product, but merely to become sufficiently acquainted with a variety of special effects and techniques (e.g. zooming, single-frame action, fast cuts, animation, titling for effect, dissolves, etc.) so that I could use the vocabulary of filmmaking with some degree of competency and knowledge. Or perhaps it was just that my students' enthusiasm was contagious and I wanted a piece of the action.

The Bolex 155 Macrozoom camera was the perfect choice for my exploration, and Dan McLaughlin's idea the right vehicle for the variety of techniques I wanted to experiment with. The search for a subject on which I had sufficient material ended when I decided to use family photograph albums to produce a minute "history" of my 20 year-old daughter. As a film, it succeeded beyond my most fanciful hopes. It became unexpectedly a sentimental journey and one my husband now insists I repeat for our other children and friends and relatives.

The opening (establishment) shot was an animation technique using fast zooming in and out of a printed equivalent of a baby's cry followed by a close-up of the baby's birth announcement. The first photograph established not only the identity of the parents, but also, luckily, the place of her birth. Because my husband is a military man, we move around the globe a bit and differing geography marks major milestones in our lives.

This introduction was followed by a series of fast cuts of favorite photographs of typical childhood activities. I was pleased that so many of our pictures had captured interesting facial expressions, from the distrustful shock of a first glimpse of Santa Claus in Germany to giggling glee at feeding the famous deer in Nara, Japan, nine years later. These shots were arranged chronologically and then interspersed with single-frame action sequences of tiny cut-outs of planes, ships, or cars moving across a world map to indicate the moves we made from Europe to the Pacific and across the U.S.A. Because of the Bolex 155 Macrozoom's amazing capabilities, these sequences emerged with incredible clarity and added greatly to the interest of the film.

I was able to capture the spirit of a young girl's evolution from dolls to horses to boys by using another filmmaker's technique, that of Sidney Lumet in "The Pawnbroker," in which he indicated the pawnbroker's growing obsession with his tragic memories by increasing the number of frames dealing with those memories from three at the beginning of the film to several hundred towards its climax. The same technique was used in the film of James Joyce's "Ulysses" for Molly's lascivious daydreams. Thankfully, the scenes in my film dealt only with happy childhood memories and the effect was deliberately and delightfully humorous.

As an example, fast cuts using five different pictures of our daughter in action on her horse while taking part in gymkhana contests were shot sequentially, three frames per photograph, the same sequence repeated three or four times with slightly increased exposure per shot, the sum of these frames giving the sensation of her growing interest in this rip-roaring rodeo-type activity.

The photographs themselves were of dubious quality with limited contrast and had been filmed from a shaky distance of at least 100 feet, but the Bolex 155 Macrozoom made them seem vivid and significant, actually improving the quality of the originals. As the horse activities receded, boys entered the scene, first shots again being only three frames long, then increasing in footage. The effect was amusing because it is so typically adolescent.

When our daughter went off to college, I established the idea of her flying from New Mexico to Washington, D.C., and back again several times each year by having two cut-out planes moving simultaneously in opposite directions across the map with shots of suitcases piled high at each end.

To finish the film I selected seven of the best pictures already appearing earlier, choosing one from each major age plateau. Using the extreme close-up capability of the Bolex 155 Macrozoom, I focused only on the faces of the prints, dissolving from one to the next by gradually shooting out of focus on one and back into focus on the next. It became a beautiful 90-second sequence. To watch a young girl grow from gurgling baby to lovely womanhood in 90 seconds pulls on the heartstrings no matter whose child it is.

After editing the silent film and viewing it whole, I decided it could be further enhanced by adding sound. I found appropriate music for each of the major moves which loosely approximated our daughter's changing interests and recorded it on my small portable tape recorder, which I can carry with me when I show the film away from home. It was easier than I expected to splice the tape to fit the film footage. As an example of the kind of music that made the film come alive, I used Belafonte's recording of the haunting "Turn Around" for the final 90-second dissolve sequence. The following lines give the sense of the lyrics: "Where are you going, my little one, little one. Turn around and you're two, turn around and you're four, turn around and you're a young girl going out of the door."

I tell my daughter the film won't really be finished until I can add a picture of her holding her own baby some day, after which I will repeat the opening shots of a baby's cry.

My original intent was simply to learn some basic film techniques; but, whenever I show this film to friends whose children are themselves about to fly from the nest, I have to turn my head and pretend I don't see them dabbing at their eyes. That's when I know that the result is something more than a classroom exercise. To watch a young girl grow up in seven minutes, the finished length of the film, is an experience the effect of which I hadn't anticipated when I began.

The Bolex 155 Macrozoom handles with equal ease an amazingly wide variety of sizes and quality of photographs, color slides, newspaper prints, 8″ x 10″ blow-ups, even tiny 2″ x 4″ home-developed prints that are over 20 years old. They all come alive under the Bolex lens. A most rewarding experience awaits anyone with the patience to sift through all those drawers, boxes, and dog-eared albums where most of us deposit the memories of our summer vacations, school plays, birthday parties, first proms, etc.

Patience, that is—and a Bolex 155 Macrozoom camera.

There never were any movie cameras like these

. . . cameras that offer the new dimension in moviemaking

Two exciting Super 8 zoom cameras from Bolex—both with amazing Macrozoom built right in for fabulous close-up filming and professional effects without professional effort. The Bolex 155 is the ultimate in Super 8 filming. Its revolutionary Macrozoom lens permits focusing to an incredible one inch! Through the lens light measuring is full automatic, instantaneous, so you never need to worry about exposure. Handy Super 8 cartridges pop in and out of the 155 with ease. To focus, just turn the convenient focus knob with your thumb—right while you're filming! Zoom whenever you want. Or shoot dramatic close-ups. An electric motor in the grip provides steady power and perfect balance. And a coincident image rangefinder insures bright, clear reflex viewing and focusing. Use the slow motion button to create special effects, humor. Or lock the diaphragm for manual exposure settings. A free accessory—the unique Multitrix—makes shooting titles, professional effects as easy as regular filming.

And the Bolex 7.5 Macrozoom camera with trim, pocket-sized styling and proven Bolex quality. All the advantages of amazing Macrozoom in a neat little bundle. With an extra-wide wide angle lens and focusing down to a short five inches, the Bolex 7.5 goes anywhere, anytime. And it's fully automatic, with a versatile Multitrix for easy titles, effects.

With Bolex Super 8 cameras, moviemaking is an anyplace, anytime pleasure. There are no close-up restrictions with Macrozoom. Shoot down to one inch from your subject and discover a whole new world of film entertainment. For an educator, that's an important world of teaching and learning. Take the biology teacher, for example. With Macrozoom, he can shoot his own instructional films and show his students close-up, over and over again, a tiny insect or a dissected frog. Bolex Super 8 zoom cameras aren't restricted to close-up filming, either. They offer all the conventional shots, too, like exciting zooms, dramatic long shots, and extra-wide wide angle filming.

Bolex Super 8 versatility means something for everybody. Hobbyists can now enjoy their pastimes more than ever with permanent film records. Stamp collectors can shoot pictures of their prize possessions—extra close. Shots that were formerly impossible suddenly become easy. With a Bolex Minipod (a clever little tripod) and a Macrozoom camera, hobbyists can shoot rock-steady close-up pictures of their entire collections.

Weekend gardeners love Bolex Super 8 cameras because they capture the beauty and grace of a lovely flower or a beautiful landscape. All the way down to the tiniest details in the most delicate flower, Bolex "sees" and records nature's

And there aren't any projectors quite like these

hidden world.

Businessmen discover exciting new possibilities with Macrozoom cameras from Bolex. Now advertising agencies can quickly and inexpensively shoot storyboards for prospective clients. And that means the nagging problem of trying to visualize abstract ideas is gone.

Architects shoot movies of actual buildings and detailed scale models with Bolex Super 8 cameras. Inside or out, Bolex cameras adjust to prevailing light conditions automatically and guarantee a perfect picture. This means an architect can move his model outside for natural lighting and real-life backgrounds.

Sales promoters take their own product shots with Bolex. No more expensive, time-consuming studio and lab work. Simply film the subject wherever it looks most natural. Then let your film make its own sales pitch.

Who could appreciate Bolex versatility more than the weekend moviemaker? "Home movies" take on a professional look with zoom shots, easy-to-make titles, wide angle views, and revealing close-ups. A birthday candle, ribbons on a special gift, a child's thrilled expression. All of these are routine hand-held shots with Bolex Macrozoom, the camera that gives you all the regular shots plus continuous focusing to an unbelievable one inch!

And here are two fine Super 8 projectors with acknowledged Bolex quality and dependability. Engineered and built to last, the sturdy Bolex 18-5L silent projector will give first-rate service through a lifetime of movies. With completely automatic threading, it matches durability with ease of operations. A single control knob does it all—from forward projection at 18 f.p.s. to reverse or all the way down to a superslow 5 f.p.s. for a flicker-free slow motion picture, especially useful for analyzing movement in sport and research. But most of all, the 18-5L is built for pleasure. Take it along wherever you go. It's light and compact—the perfect portable, beautifully finished in two-tone grey metal.

Bring your films to life with vibrant sound and the Bolex SM8 sound projector. It's easier than using a tape recorder and lots more fun! Spice films with music, narration, sound effects. The sounds go right on your films to stay. (Unless you want to change them—then you just erase and record again!) Projection at either 18 or 24 f.p.s. ensures excellent quality sound reproduction. And you don't have to stop at projecting your own Super 8 films, because the SM8 handles commercial Super 8 sound films up to 800 feet long. (That's 52 minutes of uninterrupted viewing!) Film threading is fully automatic, there's an extra bright projection light, and, of course, the SM8 shows your silent films, too.

Caribbean Holiday

Filming the sights and pleasures of a vacation can make our Caribbean Holiday (or any other holiday) more enjoyable for the entire family.

Whether our family and friends get as much fun looking at the finished film depends on its technical quality, however, and even more so with the scenes and subjects which we have recorded with the camera.

We naturally want to record the beautiful scenery, the palm-lined beaches, the waves crashing on the rocky cliffs, the colorful houses, the tropical forests, but an interesting vacation film must have more than these post-card scenes.

The long shots must be intermixed with close-ups, real close-ups—a single flower, a colorful leaf, a tiny seashell, a colorful hinge on a house, filling the movie frame.

The close-ups, and especially the super close-ups, are important because they add variety to the film; they make the film appear sharper because they show the things most people never see, never photograph. The most beautiful patterns and colors exist in the close-up world, not only in nature, but in close-ups of the foods we are served during the vacation, the cocktails we enjoy before the dinner, in the glassware we find on the dinner table.

The vacation film must bring back personal memories—like getting the long-awaited suntan at the edge of the swimming pool, the teenage daughter getting dressed up and made-up for dinner. Personal memories told in long shots have little lasting value. They become more personal, more fascinating when told in close-ups.

Our vacation film should be personalized by showing not only the beauty outdoors, but also the things we see and enjoy indoors—the rooms we sleep in, the restaur-

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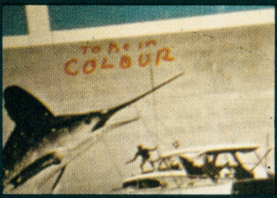
CARIBBEAN
HOLIDAY

St John

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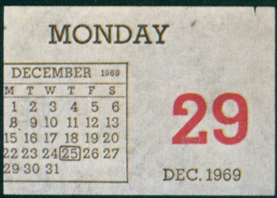
MONDAY
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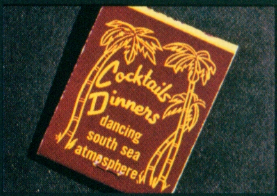
FRENCH
CARIBBEAN

HILTON


Cocktails
Dinners
dancing
south sea
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CURAÇAO
1 CENT
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SEA HORSE
BARBADOS
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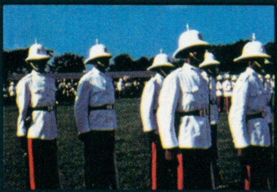
FREEDOM FROM HUNGER



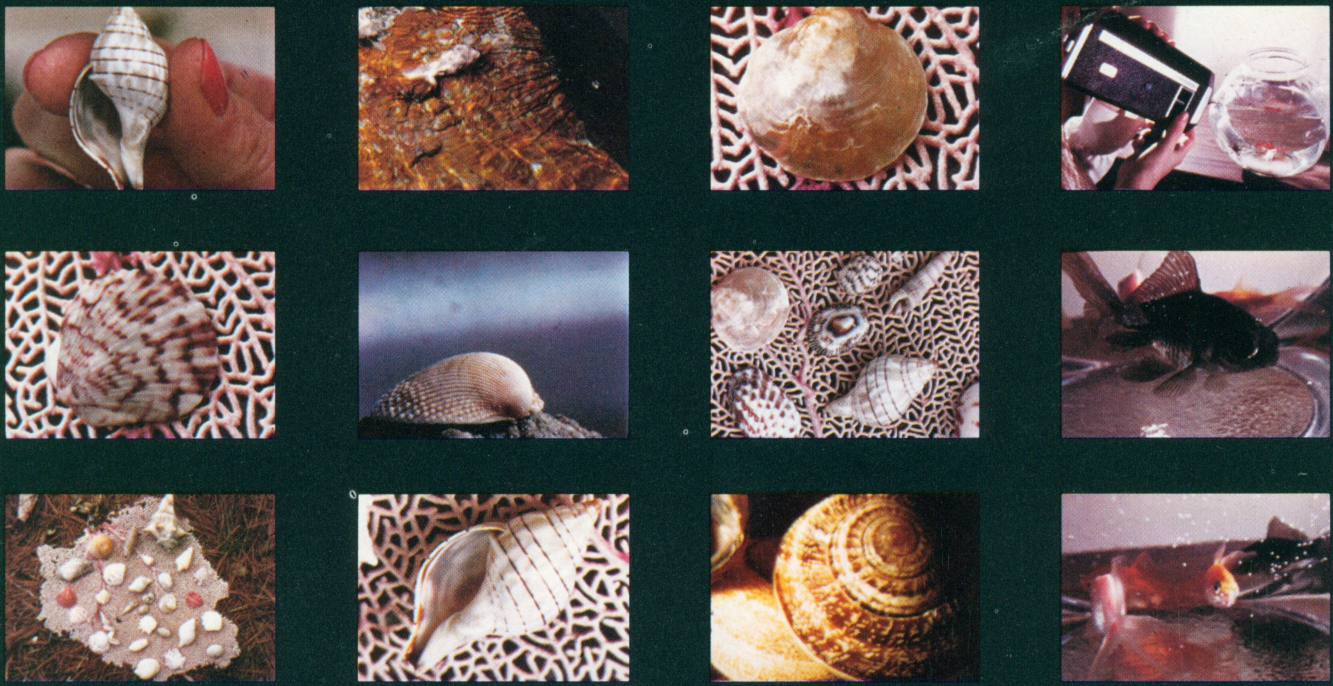








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ants that serve the food to us, the museums that we visit. If there is not enough light to do the filming, we can almost invariably find a postcard, a travel or hotel folder, with an illustration of the desired interior, and shooting this picture can add the missing scene to our film.

Our vacation film, especially when it covers a faraway location, should show unusual and interesting happenings of the native people—not only the people themselves, but how they perform some unusual work with their hands, what they sell on the local market, how they carry their loads.

Regardless of where we go, where we spend our vacation, our film is not going to look complete and professional unless it has titles, and the titles naturally must be at the right place in the film. How do we put them in the right place? By shooting them at the right time—in the same location where we shoot all the other scenes.

The titles in our modern vacation film can have a tremendous variety. They can be made with a typewriter, or with titling letters placed on a picture, or on acetate sheet and filmed against a real moving background. We can film the writing on a card, folder, menu, matchbook, or postage stamp, for a unique, new approach that everyone will enjoy.

What do we need to produce a vacation film like this? A Bolex Macrozoom camera. It will permit us to film everything from miles down to inches—the faraway long shots and the close details with equal ease, automatically, without carrying a bag full of accessories. It will permit us to title the film right on location by just pointing the camera at a ready-made title, or inserting title copy in the compact Multitrix. It will permit us to film postcards, maps, pictures from folders, stamps, automatically, easily, with a hand-held camera. It will permit us to combine scenes with wipes, out-of-focus dissolves; and most important of all, filming our vacation with a Bolex Macrozoom camera will be fun, not just a technical exploration.


THE END
THE END

Bolex—Precise and Rugged

by Robert E. O'Reilly

Editor's Note: We've given the following letter a title because it actually "tells the story" of Bolex dependability. The author is a professional photographer, so there's no middle ground for him. Either his equipment performs—or else. Fortunately, with Bolex there's no "or else".

The letter appears just as we received it from the author. Few people are in a better position to comment specifically on Bolex performance. And few could produce a more convincing testimonial to consistent Bolex quality and durability.

Dear Sir:

Perhaps my experience with the Bolex camera would be of interest to Bolex Reporter readers.

For many years the versatile Bolex H-16 Reflex camera has been my main source of income. I make my living as a professional film lecturer and as a freelance T.V. motion picture cameraman.

Precise, portable, dependable and rugged; these are qualifications desirable in all cameras, but they are an absolute necessity for my kind of filming.

My Bolexes have spent days and nights with me on the decks of an Aircraft Carrier crossing the Pacific, filming all aspects of this fascinating floating-city life, including the launching and recovery of big Navy jet fighter aircraft; we've climbed cargo nets from Higgins boats up to the decks of LSTs, out in the Atlantic Ocean; we've landed by Amtracks on the sandy beaches of islands in the Caribbean; plowed through the waters of the Mediterranean Sea aboard units of the powerful Sixth Fleet; together my H-16 and I have flown in open-door helicopters, filming "Castro's Cuba" during the Cuban Crisis; we've peered over the infamous Berlin Wall and even entered East Berlin through Checkpoint Charlie during the Berlin Crisis; and later that year we chased the DART target in an Air Force T-33 Jet Trainer in the skies over North Africa as F-84s of the activated Air National Guard Unit sharpened their aerial gunnery claws.

We were tired companions during a 40-hour, off and on flight aboard a MATS C-124 Troop Transport that took us from Texas to Frankfurt, Germany, during the "Big Lift" exercise a few years ago.

During these rigorous trips many thousands of feet of film have gone through my Bolex cameras, and I have yet to experience a single mechanical failure on the part of any of the cameras.

When I first entered T.V. news special filming ten years ago, I purchased a well known name brand 16mm camera. This camera had attracted my attention because of its very "rugged" appearance, but I soon found out (the hard way) that in cameras as well as in everything else, appearance may be only "skin deep". Numerous internal parts failed—and always at the most crucial moment.

Then I discovered the Bolex Rex system, along with the fine complement of Switar lenses. I have used them ever since for all of the filming I've mentioned.

For seven months of each of the past three years, I have been traveling the film lecture (travelogue) circuit, showing and personally narrating 90-minute film productions titled "Ireland—Land of Legend" and "Bermuda—Isle of Rest".

Both of these, as well as my new film, "Welcome New Zealand," were filmed with my Bolex H-16. I also use the camera for filming the titles and maps that are a necessity in travelogues. They wouldn't be feasible to attempt were it not for the fine reflex viewing feature of this camera.

I'm sure we all agree that, whenever possible, such precision equipment as the Bolex should be treated as befits its high manufacturing standards, but rest assured it won't let you down when its necessary to test its ruggedness out in the field. I confirmed this fact during a recent trip into the canoe country of Northern Minnesota and Ontario.

I was commissioned to produce a short film for a canoe manufacturer, showing a family vacationing with canoes in the bush country. We drove to Ely, Minnesota, and then with a total of three adults, three children, two canoes, two tents, food, other camping equipment, film, and my Bolex with aluminum case we headed north across the huge lakes.

For ten days I filmed this fascinating land of rugged beauty, fruitful fishing, and interesting camp life. One day we canoed and portaged to another lake several miles from "our" lake, where we had prearranged to be met by the pilot of a float-equipped Cessna aircraft. From this plane my Bolex and I shot aerial footage of the beautiful land. (Of course we increased the camera speed to 48 frames per second and used the versatile 10mm Switar wide angle lens to give smoother coverage.)

The time to head back to civilization came all too soon. After packing the canoes, we left our little island and started the long boat ride over the lakes back to Ely. Late in the afternoon a sudden rainstorm caught us out in the middle of one lake. The Bolex went into the aluminum case resting on the bottom of my canoe and then all my time was taken with trying to see ahead of us through the blinding rain.

By the time we reached shore forty-five minutes later, everybody and everything in both canoes was thoroughly soaked—except the Bolex and my precious film (inside the waterproof Bolex case), even though the case was sitting in four inches of water in the bottom of the canoe. Not a single frame of film was lost nor did one single drop of water penetrate the Bolex case!

I could cite many more such personal experiences my Bolexes and I have shared over the years, but by now I'm sure you are convinced that I know what I'm talking about when I say that the name Bolex means precise and rugged motion picture cameras.

Sincerely,

Robert E. O'Reilly

World traveling author and Bolex cameraman Robert O'Reilly pictures St. Kevin's Tower, Glendalough, Ireland; a pleasant view on the lovely island of Bermuda; and County Galway, Ireland. Lower right: O'Reilly filming with his Bolex Rex while on a camping trip in Ontario.

Confessions of an Amateur Filmmaker

by Nelson Rhodes

Editor's Note: Moviemakers come to their trade by a variety of circuitous routes. All that counts for them is finally arriving, however, and many times Bolex cameras play a major part in the eventual success. Repeatedly we are told by accomplished filmmakers that "getting hold of a Bolex" was what made it all begin to happen. The following biographical reminiscence traces the evolution of a serious creator of movies and shows just why Bolex cameras are indispensable.

My illustrious, exciting, and often frustrating career as a part-time amateur filmmaker began when I was in high school. A group of friends and I decided that the desolate fields and bleak, wind-swept terrain of eastern Iowa would be the perfect setting for a surrealistic horror-fantasy. Filmmaking as a creative medium was new to us; we had known only a steady diet of rather uninspired educational films. I dug my father's old 8mm antique out of his closet, bought some film, and, with a lot of help from my friends, filmed an epic (no doubt the first of its kind to be filmed in sleepy, scenic, farm-infested West Branch, Iowa).

It was my first experience with a movie camera, and the old spring-wound 8mm relic made for a pretty frightening introduction. It creaked, groaned, and constantly threatened either to fall apart or explode, shooting precious film out in all directions. Its exasperating habit of running down after about five seconds also helped to make every shooting session an exercise in self-control.

The finished film was strangely successful, however, and from that moment I was "hooked" on films. I was in ecstasy when I saw that the audience was actually moved by our film—that it said something to them, even though crudely. However, the feeling I had when I came out of the clouds long enough to look critically at the film is all too easy to describe—the product looked insufferably amateurish. (It was made without benefit of a light meter, knowledge of parallax correction, or editing equipment of any kind.) I was sufficiently annoyed with the image quality (it looked as if someone had smeared Vaseline on the lens) that I decided to abandon the 8mm field and move on to bigger horizons. (It is only fair to say here that I have since seen many 8mm films in which the image quality is excellent. The failure of my first film was admittedly a combination of ineptness and inferior equipment.)

For my second film, I teamed up with two of the young faculty members of my small Quaker boarding school. We managed to wheedle a 16mm camera from the headmaster and began what was no doubt the most ambitious foray into the realms of black comedy ever to be produced in Rochester, Iowa, The camera was not much better than a box camera with little wheels inside, and the one lens we had forced the cameraman to back up half a mile to see anything through it. However, much more attention was paid to detail this time. We used a light meter very meticulously, paid close attention to parallax (even though we still goofed a lot), and, just as important, concentrated more on the plot.

We still had problems, mind you. To begin with, we got ASA 1000 film by mistake, and the only scenes we needed were outdoors, which meant we had to find the deepest shade possible and close the lens all the way (which probably helped our focus more than anything else—the depth of field was amazing!). Also, we had no editing equipment, our shooting schedule was tight, and we had to go through an incredible amount of red tape with the school when we needed to travel somewhere to shoot.

After weeks of build-up, we gave our film a royal premier—and it was a smash. It was full of trick effects (or as many as our ancient camera would allow). Effects like backward motion (shooting a scene upside down on double-perf film and then splicing it into the finished film upside down, thereby rightening the image) and fades (done choppily by closing the diaphragm, which was impossible to do in bright light) gave the film a more professional polish—but the camera we used saw to it that we retained our amateur status. Besides giving us poor image quality, the machinery often went awry and scratched large portions of the film, making it virtually unuseable.

Still, it was a considerable improvement over the previous film, and I had learned a great deal from the two men I had worked with. They each knew an impressive amount about still photography. Hence, each scene was set up with a meticulous eye for design and balance in the image.

The film was shown in the Iowa City film festival. As I saw the film more and more often, the lack of polish and crudeness began to bother me, but it never bothered the audience. I pointed out the flaws to people, but they would respond, "Oh, it's not so bad." They *expected* a crude and rather shabby movie. I decided it was time for another film—one that would look more professional. This time, people would not think they were watching a tricky home movie, but a work of art that could stand on its own.

Jacques (who had worked with me on the previous film) and I worked on the next film, a "Bonnie and Clyde" satire—once again using that tired old 16mm camera. We tried to avoid trickery and things that would make the film overly "gimmicky". Unfortunately, since we couldn't afford much film, we had to make every frame count. When the film was processed, the camera had done it again. Huge scratches appeared, even worse than before. Our ideas simply could not be carried out with that camera. Consequently, the new movie was poorer in execution than the previous one—even though we had more experience and knew more precisely what we wanted. It was a success with our audiences of friends, however—another tricky little home movie.

Segments of the film were still photographs that we could not copy successfully with our camera. One of our friends had a newly-acquired Bolex H-16 Rex 4. Since he didn't want anyone else to use the camera, we persuaded him to shoot the stills for us under our direction. With the built-in variable shutter, he was able to get a long dramatic fade between each still picture. When his shots were spliced into the rest of our footage, the contrast was remarkable. The image quality on the Bolex-shot footage was so far superior to the rest of the footage that it upgraded the entire movie tremendously. I vowed that was the last film of any magnitude or degree of seriousness I'd ever shoot with that old klunker of a camera we had been using.

That summer I worked in Chicago in a film distribution center—sort of learning the industry from the roots up. I met producers and filmmakers, and saw film after film after film. My employer, the infamous Henk Newenhouse, decided to let interested youths in his employ make a film. He purchased for our use a used Bolex H-16 turret model with 10, 26, and 75mm Switar lenses—plus all the film we'd ever need. So two young girls and I painstakingly wrote the

script, found the location (backwoods Wisconsin), "discovered" the proper actress (an extremely engaging and photogenic little Wisconsin girl), and eagerly plunged into work every weekend.

A filmmaker who had a Bolex of his own showed me the rudiments of Bolex use. Our camera didn't have a backwind crank, or a variable shutter, or reflex viewing—but I didn't care—the image quality that I attained was so superior to what I had known previously, the absence of accessories didn't bother me at all. Sometimes when filming I almost thought the camera wasn't running—it didn't whirr and clatter and sound as if it were falling apart. Shooting with it was really a joy—it actually stayed wound long enough for a very lengthy scene!

Towards the end of the summer, Henk ran out of work to do and said my services were no longer needed, or something like that. I went for the final, crucial shooting session and found my little star had abandoned me for a vacation with her family. So, I took what footage I had and edited it into a slightly different story than I had originally intended. I was more than satisfied with the way the Bolex handled it. For the first time I could actually put on film the ideas I had in my mind—not just crude caricatures.

"Ressurrection" is a quiet, poetic film, something quite different from anything I had tried previously, understating and delicately outlining objects and situations instead of bluntly crashing them into the viewer. The film is about a little girl who finds an old, abandoned toilet in a crumbling, weed-infested house. She washes it off in a stream, paints it in strange swirling drippy patterns, and stuffs it full of flowers. I tried to take something that most people would find repulsive—a cute little girl caressing a dirty, grimy toilet—and slowly have the girl transform both the toilet and the audience's feelings about it. Even in the ugly, the repulsive things in the world, there is a capacity for beauty.

About this time Jacques and I decided to really take the plunge, pool all of our money and purchase our own camera. We wanted a camera that could carry out all the ideas we had—one that could give us professional quality—and that wouldn't cost an arm and a leg. First, we examined the vast Super 8 market—and became embroiled in the question of image quality. Suppose we wanted to project our films to a large audience, blow them up on a very large screen? Would the image quality of a Super 8 become dim and fuzzy at that distance? We decided to run a test and projected Super 8 and 16mm films side by side. The 16mm decidedly won out at a distance. We then decided that if we were going to purchase a camera and make a major investment in film and equipment, we wanted the best.

We had had it with computing parallax all the time, and decided we needed a reflex camera. We wanted a camera that could do fades, backwind the film, and give superior images. I was enthusiastic about the Bolex, having used one for three months, and we discovered the Bolex was the least expensive camera professional enough for our purposes. Although by no stretch of the imagination dirt cheap for two starving youths, it was well worth the investment. So, in one giant swoop, we bought a Bolex Rex 4 with 10 and 26mm Berthiot lenses, a 40 image Rex-o-fader, a tripod, a pistol grip, a set of filters, a backwind crank, a Bolex light meter (which we considered a must after using the conversion tables for a while), and some film. Soon thereafter we purchased a 16-85mm Pan Cinor zoom lens and editing equipment.

The Rex 4 is always in sharp, crystal clear focus, and the image is perfectly framed, thanks to the reflex viewing. Close-ups are done with ease instead of luck. The Bolex light meter reads scenes with amazing pinpoint accuracy when it is mounted on the camera's accessory shoe. And with the Rex-o-fader, professional looking smooth fades, lap dissolves, and double exposures are easily made in the camera without nagging lab costs.

Not only does the Bolex take amazing pictures, it commands a certain respect. Recently, when the Jefferson Airplane played at Grant Park in Chicago, getting through the police lines to the stage without a press pass was nearly accomplished simply by holding the Bolex and walking behind the ABC news entourage!

Happily, and infinitely more important, our films now command a certain respect. The first film of any magnitude produced through the 'Jacques & Ignatz Films' studio was a fashion film done on commission by Jacques for a fashion store in Chicago—to be rear-projected at an up-coming fashion extravaganza. My film, "Resurrection," was shown on television in Milwaukee.

Plans for the future include an animated film that is now in the works (an Iowa City newspaper was formerly the only recipient of our formidable cartooning powers). Though by no means a wealthy or famous organization, Jacques & Ignatz Ltd. is certainly a dedicated one—often missing a meal so that film costs can be paid.

Film is coming into its own today—and not only films made by large, wealthy studios. The motion picture is being seen as a very personal statement, a work of art, made by an individual who uses his camera much like an artist uses his brush. No longer do films come only out of Hollywood. Soon filmmaking will become as accepted as painting or sculpture, with an artist exhibiting his end product to the public to stir their emotions, mix their feelings, or express any sort of statement he wishes to make. These films needn't conform to the standards set by the large movie producers. They should set up their own standards—standards that don't restrict but give freedom for the filmmaker to undertake any technique or subject manipulation he feels appropriate. We are in the midst of a film renaissance—on the individual level. People are seeing the need for this type of expression. Even the spectacularly successful Michelangelo Antonioni wants to film a Super 8 western!

Solving the Riddle of Saltwater Crocodiles

by Roman R. Pawlowski

Editor's Note: As this description of saltwater crocodiles reveals, the author is a knowledgeable scientist as well as a professional photographer. From the standpoint of technical fact alone, the following remarks are significant. What makes them invaluable to the serious filmmaker is their insight into the art of filming for scientific research as well as for fascinating entertainment.

Unique pictures of crocodiles, their habitat and behavior would seem exciting in themselves. And they are. Of even greater interest, however, are the original scientific conclusions Mr. Pawlowski is able to reach by studying his own films. Several of these discoveries are briefly described in the following story, which is, in many ways, as great an adventure in cinematographic innovation as scientific observation.

Mr. Pawlowski's findings, both with crocodiles and Bolex professional movie cameras, are the products of more than a dozen years of dedicated and energetic work in the field. Readers can easily see for themselves how seriously the author regards his subject and the professionalism that he brings to it.

It is a special pleasure to share with Reporter readers Mr. Pawlowski's extensive knowledge of crocodiles (an education in itself) and his considerable respect for Bolex cameras.

The Saltwater Crocodile (Crocodilus porosus) is the world's largest surviving reptile, the normal adult size for the male being sixteen feet, for the female ten feet. It has a more extensive distribution than any other of the 31 members of the crocodillian family and is found in the tidal rivers throughout tropical Australia, New Guinea, Indonesia, and along the southern Asian coastal belt including Ceylon.

Previous page: Author's son with fully grown crocodile (male).

Left: Baby croc sunbasking on a leaf. Cyclonic floods often wash these reptiles far inland where they survive in fresh water lakes.

Right: Adult Crocodilus porosus (female).

The lifecycle of this crocodile is a highly interesting study. The nesting season begins with the approach of the monsoons, when the female crocodile leaves the water to build her nest of mud and vegetation. The choice of a suitable site is very important because the nest must be close to water, yet above highest tidal level. This is the reason that most such nests are found on concave banks which are high and steep, with the edge close to water yet always above it, thus offering quick and easy access.

Having chosen her nest site, the mother crocodile awaits the approach of the monsoon, something she seems to sense—perhaps by responding to the low atmospheric pressures also readily registered by other creatures, like ants. With the arrival of the first rain, she builds her nest by scraping mud, grass, leaves, and small pieces of wood into what in every way resembles a gardener's compost heap up to two feet high and six feet wide at the base.

The vegetation, through its automatic process of decomposition, generates heat, while the rich clay mud prevents the rain from penetrating the outer crust and thus lowering the inside temperature. Soon after the completion of the nest, the female makes a little hollow in its center and there deposits her eggs, 40 to 60 in number, 2¾ inches long. This done, she covers the eggs carefully with another layer of mud and vegetation up to a foot thick. From this point on, the mother crocodile leaves the water frequently to lie alongside her nest for several hours every day.

Some zoologists believe this to be for the purpose of protecting the nest against possible predators, such as wild pigs and, particularly in Australia, goanas, which grow to an average size of five feet.

However, during nearly a decade and a half of intensive study of crocodile behavior, I have gained the impression that protection may be a concern of the mother crocodile during the early stages of incubation, but it is not the main reason for visiting the nest because visits continue for months after the hatching has occurred.

At first the egg shells are rather soft, but eventually they harden. It could be that the softness and comparative elasticity of the new shell is designed to prevent damage during the actual laying, which is a rather clumsy process. The incubation takes approximately three months and at the end of that period the monsoon is over, leaving the clay mud covering the nest a hard and sunbaked mass from which the young could not readily dig themselves out. Nature amply provides for the needs of the emerging hatchlings, however. When they are ready to leave their eggs, they simply call their mother. This "hatching call" from deep within the nest is only faintly audible to the human ear at a distance of two to three feet. It is my theory that perhaps the hearing of a saltwater crocodile is adjusted to a wider frequency range than the human ear and that thus it registers sounds inaudible to man. In an improvised incubator designed to amplify sound, I have successfully hatched batches of crocodile eggs. Under such artificial conditions the hatching calls of the young carry clearly across the room.

When the mother crocodile hears her young call, she proceeds to uncover the nest very carefully at the side, gradually digging towards the center with her front claws until she reaches the eggs. Within minutes (sometimes hours), the young begin to emerge from the opening in the nest. Those closest to the exit have it comparatively easy, while the others have to push their way through among eggs and empty shells. Not all succeed.

The maternal instincts of the mother crocodile are often exaggerated. Like many other reptiles, crocodiles are cannibals; if a mother crocodile happens to be hungry during the hatching of her young, she will eat them as they emerge from the nest. Contrary to widespread belief, the male crocodile will not interfere with a nest. It means nothing to him and he would not know, therefore, where and how to look for it.

As soon as the young leave the nest, they seek safety in the muddy river water, but stay near the edge in shallow areas to avoid young sharks, catfish, and other predators. These efforts at self-preservation are seldom successful. Sea Eagles and hawks, which are masters at catching fish that stray to the surface, pick the barely twelve-inch long hatchlings like mushrooms. Fish, goanas, and crocodiles attack from the water. At an average, only one hatchling survives from each nest.

Whereas at first the young eat only very small prawns, crabs, and fish, which are plentiful, gradually they seek bigger prey to sustain their rapid growth at the rate of one foot during each of the first five years. After that period, the rate of growth decreases considerably, particularly in females.

Although a fully grown male Crocodilus porosus can swallow a wild pig, coastal wallaby, or other medium sized game (including man!), its main diet consists of fish, large crabs, and water fowl. Like most reptiles, the crocodile never seems to be sufficiently hungry to trouble itself for food. Perhaps this is readily understandable if one considers that despite its amphibious habits the crocodile labors considerably under its own weight when out of the water—the large and heavy sixteen foot long male more so than the smaller female, about half as long.

Saltwater crocodiles do not migrate as do many other animals. Females seldom move away from their established nesting sites. In fact, it is common to see a female crocodile build her new nest beside the one of the previous year. Males often have to move to other places if they get anywhere near another already established and stronger male. It is not that male crocodiles fight for the same reason as do elephants or buffalo; they do not strive for herd supremacy. Rather, they fight because they are unsociable creatures and cannot stand one another's company.

Also, crocodiles do not like being exposed to wind or rough water. Likewise, they avoid strong tidal currents. Invariably, they seek sheltered places. Knowing this, commercial hunters save much time searching for crocodiles by a process of elimination, narrowing down their search with the aid of binoculars to the few likely places.

The saltwater crocodile is often called the estuarine crocodile, which name originates from the reptile's habit of spending much of its time at the mouth of rivers, creeks, and even gullies, however small. This habit is connected with feeding. At floodtide fish move up creeks and gullies, up river from the sea, and at ebb tide all fish move out again as the water becomes shallow, drying up many creeks and gullies. At such times fish are most plentiful passing through the mouth of streams. This is particularly true of surface mullet, which have the habit of attempting to escape a pursuer by skimming over the water towards, rather than away from, the source of danger.

Essentially a cold-blooded animal, the crocodile must control its body temperature according to circumstances. During summer it stays mostly in water, though from time to time it may be found on the bank at night or in the early morning hours. The intense heat of the tropical summer sun would prove too excessive and is thus avoided. On the other hand, during the winter, when the water temperature drops, the crocodile is forced to bask itself in the sun in order to maintain the required balance of its body temperature.

Throughout the many years of my research work in the steamy mangrove swamps of the Asian tropics, I collected photographic material in order to establish an illustrative record of countless observations—too many to remember. Eventually, merely by comparing photographs of related subjects, I found answers to many questions which previously had been unexplainable.

One of my most interesting discoveries was the result of a careful comparison and interpretation of color photographs, which revealed that for successful nesting crocodiles require a precise blend of geological formations and compositions, weather conditions, and tidal influences created by the monsoonal season.

Thus at last was the answer provided to the question why saltwater crocodiles cannot breed in the habitat of another type of crocodile, even though both species share the same rivers, the saltwater crocodile in the tidal parts, the other in freshwater parts. Many saltwater crocodiles are found in freshwater parts of rivers to which they have strayed during cyclonic floods. But they cannot breed there. Film records provided the answer.

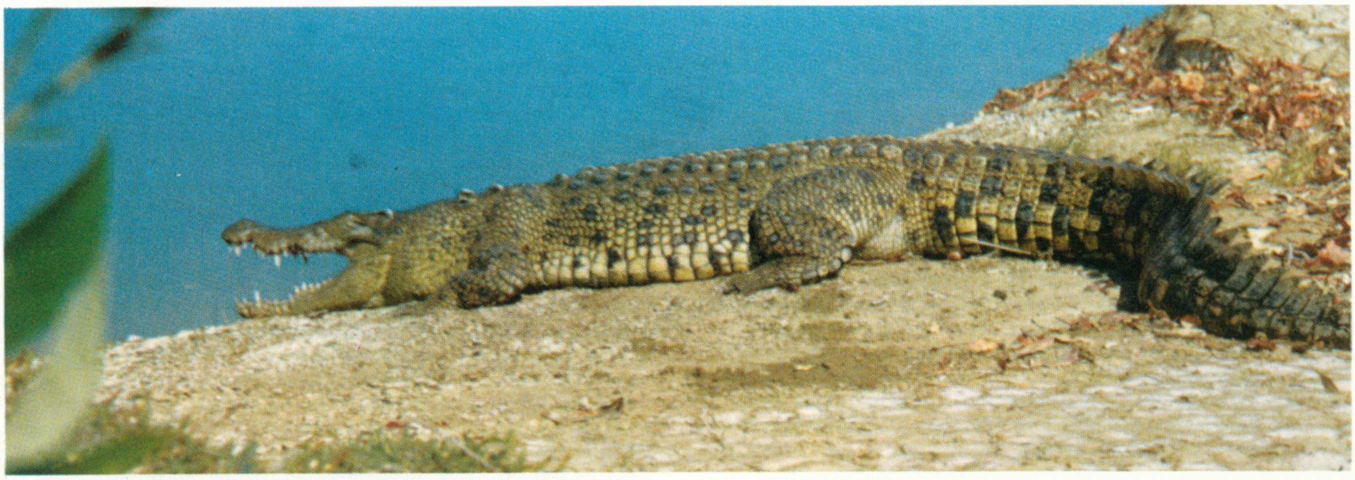
Another series of films helped me establish that under certain conditions created by nature, Crocodiles porosus, which is essentially a carnivore, can survive as a herbivore. This discovery in 1961 was duly reported to the American Museum of Natural History to which several crocodiles were air freighted for closer analysis.

My Bolex was employed on countless other jobs within the framework of my crocodile research project, notably in establishing data completely covering the development of the embryo of Crocodilus porosus. In fact, for a long time I used my Bolex system for both ciné and still photography.

Only on rarest occasions is research work of this kind adequately financed. Working as a team, my wife and I depend on two other activities to support our study. My wife engaged in taxidermy work and shipped her produce to "civilization". I wrote on a variety of subjects for small Australian magazines and managed to produce five wildlife documentaries for television.

And of course the sale of the skins of crocodiles which occasionally had to be killed helped considerably. Skins of Crocodiles porosus are more valuable than those of any other crocodile. A single undamaged skin of a wide-bellied sixteen foot long male often brings 180 to 190 Australian dollars. On the other hand, in addition to current expenses, we labored under a prohibitively high cost of living. For example, merely to see a dentist, or less frequently a doctor, the air fare over the vast expanses of the Australian outback would never be under 120 dollars, often almost twice as much, while the treatment itself was free under the Australian medical scheme which governs such services in the Northern Territory and in the State of Queensland.

Photographing crocodiles for other than record purposes is quite frustrating and often unrewarding, mainly because



of the sluggish movements of the saltwater species. One never seems to secure an action shot. A reptile will lie on a mudbank for hours without moving an eyelid. If and when it moves, it does so ever so slowly without assuming a pose that could indicate motion. In water it will move without making a ripple. To sunbask, it seldom crawls up the mudbank; rather, it waits at the edge until the ebbing tide leaves it high and dry. When it gets cold again, which is after sunset and too late for photography, the saltwater crocodile slides slowly into the water.

Lenses under 100mm are seldom of use, for, despite reports of the saltwater crocodile's aggressiveness, it is actually a very timid creature and will seek the safety of deep muddy water upon scenting a human being, which it instinctively recognizes as its natural enemy. I have mostly used a 150mm lens both for long range work and close-up photography requiring extension tubes. The depth of field in both applications is quite sufficient even with the slowest emulsions. The only other lens I used was the 25mm Switar and indeed this was the only lens I employed for the entire producton of my first half-hour documentary until in due course I "graduated" to the 150mm lens. Shooting an extended production with only a standard lens, working in mud up to three feet deep, and moving backwards and forwards instead of changing lenses is quite a weight reducing exercise!

But such challenging difficulties are now among my happiest and most highly treasured memories, much as a result of the perfect service which some of the most important items of equipment have given.

I do not know how long a movie camera is expected to last, but my Bolex never had any servicing, it was continuously exposed to air-borne salt such as is encountered along windswept coastal regions, to extreme tropical humidity in mangrove swamps, and to the sledge hammer vibrations that only a single cylinder heavy diesel engine boat can offer. When "old faithful" eventually went to the sea bottom as a result of a mishap in rough water, it had served for five years without protesting—more than I can say for myself!

Television Originality The Bolex Way

by David A. Williams

Editor's Note: Television viewers (and that's everyone, isn't it?) don't have to be told how little of what they look at is really original, thoughtful, and satisfying. Many times, local television programs are even more dismal than big-budget network shows. Is there any way around the problem? David Williams, Promotion Manager of TV station WNDU in South Bend, Indiana, says yes. And proves it. In the amusing account that follows, he describes what can be done with some clever ideas, willing subjects, and the cameraman's secret weapon—a Bolex 16mm professional movie camera. Hopefully, others will follow WNDU's lead and give inventive photographers like David Williams the opportunity to produce and televise films that win applause without having to resort to a cue card.

In far too many cities across this nation, local television stations content themselves with producing news/weather/sports strips, an occasional kiddies' show, and quantities of used car dealer commercials. But in South Bend, Indiana, a genuinely unique television show has just completed production . . . and a Bolex Rex played a vital role. The program, cast in the satirical revue mold, presented parodies of local and network television shows, irreverent commentary on current events, and an unusual assortment of experimental films. And if the humor was occasionally sophomoric, this was understandable in view of another unusual aspect of the program: it was produced by the station in association with twenty-four high school students.

The program, titled *Beyond Our Control*, was a production of WJA-TV, a Junior Achievement Company sponsored by WNDU-TV, the University of Notre Dame's NBC affiliate in South Bend. Junior Achievement is a nation-wide program of business education in which high school students form their own model corporations, conducting business during the school year and then liquidating assets in the spring. Many readers may be familiar with "JA" in their own communities, usually through a teen-ager's knocking at the door to sell a birdhouse or a letter opener or a bottle of window cleaner. In the case of WJA-TV, the students actually created a weekly television program, rented facilities from WNDU-TV, and then sold commercial advertising time to area businessmen. The program was telecast each Saturday evening for thirteen weeks and established a reputation as one of the most unusual and innovative programs ever telecast in the area.

Three advisers from the staff of WNDU-TV worked with the students to create the program concept and execute its production. From the first, everyone was in agreement that it was most important to "open up" the program, taking it out of the studio whenever possible with film shot on location. The task of shooting the unusual films planned for the program fell to the author's own Bolex H-16 Rex 4. With its wide range of shutter speeds, single-framing capability, variable shutter and through-the-lens viewing, the Rex promised to be just the versatile piece of equipment needed to produce the unusual films we had in mind. And the camera proved to be one of the most reliable members of our production team, operating throughout the seven-month shooting schedule without a hitch. We shot outdoors in the depth of a northern Indiana winter, continuing to work as the temperature hovered around 4° with only brief hops into an idling car to thaw out the photographer and cast as much as the camera. At the opposite extreme, we shot in 85° summer heat (and plenty of dust) late in May when we took our cast on location to a reasonable facsimile of the African jungle for our parody of a Tarzan movie.

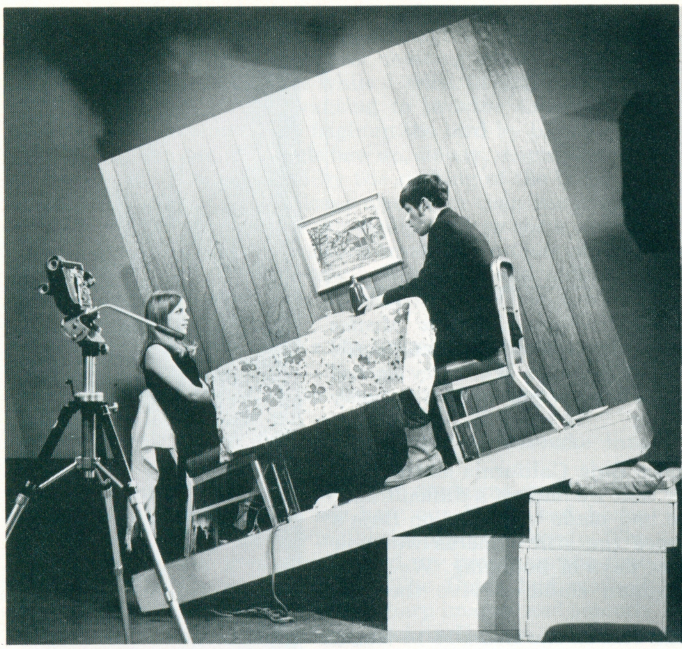
Beyond Our Control was a conglomeration of both "live" and film production, assembled every Saturday morning on color video tape in the studios located on the Notre Dame campus. Most of the film, either standard 16mm Kodachrome II or Ektachrome, was shot by the author during the week prior to the taping session.

Every program made use of film to some extent. An eye-opening title sequence was specially created just to open the show each week, its seventy seconds of film containing nearly one hundred cuts including a rapid-fire "kinestasis" sequence. In seeking to evoke the mood of the show, which was largely satirical in nature, we attempted to depict a panorama of our contemporary culture which was, indeed, "beyond our control".

The result was a sequence of still photographs, held on the screen for only four frames each (less than one-sixth of a second), forming a cultural montage of everything from Vietnam war photos and caricatures of LBJ and Nixon to tooth-paste trademarks and rock music stars. As this sequence raced along, we gradually dissolved to the stylized arrow which bore the title of the show. The remainder of the opening utilized cartooned titles, negative black-and-white footage, clips from campy old movies and action shots of our own cast, perfectly capturing the spirit of the program which was to follow.

What made the Bolex Rex 4 so important to the success of *Beyond Our Control* was our dependence on novelty films each week. It was our plan to present not only comedy and music on the show, but to frequently devote time to unusual films of an experimental nature. Many of these films utilized animation techniques, and the rock-steady registration claw of the Bolex Rex permitted us to shoot relatively complex set-ups without having to worry about the necessity of re-takes because of film "jiggle" spoiling the illusion.

One of our first films was a modest parable titled "Skid". The film opens as an unidentified stranger deposits an aerosol can, simply labeled "Skid," on a doorstep. A young man who finds the can soon discovers that its contents miraculously eliminates friction. Soon, he has sprayed "Skid" on the soles of his shoes and is gliding smoothly down the sidewalk, accompanied by the music of "The Blue



A versatile Bolex 16mm camera, a group of enthusiastic young actors, and an imaginative promotion manager combined to produce some highly original and creative footage for television. Recreating Ernie Kovacs' classic tilted-set routine (left), the company produced a howling episode by tilting a Bolex Rex to capture right-side-up-on-film a very peculiar first date experience! On another program (right), viewers were invited to enjoy once again those exciting Saturday morning thrills of Rin Tin Tin and the silent movie days.

Danube". Naturally, complications develop as the young man and his friends recklessly misuse the spray, sending people "skidding" about on their backs, stomachs and other portions of the anatomy, with the inevitably disastrous results. The film ends as the stranger returns to reclaim his "Skid" and then vanishes.

Plot obscurities aside, "Skid" was an eye-catching example of the now increasingly-popular human animation technique. (Several network commercials now use the same gimmick, but our film was shot several months before these appeared.) The motion, of course, is achieved by setting the camera on a firm tripod, shooting a single frame of film, having the actors move an inch or so, and then shooting another frame. (We tried shooting two frames for each move in order to slow down the motion, but the resulting action was too jerky.) The technique is extremely time-consuming and the actors must be remarkably patient, but the result is a suprisingly smooth and fluid motion, with as many as four people gliding smoothly about the frame in various postures in one climatic sequence. And we're assuming the inquiries about where to purchase "Skid" were intended in jest.

Much of the same technique was used in our humorous story of "The Electric Rag". With everything from electric brooms to battery-driven paper towel dispensers on the market today, we conjectured the next step might be an electric rag. A simple square of cloth with an electric cord attached became a remarkable cleaning device through the magic of animation. The rag dusted tables, polished shoes, and moved furniture about as it busily cleaned the premises. There's always a catch, though; this time, the delighted owners became the victim of progress as the rag suffered a short circuit and turned on the hapless family. In three evenings of tedious shooting, the rag was moved . . . fraction of an inch by fraction of an inch . . . between single-frame exposures. The resulting motion is flawless. (But no purchase inquiries this time; perhaps the audience was getting suspicious . . .)

A somewhat different form of animation was used in a three-part film set to the music of "Switched On Bach," a brand of Baroque performed on the Moog electronic synthesizer. In the film, eight of our group moved about the campus, pausing to strike poses in unusual groupings for a four-frame exposure. When projected, the group became an almost fluid mass, constantly-changing form, vibrating and oscillating in rhythm to the stacatto, extremely rapid music of Bach's Three-Part Inventions.

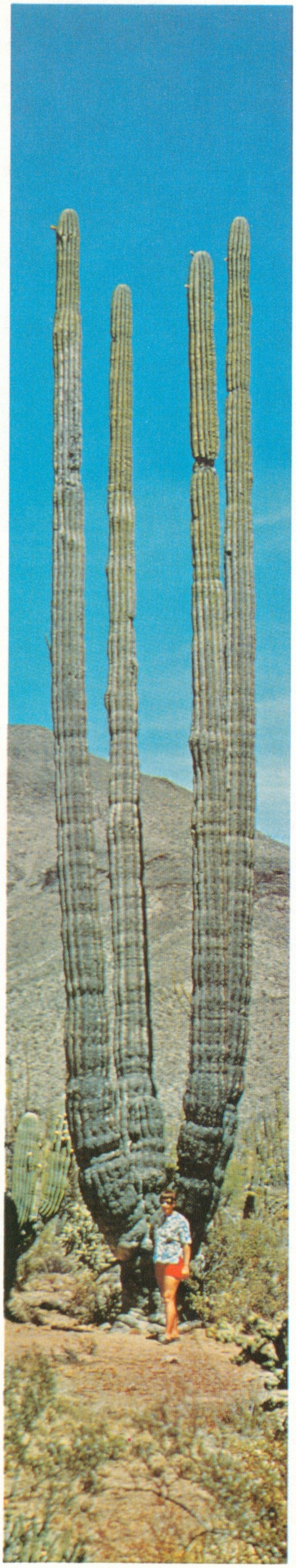
On many other occasions, the Bolex Rex proved its worth by permitting us to do special effects on location *in the camera*, giving us sophisticated technique without having to resort to costly (in both dollars and days) editing and printing. Examples:

In our obscure, pseudo-underground art film, "Flaming Critters," we wanted a man's face to change into a skull. With the Bolex Rex backwind and variable shutter, we handled the dissolve in the camera in one take with complete success.

In a parody of shampoo commercials, we decided to re-create the all-too-familiar sequence in which a beautiful blonde runs through a soft-focus field in slow motion. By closing down the variable shutter on the Bolex Rex and opening up the lens, we were able to achieve an extremely narrow depth of field. This, combined with back-lighting and slow motion, produced the soft, dream-like quality we were seeking.

And apparently the Bolex Rex knows all the angles. We successfully re-created the classic Ernie Kovacs' tilted-set routine for one of our comedy sequences. The entire scene—background, furniture and rather reluctant actors—was set up at a 35° angle, the camera tilted at precisely the same angle. On film, everything appeared quite normal . . . except that food on the table had an odd habit of cascading across the table into the young lady's lap. Aside from the inevitable mess created when several hundred peas leapt out of a bowl and rolled across the table, the bit was a success.

Having a camera like the Bolex Rex on hand let us prove that local television can still be a very creative medium. Plenty of unpaid overtime hours, a willingness to try anything once, a station management cooperative and receptive to experimentation, and twenty-four imaginative and resourceful students who were often willing to work three or four sessions each week all added up to a television show which must be unique in the annals of local TV. As an educational experience, a public service effort and a surprising piece of entertainment, *Beyond Our Control* is without peer. And it is no exaggeration to add that we owe much of its success to a dependable Bolex camera.



Bolex in Baja

by Sherilyn Mentes

Editor's Note: It isn't that Sherilyn and Matthew Mentes wanted to see how great a beating their Bolex H-16 Rex 5 could stand. It just happened to turn out that way. What they learned in Baja California, (and recount here) is that a Bolex not only endures—it prevails!

When my husband and I chose Baja California as the subject of our first film, we knew that we had set a difficult task for ourselves. Previously, we had made two trips on Baja's famous dirt roads. Both times the still cameras we took became inoperable after a few days of bouncing. We knew that only an exceptional camera could survive the trip we planned.

My husband, Matthew, had chosen the Bolex H-16 Rex 5 for its versatility and sturdiness. The camera, along with an assortment of lenses, was packed into a rugged aluminum case also made by Bolex. We set the case on top of our sleeping bags in the back of the Land Cruiser. For more than 1,500 miles it sat there as we jolted over the rocks, swam in the dust, and baked in the fierce sun of Baja.

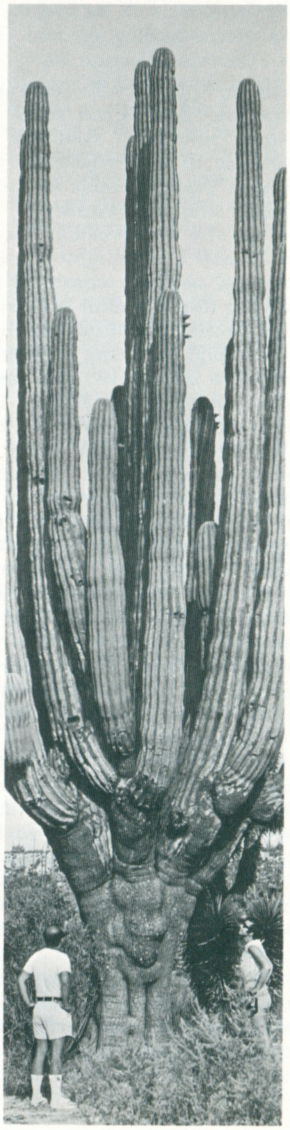
Our friends have often asked us why we like Baja. It is difficult to tell them. The climate and the terrain are often severe, and there are no cities below the border area, so supplies and help are often far away. The beauty of Baja is in its serenity. The warm Gulf waves break on unmarred beaches. High arid mountains shelter tiny oases of palms. In the midst of a dense jungle of twisted cirio trees and towering cardons, one becomes part of a weird, timeless beauty. All of this and more we wanted to show in our film.

Every day brought its problems. The heat was fantastic. On several days the thermometer read 120° and higher in the shade. A battery operated refrigerator cooled our film, but everything else in the car, including the camera case, became almost too hot to touch. The constant dry heat drained our energy and slowed our thinking. At one point during an extremely hot day on the roughest part of our route, Matthew laid the light meter down and forgot to pick it up. Later we had to spend more than an hour retracing our tracks and searching for it.

At another point on the same rough road, as the camera was standing on the high-hat tripod, it began to slowly tip over. Watching in horror, we saw it hit the stones. There was a scratch on the 50mm lens and one side of the body was covered with dust, but the motor still ran smoothly. The nearest camera repair shop was a week's drive away, so we could do nothing except continue shooting and hope.

The Bolex case is reputed to be water-tight. We had no opportunity to verify this but I believe we subjected it to a harsher test in the fine wind-blown dust of the dry lake at Laguna Chapala. This dust sifted through the seams of the car. It got into our hair, eyes, even into our pores, but the tight case kept it away from the camera.

Baja is sparsely populated; however, we found that the natives are very cooperative. Sometimes they are embarrassingly so. As a matter of courtesy we always asked permission to take pictures before setting up our equipment. The usual answer was a shrug, a smile, and, "Why not?" Most of the people there are familiar only with still cameras. Therefore, our subject would often stop whatever he was doing and stand rigidly as long as the camera was on. Using my limited Spanish to its fullest, I would try to avert this type of situation by asking a constant stream of questions while Matt was shooting. We got some good scenes of the native showing the dumb American exactly why he was doing what he was doing.



One helpful individual did ruin a fantastic shot for us. We had arranged a boat ride to a sea eagle's nest. We found the bird on a cliff near the nest feasting on a huge fish. Matthew set up the camera while I tried to keep the boat steady. The boat owner, wanting to provide some action for our movie, attempted to frighten the bird by banging on the boat with an oar. The eagle flew up, slowly, magnificently, but the sequence was ruined by the shaking of the boat.

The wildlife in Baja is far less cooperative than the people. Again and again we carried our equipment to some almost inaccessible point to catch various creatures in their natural habitat. Again and again every insect, bird, and animal in the area moved just out of camera range. Then I would hear from Matthew:

"Honey, would you catch a few frogs and throw them into this puddle." or,

"Darling, please go chase those vultures over to this cactus." or,

"Sweetheart, see if you can coax this rattlesnake into the light."

On arriving home, we nursed our sunburns and bruises while waiting anxiously to see how our Bolex had borne 1,500 miles of rough roads. Finally the print was ready. The suspense became so great that I held my breath as the first scene came on. It was beautiful! The Bolex had worked perfectly throughout. Good colors, sharp images, and smooth motion combined to put us right back in Baja.

PreLaboratory Instruction Films

by W. Robert Barnard, Richard T. Yingling

Editor's Note: The following discussion of instructional films for the college chemistry laboratory was originally presented in the form of a technical report to the American Chemical Society at its spring meeting in Minneapolis, Minnesota. Needless to say, it is a scholarly description of the successful use of Super 8 and 16mm films in teaching.

But that is not to suggest that its relevance is confined to chemistry laboratories, or even colleges. Having both photographed with a Bolex camera and used the finished product in live classroom applications, the authors are particularly well qualified to accurately assess what films have done and what they can do for students in general.

Significantly, Bolex cameras and projectors have been found particularly well suited to the teacher's need for convenience and versatility in filming and projecting instructional films. The following remarks help to explain why.

Over the past two years, the Department of Chemistry at The Ohio State University has been developing 16mm color films for use in the first-year chemistry laboratory program. These teacher-produced films are used in conjunction with a laboratory manual and serve as prelaboratory instruction for the students in the laboratories. That is, a film is used to introduce or prelab each experiment which the students do during the year. This approach has been useful in providing an improved laboratory program for the very large numbers of students enrolled in the first year chemistry courses.

The films:

(1) Insure a consistent level of prelaboratory instruction and afford each student the opportunity to see precisely a procedure or technique that may be critically important in solving the experimental problem at hand.

(2) Emphasize, simply and uniformly, what would otherwise be difficult to show in the classroom.

(3) Enable teachers to use more quantative experiments with much greater success than was previously achieved.

(4) *Do not* replace student preparation for the laboratory.

The prelaboratory films have been developed using a modular (or segmented) format. Each module may run from 1 to 5 minutes in length and may be used independently. The total length of a film is held to approximately 15 minutes and consists of:

(1) An introduction which serves to focus the students' attention on a particular area of chemistry;

(2) A statement of the experimental problem or problems to be investigated;

(3) A brief outline of the approach to be used for investigating the problems;

(4) The development of an experimental procedure;

(5) A discussion of methods for treating the data collected; and

(6) A brief review or summary of the experiment.

The modular format of the films permits abridged versions of the prelaboratory instruction to be shown when this is desirable.

As previously stated, the films begin with *an introduction*. In the introductions of many of the films, an effort is made to relate the experiment being done by the students to research-quality experiments being done today by professional chemists. For example, in one experiment the students are asked to calibrate a spectroscope using the visible portion of the helium emission spectrum, and then to use the calibrated spectroscope to obtain information about the electronic structure of hydrogen atoms.

The introduction of the film which prelabs this experiment consists of a brief discussion of the use of a Jarrell-Ash spectrograph to study the emission spectrum of some chemical system. The functions of the important parts of the spectrograph are outlined. The use of a comparator for labeling the emission lines is discussed. And finally the students are given some examples of the types of information about a chemical system that can be obtained from these data.

The Bolex H-16 camera, fitted with a Unimotor electric drive, eliminates winding a spring motor during the shooting of long scenes. Interrupting the shooting of a background scene such as the spectrograph can cause slight motion and thus registration problems if a double-printing of animation over the background scene is planned.

After the introduction, the students are presented with one or more experimental problems and then an experimental approach is briefly outlined. In another experiment the students are given a sample known to contain sulfate ion. In order to find the percentage of sulfate ion in the sample, they analyze the sample gravimetrically. This is one of several experiments in the first-year laboratory program which emphasizes measurement and the need for careful work when attempting precise and accurate measurements.

In each film an experimental procedure is developed. In the experimental procedure section of the film involving acid-base titrations, the students are shown how to prepare and standardize a solution of sodium hydroxide. Then they use the standardized solution to titrate an unknown acid. They use their data to calculate the equivalent weight of the unknown acid. Since precise and accurate results are desired, quantitative procedures and techniques are emphasized. Simple and inexpensive animation is used in this and other films to make a point that would be difficult to illustrate with live action.

At the outset of the film project, certain production formats were established. The purpose was to give the instructor a useful tool which in no way displaced him as the principal authority in the laboratory. In the films there is an absence of the stereotyped "expert on the screen". Only hands are shown. The students' attention is thereby focused on the equipment and techniques used in the experiment. Maximum use is made of close-ups and the "zero angle" technique developed in the project where the camera is positioned over the shoulder of the instructor performing the manipulations. These techniques help insure the instructor that he and the students share a common point of view.

During the preparation of a film, equipment and a background of a universal nature are selected so that the film will have a more general applicability. Each film is magnetically striped so that the narration can be added by each instructor to suit his own personal preferences and needs. (The Bolex SM8 projector is a good choice for adding sound to Super 8 film.)

Although all of the films introduce the students to some area of chemistry and present one or more experimental problems, information about an experimental procedure and methods of treating the data becomes less explicit through the year as the students gain experience and chemical know-how.

How successful are the films?

Findings to date prove that:

(1) Students do watch carefully and act in concert with films developed along the lines of those described in this paper.

(2) A laboratory program is better when the problem is introduced with a film, which adds a new dimension to the learning experience and helps students who have difficulty "visualizing".

The degree of magnification and the orientation of the camera to give both the teacher and student a common viewpoint of a procedure make the films suitable for display by TV, or with the small rear screen-type projectors. Segments of the films could very well be assigned for viewing prior to the students entering the laboratories, and a condensed version of the films could be used for the pre-laboratory discussion.

Individual instruction on how to use a particular piece of apparatus, or a brief self-check on an experimental procedure might well be supported by a Super 8 sound projector. Reflex viewing is necessary to accurately compose a scene, especially in close-ups where a certain safe area must be assured in the original action if art work is to be drawn to match a scene. The safe area is usually only a fraction of an inch, but if a scene happens to have a distracting element, the animation becomes ineffective.

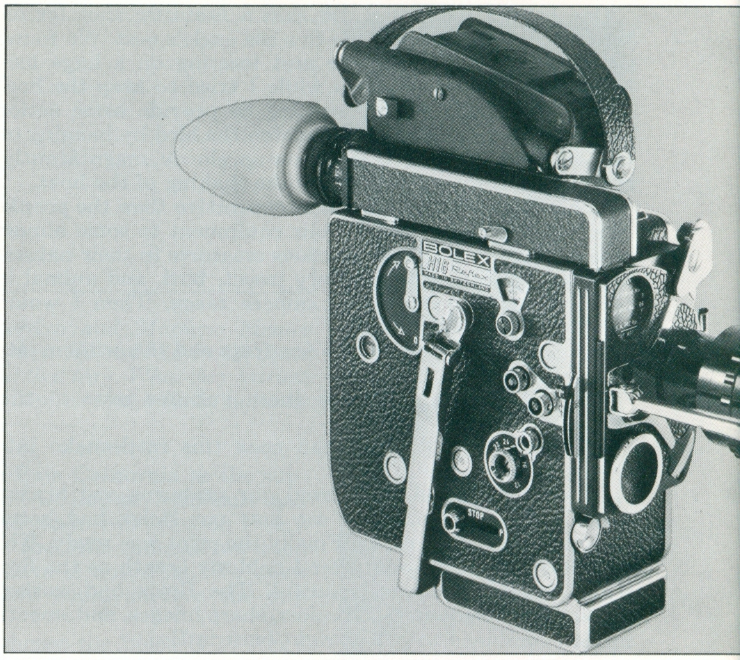
The concept of the Super 8 cartridge film as the "paperback" of the film industry is a desirable goal. A planned obsolescence for films should be considered by the film producers. It is possible to produce a film on an experimental problem perhaps fifteen minutes in length, consisting of three five-minute segments or modules, which can be separated in the cartridge by having the projector stop at the end of each module. The film modules could further be removed, interchanged, or replaced within the body of the complete film treatment if the film were properly produced.

The costs of acquiring commercially produced films are sufficiently high that few would consider throwing away full length films simply because an "improved" version was available. But if films were produced in short segments with their disposability in mind, then inexpensive education films would be tools of significant value for the teacher of chemistry.

Research and technical innovation are opening up new and vitally important possibilities in the instructional process. Clearly, even now the state of the art in hardware makes it possible for the scientist to bring images from his laboratory into a learning environment.

A problem confronts the producers of high quality projection equipment and films—how to get appropriate materials onto film or TV. Questions of what to *show* and what to *tell* the student by a mediated teacher and what the student is expected to do in the experimental process require that the teacher of chemistry be cast in a new role . . . as an active participant in the instructional materials production process (e.g. as a film cameraman or director).

The teacher or director of laboratory work can effectively share with the industrial representatives in the educational media field a unique insight into how the function of the laboratory can be implemented in a way to capture the imagination of the student. If new materials of instruction can encourage the student to be an active participant in the experimental process and assure that the time devoted to the laboratory exercise is commensurate with the educational value students derive from participating in an experimental investigation, then the productivity of the teacher of chemistry can be dramatically increased and new heights of performance achieved in the laboratory.



New 16mm Zoom Lens

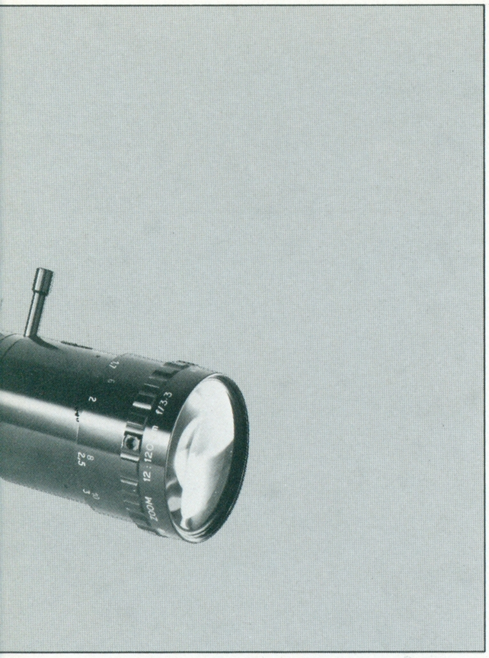
As the range of a zoom lens increases, the size and weight of the lens usually increases too, making the camera and lens combination no longer the compact, lightweight package that one likes to carry along on trips. This is true especially in 16mm, where most zoom lenses are not built into the camera body, but are attached separately to maintain lens interchangeability and versatility desired by many moviemakers.

To reverse this trend, Paillard is introducing a 16mm zoom lens which weighs only 1 pound 11 ounces, is less than 6 inches long, yet has a full 10:1 zoom range from a 12mm extreme wide angle to 120mm telephoto. This Pan Cinor 120 Compact lens is optically designed for Bolex H-16 cameras with reflex viewing, with the camera's finder being used for viewing and focusing. The lens, therefore, is supplied without its own finder.

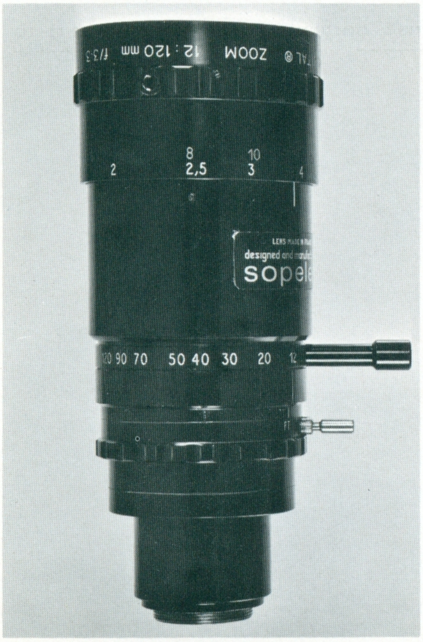
While the Pan Cinor Compact mounted on the H-16 Rex is a good overall lens/camera combination, it is especially ideal for hand-held shooting, in documentary, news, and amateur filming, and has made such shooting much more practical and convenient. To further help in this type of filming, the lens controls have been designed for most practical hand-held operation. All three controls—zoom, focusing, and diaphragm opening—can be rotated either by means of the knurled rings or by short or long handles which can be attached interchangeably to any one of the three controls.

Since this smallest and lightest 10:1 zoom lens is so well suited for candid 16mm filming, the lens will also be known under the name, "Hunting Zoom". The extreme 12mm wide angle makes it usable in cramped indoors and crowded news situations, while the other extreme—the almost 5″ telephoto setting—brings in close-ups of distant subjects, wildlife, sports action, fires, or other happenings which cannot be approached without possible danger to the filmmaker.

The 120mm telephoto setting also permits close-up shots of areas as small as 2¼ x 3¼″ without the need of attaching close-up accessories.



SPECIFICATIONS:
Designed for Bolex H-16 Reflex Cameras only.
10:1 Zoom Range from 12 to 120mm.
Totally closing diaphragm.
Maximum aperture, f/3.3.
Engraved minimum aperture, f/32.
Focusing from infinity to 4¼′.
Area coverage at minimum distance, 3¼ x 2¼″.
Takes same Series VIII close-up lenses used on Pan Cinor 85 for focusing down to 2¼′.
Area Coverage at minimum distance:
With 2 m lens: 2″ x 1½″.
With 1 m lens: 1½″ x 1⅛″.
Standard Series VIII filters held in place with sunshade.
Length at Infinity, 5⅞″.
Front Diameter w/o Shade, 2⅜″.
Weighs 1 pound, 11 ounces.



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