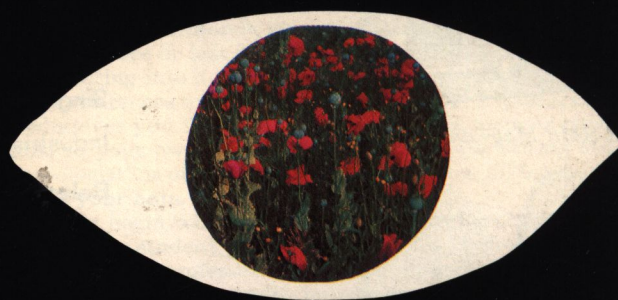


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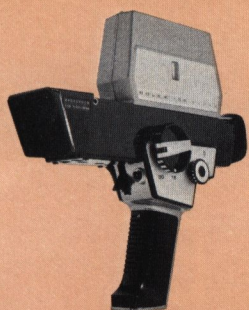
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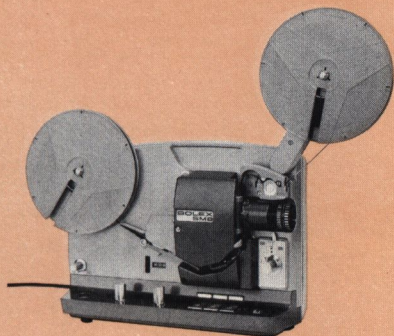


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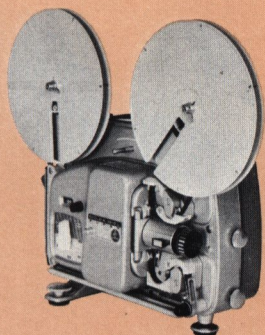




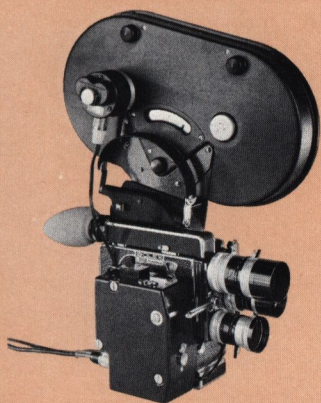
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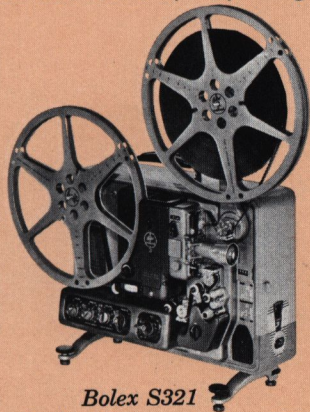
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## R E P O R T E R

Vol. 18, No. 2

1968-1969

Educational Films: The Challenge of Communication	by Geza De Rosner	3
The Editor Writes Back	by Walter Braun	5
Single Concept Films for Education	by Cy Sommer	9
Industrial Training Films	by Vernon Delston	11

### Bolex Films Where the Action is

A Dog's Life	by Mike Banks	14
Filming in Iceland	by Asgeir Long	15
Discovery—Yukon Territory	by Richard Robertson	16
Children of the Kobuk	by Stan Sleeth	18
Warriors With Weapons	by Don Miller	19
A Day on the Ski Slopes	by Elroy Anderson	20
The Dune Buggy Beat	by Maggie Weisberg	21
Bolex Humoresque	by Don Sutherland	22
Surinam Expedition	by B. G. Smith	25
Trip to Altiplano	by Lelslav A. Giermanski	26
Report from Bogota	by Charles Marden Fitch	27
Behind the "Iron Curtain" with My Bolex	by W. Eris Houchin	28
An Archer's Adventures in Africa	by Bob Swinehart	30
Bolex Safari in Rhodesia	by Carole and Robin Harvey	31
Wildlife	by Roman R. Pawlowski	33
Three Trips to Antarctica	by Bjorn G. Bolstad	34
Around the World in 80 Minutes	by D. H. Crosse	35
New 16mm Bolex Products	by Bolex	37
The Line Island Experiment	by Roger Ewy	39
1000 Feet Deep for Science	by Ron Church	42
Sound Production	by Ernst Wildi	45

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# Educational Films: The challenge of Communication

by Geza De Rosner

In these days of audio-visual awareness it is a common sight to see a teacher or a professor lugging a projector to his classroom, where, to assist his lecture, he will show a teaching film. It is also a possibility that this same person, in his or her capacity as a scientist, while involved in a project, in turn—as an occupational hazard—might have to become a filmmaker. It is also a tenable proposition that any project worth pursuing is also worth perpetuating on celluloid as a part of the scientist's permanent record . . . which eventually will be utilized as another teaching aid.

Because every teacher is a potential "producer and/or director of a motion picture," I wonder whether you have given much thought to, or analyzed the quaint, quicksilver characteristics of the many faceted, long, long roll of celluloid? Do you consider motion pictures to be only a form of art, or are you looking at film as a modern, rather convenient, highly efficient manner of keeping records?

From the time of the 'flickers,' many academic thinkers have given much thought to the question "What makes a motion picture good, and why it is so difficult to make one which qualifies for that standard?" Statistics indicate twenty-five distinctly bad school films before one good one will reach classrooms. Please check back in your memory. How often were you so engrossed in a film you were showing to your class that at the end title you murmured "Already!?" or, how often did you take repeated glances at the slowly grinding reel wondering "How much more is there of this?"

Teaching-films, from the one that assists a first aid course, through others that deal with sex-education, or maybe with the theology of St. Paul, all the way to those taken aboard an orbiting space craft, include a tremendous variety. While they are all different, still they were all fashioned to assist a teacher by a visual rendering of his classroom topic, and to deliver their scholastic message within the practical time limits of such occasions.

Much has been written by many qualified people on the technique of filming. Under the title, "So . . . You Want To Make Movies," appearing in past issues of the Bolex Reporter, I, too, elaborated on the technical aspects of non-theatrical filmmaking. Therefore, in this writing I will completely avoid detailed discussions of the use of cameras, sound, lights, or even that of story development. I believe that it will best serve the interest of the teacher-scientist-filmmaker if we reflect on a few of the underlying elements of motion pictures in general and how these can best be applied to films with the varied fields of science as subjects.

However, to avoid sweeping generalizations, hazy, elusive theorization about teaching-film in toto, and to illustrate my point clearly, I have selected one specific field of science which most likely is not the realm of activity of most of my readers. Still, to transpose the filmmaking activity of a scientist from one field of learning into another should not be too difficult. Indeed the basic problems are identical and the detailed manner of communication, its application . . . well, in your own discipline you will know best how to go about it.

## One Subject An Example For All

For our illustration, I have chosen the realm of archaeology. The reasons for my selection are simple. First, most people have a great deal of interest in anything that touches on the fascinating facts of antiquities. Secondly, my last decade was spent with a detailed study—on film as well—of pre-Incaic and Inca civilizations; therefore, at this present stage of my own development I am seeped in this specific variety of teaching-film-production. Thirdly, and this is the main reason behind my choosing archaeology, this discipline runs the whole gamut; from the open field work, sweeping vistas and exploration ending with excavating a trench or two, where dramatic, close shots reveal objects emerging from their ancient beds, all the way to the scientist retreating into his laboratory, library, museum and

eventually going back to his students. All of which allows a well rounded sphere of activities upon which it is relatively easy to build an entertaining educational film.

During the last seven or eight years, once my job as a filmmaker ends, and the lecturer phase of my work begins, I have had invaluable opportunity for repeated clinical evaluations as to why some of my films had everyone's attention arrested, and why another failed to fascinate my student audience. Naturally, being both a freelance filmmaker and lecturer on scholastic topics, I am very much concerned with what makes a student group bored, or why a good film creates a great intellectual excitement, fires up their imagination and makes learning an exciting adventure.

Since in these days, being "well educated" is generally applied to highly specialized intellects working in some minuscule niche of their fields, I am taking the liberty to avoid over-specialization in my own discussion and approach my subject more or less from a philosophical point of view. Before entering into details, I beseech you, do not allow my constant references to archaeology disturb you. Please transpose whatever you find applicable and in the manner most suitable to your own realm of activity. In this writing the "archaeologist" is only the peg upon which you, all teachers, can hang your hats.

So, let us begin with the teacher—the archaeologist. No doubt, when a student pondering about his choice for life's work this same professor was much influenced and enchanted by all the romantic implications, the promise of "adventurous activities" the work of the science suggests. Were you not about your own?

Alas! Archaeologists find out far too late that it takes a large number of very good scientists to "man the platforms" and direct museums before one can be sent out to fight on the front.

Only a few decades ago archaeology and its affiliated fields were ivory-tower-type of studies, and the specialists had the time—probably months and occasionally years—to prepare expeditions and engage in lengthy field work. Now even though Egypt is still exactly the same number of miles distance as it was in the time of the Pharaohs, and the Andes have come no closer physically than they were when the Lord Inca hunted vicunas in the rarefied atmosphere of Andean plateaus, with today's jets, cars and fast trucks one can reach the region of one's studies within a day or two.

It was money that limited the works of early archaeologists, but with the multitude of young people crowding today's classrooms, the teaching scientist—inspite of all the available grants or foundation money looking for a cause, and the speed of initial transportation—can seldom take off for an extended leave. He simply does not have the most vital element of field work at his disposal, the necessary time.

My reference to the speed of the "initial transportation" intends to separate the very brief span of time used streaking across the sky, or dashing along on cars and trucks from the moment-of-truth at the end of the road. As you start to hike or are juggled on the backs of mules that scamper on narrow, hairy, trails from the fringes of the deep interior toward its inhospitable gizzards, the speed of our age comes to a screeching halt! Suddenly, with dramatic impact, we are forced to recognize that the days of early travelers, discoverers and explorers are not really as far off as we thought they were.

Yes, crowded classes, pressing curriculums, heavy teaching loads, curating museums, and other duties allow few scientists to take time out for a major dig, much less the tremendously time-consuming initial explorations, or often even for a simple, first-hand 'look-see.' Still, these institution-bound professors are the men who have to discuss the findings of such labors, express learned opinions and describe sites they have never seen. Hence, there are times when



nothing can replace a good, scholastic documentary film as an invaluable ally of harassed teachers!

### Teaching and Entertaining Can Marry

Of course, films shot under the direction of the head of the project, the initiator of the research, the discoverer, etc., are bound to be better, more authentic than if it is only a duplication of what took place at an earlier date. In many instances a good documentary may serve the purpose of teaching better than had the students been taken to inspect the site their instructor is discussing. To be able to concentrate fully on the subject of any study, to focus one's total attention only on salient points requires great academic discipline. Novices in any field of inquiry often splinter their attention among the many distracting elements of, to them, a new environment.

The area bordered by the frame lines of cinematography are generally considered as the medium's greatest handicap. The most serious limitation of filmic "art." However, when it comes to teaching-films, I regard these very frame lines as positive boundaries allowing the discerning filmmaker to limit, to force the attention of his audience onto the exact area of his subject matter. All superfluous sights, signals, activities are eliminated from the area of exposure.

One of the innate characteristics of films, one which is most often overlooked by those engaged in the non-entertainment field of filmmaking, is that for more than half a century audiences have been pre-conditioned to expect entertainment from the silver-screen. If the maker of teaching-films is cognizant of this factor and elects to utilize it for his benefit instead of fighting it, he can greatly advance the purpose of teaching.

Without any doubt, the noblest obligation of mankind is teaching. And as I see the values of life, one of the most vital needs of man is to be given moments, occasions wherein he can divorce himself from the binds of everyday routine, and entertain his mind and soul. To discover whether these two seemingly far removed elements of our existence are interrelated or not, we should ask ourselves "Who were the most memorable and successful teachers of my school days? The few whom I can still recall?" Undoubtedly those rare individuals who possessed the skill of entertaining while teaching.

Granted, in some areas of science this is not always easy, but in most of them it is just the outlook of the teacher, his sense of humor and self effacing humility that makes the difference. In archaeology, a discipline that closely resembles the work of super-sleuths, entertaining is as simple as eating that proverbial homemade pie.

The student of an ancient culture begins with "studying the case history" and proceeds with "casing the joint." "Tracking down the suspect" is followed by "closing in on the area," pin-pointing the "scene of the crime" and subsequently "digging up and presenting the evidence" . . . all of which contains the greatest asset of drama, suspense.

A motion picture making scientist, in the interest of good teaching, owes it to his class—rather his audience—to deliver his subject with as much drama and glitter as he can judiciously muster. It is vital that his personal interest, concern and enthusiasm for his topic should permeate his work, because it will reflect from the screen. Failing to transmit all his evaluations, the greatest scientist will not only waste his own time, but he will also misuse as many man-hours as there are students in his class—or will see his opus during the academic employment of his film.

### Paths to Young Minds

The last decades have brought to focus some sociological and mass-psychological criteria which must be carefully weighed by anyone who wishes to communicate with the young of today.

Rebellion against the establishment has been in the hearts of every generation from Adam and Eve on. Still, the rebellion of our days have some distinctly different earmarks, some of which, from my point of view, is very healthy! The young of our enlightened years rightfully demand to be treated as intelligent individuals, not as members of a herd, but personalities. They are not going to stand for a school system that intends to feed them the "once upon a time"

approach, nor are they ready to accept dry data compressed into miserably written text books. They demand their educational methodology to be brought up-to-par with the miraculous progress of technology.

The producer of teaching-films then had better be wise and link the subject matter of his film—often boring statistics, and/or what-have-you—through the always present, direct relation of his material with the life of his students, (audience). This is easy in archaeology where the detective story of past civilizations and cultures is eternally linked not only with the audience present, but also with their progeny to come.

But, regardless of the field of learning, the factors to be presented must be considered, grouped, staged and arranged in such a manner that the lesson, besides being scholastically edifying, will also produce a personal, emotionally satisfying and lasting impression in the students' minds.

Quite legitimately, many filmmaking scientists wonder if teaching-films can hope to compete successfully with all the vivid pictorial images that vie for the memory space of the young. From years of personal experience, I know that a good documentary is readily remembered if the very essence of motion picture construction is not overlooked or violated by its producer.

Another facet a latent-producer should be carefully weighing: is it a motion picture that will best serve the interest of the subject matter he wishes to communicate? Often a "film-strip" can serve the scientist's purpose far, far better. There is no need to expand the great amount of money and the required man hours that are involved in making a film if the images are all stationary, like static artifacts, or, for example, stratigraphical details. Indeed, a skillful cameraman will be able to create a sense of movement by tilting, panning, and other camera motions. But, if the subject matter is static, all the advantages of the moving film over still pictures is lost.

Just recently I experimented with a mixed use of color motion pictures and color slides. Naturally this would be a totally impossible bill of fare for general audiences, but for those who are interested in scholastic studies, my mixed use of the two media proved to be a good, highly economic, logical and welcome device.

Let us take the hypothetical case of a major and extensive dig on a hilly terrain. The individual units of the site, some on hilltops, others in depressions, are a closely interrelated complex. A wide-angle shot with a still camera which would afford a satisfactory picture of the entire site would have to be taken from so far back that a great deal of the detail would be lost. However, a simple, slow pan with a motion picture camera from a nearby hill will readily bring into view all that needs to be included. After a general exposure—called "master scene" or "establishing shot"—of the entire region, we can move in for a closer survey of the individual segments of the settlement. Then, for detailed study, switching off the film projector, we can continue with slides.

A simple word-bridge will suffice to revert back to moving film. The camera slowly pans over the next compound, establishing the characteristics of the terrain, relative distance, direction, location, etc., and after a secondary establishing shot of the new area, we can slowly zoom in for a close shot, then, once again we can continue with the slides.

Not only is such an approach to scholastic presentations a great money saver, but slides lend themselves to lengthy explanations, discussions, question and answer periods . . . all of which are bound to occur on the occasion of a thought-provoking lecture.

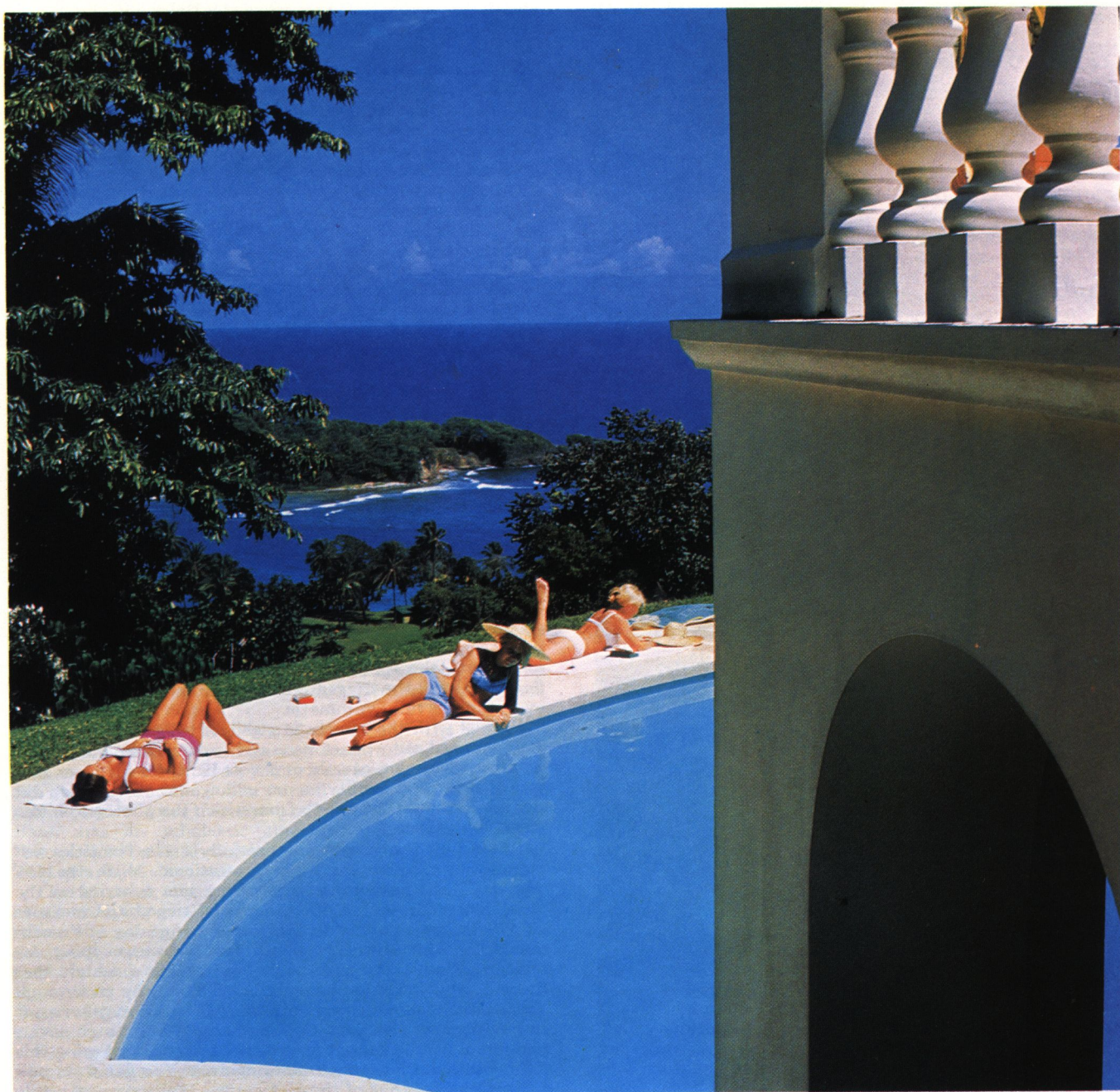
### Collaboration Helps

It would behoove cinematographically oriented scientists to consult with the motion picture department of their own institutions. Without exception every major university has such a specialized section these days and it would greatly benefit the film department to have the opportunity to teach-while-employing their students in a de-facto production in the field.

Because good films are always the result of cautious planning, the scientist would be very wise to discuss his

*Continued on page 7*





## The Editor Writes Back...

Dear Reader,

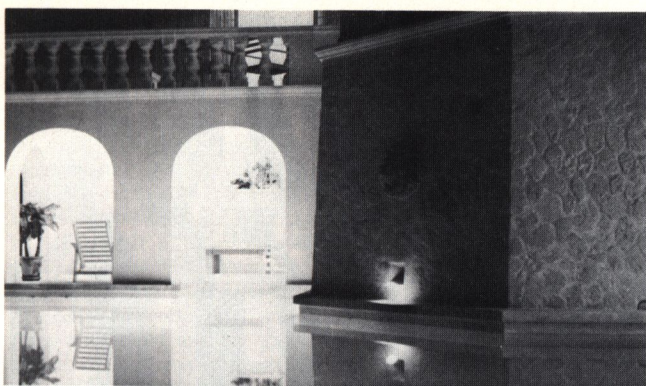
Right after assembling the massive story material, which I hope you will enjoy reading in this issue, I went on vacation to Jamaica. Needless to say, I took along a movie camera, the Bolex 155 Macrozoom, the newest model in the Bolex line and also the most exciting of all movie cameras available today. All the way to JFK Airport in New York I was still debating whether to truly go and shoot a vacation movie or return home again as so many times in the past, with a few rolls of film—too many to ignore and not enough worth editing. The customs official at JFK, commenting on the beauty of my camera equipment when filling out the declaration for re-entering the country without paying customs, really instilled the desire to do something lest I should feel guilty having roamed the world without using the world's finest camera.

I regretted later on that I did not shoot right at the start. I found the departure scenes missing but when with a wife and two daughters carrying entirely too much hand luggage

you sort of go soft and help "schlepping" instead of shooting. I spliced in some footage later on from an earlier departure when one of my daughters left for Europe. Only the keen observer will ask whether Swissair flies to Jamaica when all of my friends know we flew Pan American. By the way, I always feel safe with both lines, they do a lot of research using Bolex cameras (read the story "Around the World in 80 Minutes" in this issue) and you are entitled to feel safe with anybody that applies such sound judgement.

My first scenes were shot flying over the east end of Cuba followed by some very beautiful cloud formations and continued with an aerial view of Jamaica, the entire approach to Kingston and our landing at the airport. I shoved a little and was the first out of the plane. In true vacation spirit, those who got shoved earlier waved into my pointed camera like visiting politicians while I was simply waiting for my family and friends to emerge from the plane. Naturally, I ran out of film at the critical moment but I had an already





unwrapped cartridge in my pocket and I do not believe it takes more than a few seconds to reload and continue shooting. In such moments, it really is good to have an unpacked cartridge ready because the "Yellow Giant" in Rochester wraps those cartridges in such heavy paper it takes some doing to "shred" them open!

Mr. Fang was expecting us at the airport with a rented car to drive us to our destination at Sansan Beach near Port Antonio. Coming from the States it is more comfortable to be driven because down in Jamaica the left side of the road is the right side to drive on and since Jamaicans seem to have a tendency to favor the middle you make the split second decision whether to veer left or right only after a few days trial period. Automobile batteries are drained tremendously because blowing your horn in Jamaica is, according to Mr. Fang, your best insurance for a longer life.

The distance from Kingston through the mountains to Port Antonio is about 60 miles and I'm sure there are not more than two straight stretches of road of about 100 yards each while all the rest is curves. I shot some excellent footage along that road right through the front windshield of the car showing the lush vegetation. Filming at regular speed the scenery changes rapidly with the constant curves and the way a good Jamaican driver swallows one after the other. There is a constant change of light when driving around a well lit corner into a dark curve deeply shaded by overhanging trees. My films are remarkably well exposed due to the instant and automatic adjustment of the electric

eye that controls the aperture of the Bolex 155.

We had rented a house which, true to Jamaican style, comes equipped from snorkling gear all the way to a cook, a butler, a maid, and a gardener all full of charm and always ready to serve their dear guests. Our house was on a hill overlooking the coastline and even had a swimming pool of considerable size and depth. It was absolutely beautiful and provided plenty of scenery for moviemaking. Jamaica is ideal movie country. It is a movie country twelve months a year. You film pineapples, bananas, sugar cane, coconuts, breadfruit, anything your heart desires. "When is your season?" I asked Colonel Gason through whom we had rented our house at Sansan. "Our weather is the same 12 months a year. 'Season' is when we double or triple our prices. You created it up north," he replied.

I shot a lot of film of beaches, of the fun around the pool (all beautifully exposed with no difference whether they were shot in extreme sunlight or shaded areas), of water skiing action (if you shoot from the boat use wide-angle only—in the tele position the skier will be outside the frame more often than in), the unusual rafting trip down the Rio River was properly recorded and then, of course, bending my knees, I filmed crabs, ants, multi-colored caterpillars, and the beautiful flowers.

It takes only a few days, if not hours, to take the Bolex 155 Macrozoom and its totally exclusive feature that lets you film from one inch to infinity completely for granted. It seems so natural that you should have total freedom in filming, and yet only the 155 gives you the freedom of filming as close or as far away as the scene in front of you calls for. The most exquisite flower or even a detail of its finely grained petals can be shot handheld from as close as one inch away. All you really have to do is to turn the focusing knob until the tiniest detail appears sharp in your viewfinder and pull the trigger. No bother about f stops and such, everything is fully automatic.

Packed with the camera is a gadget called the Multitrix. It is snapped onto the camera and from an extremely short distance away you can shoot a post card, for instance, and it is of such good quality no one will ever know that you did not climb the mountain top from which the photograph was originally taken.

I do not like editing but realize fully that a few titles will make your film appear quite professional. With the 155 you no longer have to acquire titling sets or write on the wall, light it up with a flood, put up a tripod and measure off a distance of about 4 to 5 feet. Sitting one day at Frenchman's Cove, a most lovely hotel in Sansan, sipping Jamaican Rum, I just asked the waiter for a match box. Some good artist must have designed it so why go through the trouble of making up your own title which may turn out to be a poor one at that. Coming back to our match cover, you put it on the Multitrix, focus and shoot. Following this title you then film the surrounding area. You can even pull the match cover out of the slot on the Multitrix and, while you continue to film, focus on the beach near by. I must admit that I did like those refreshing drinks they serve in Jamaica. This may be the reason why I came home for the first time in my life with more titles than scenes that should have followed. Shooting post cards, I found that the format they sell in Jamaica is so small that when you put them on the Multitrix half of Jamaica's blue sky is looking into your lens. You take the Multitrix off your camera, lean the post card against a glass (in Jamaica you find a glass everywhere) and since you shoot from only a few inches away you can handheld the camera steadily. You can even pan from one side of the post card to the other, provided, of course, that you pan very slowly.

Together with my moviegear, I took along a still camera. I shot a lot of excellent slides and, because my still shots cover approximately the same scenes that I covered in movies, I decided to do some editing after all. I put slide after slide on the Multitrix and filmed each for about a second. This rapid sequence of slides at the beginning of my films provides an exciting opener of things to come and a similar sequence at the end is a fast recapitulation of things that happened. If you have a Bolex 18-5L projector you

*Continued on page 8*



project with the head of the film department well in advance and thereby allow him to marshal his creative ability which in turn will serve the purpose of the scientist's work. He should make certain that the filmmaker—who eventually will direct the student-film-crew—not only learns the details of the immediate task on hand, but fully understands the overall scholastic purpose of the entire subject. Planning must continue even at the site. As the day begins, the archaeologist—like the producer or the director of a theatrical film crew—should call for a production planning meeting where he outlines the “reasons” and the methodology to be followed during the day's work. This will enable the filmmaker to plan on what extent he may utilize drama, as well as where extreme cinematic effects would deflate the substance of the film's scholastic message.

Continuing this same collaboration, I would like to suggest that the scientist should allow the same director of the film crew to prepare what the film industry calls “the rough cut” (or “the first assembly of footage”), or indeed, even the far more advanced “first cut.” It is very unlikely that this “cut” will be what the scientist had originally envisioned. But, assuming the position of the producer in commercial filmmaking, the scientist will be in a far better position to remain an objective critic of the work than if he were to carry through the entire cinematic project from shooting to final editing. If he does not like the first cut, he has already gained a more crystalized idea of what he does want.

Many archaeologists enlist either the aid of a photographer, or at least a cinematographically enlightened friend or a graduate student, etc. Last year, during my spring lecture series with my film “Navel of the World, Mystic Easter Island,” I spoke in a small southern town's men's college and was told that on the same afternoon a young man was showing an underwater documentary film in some nearby women's college.

Having directed “Hunters of the Deep,” the first, full length underwater documentary feature film ever made, I wanted to see what that young man had to offer. Much to my delight the young man turned out to be the youthful archaeologist of the University of Pennsylvania, Dr. George Bass, and his scholastic cinematic record showed the “excavation” of a Byzantine merchant bark that sank off Turkey's coast some thirteen centuries ago.

The feminine audience at the women's college was not at all archaeologically oriented. Still, the enthralled girls, seeing the young, active men, the excitement of the comparatively new sport of diving, through Dr. Bass's enthusiasm and excellent films, were indoctrinated with the importance of that discipline and the young scientist left them with a far better comprehension of archaeology's cultural goals.

Having had the wisdom to enlist the services of an underwater photographer who, under his direction most competently covered the entire operation, the film was not only a true delight to watch, but, documenting the many new inventions, as well as the alterations and adaptations of known surf methodology to underwater exploration, it became a full fledged treatise of a new dimension Dr. Bass established within existing archaeological disciplines. Employing the photographer to also edit his film, Dr. Bass avoided the common and obvious disease of all filmmakers who work alone: lack of critical objectivity.

It is one thing to plan to make a film and an entirely different problem to come up with what originally has been envisioned. In spite of all the experience I have had in this type of work, I need two or three seasons before my lecture films come close to my original expectations. “Good films are not made, they are re-made!” is one of the maxims of filmmakers. Yes, it takes re-takes, re-arranging entire sequences, re-editing the entire film and often a great deal of re-thinking our final goals before we can finally identify ourselves with what reflects from the screen.

To re-make a commercial film—which often proves necessary after initial “sneak previews”—is not an easy task! Once a film has been committed to a composite strip (picture track and sound track married), it is expensive and very time consuming to re-dub and to pull a fresh print. On the

other hand, a filmmaker-scientist can always test the effectiveness of his product by lecturing with the soundless picture. A few such tests are bound to give him an idea of the film's effectiveness and where and to what extent he will have to make changes. Then, after he corrects the obvious flaws, he can concern himself with polishing the product before he is ready to go composite.

### Money is Where You Find It

It may happen, for many and varied reasons, that one has to go it alone. As long as the scientist knows something about filmmaking there is nothing wrong with that either. However, every teacher, or accredited scientist should be aware of the fact that tremendous amounts of money, foundation, grant, government, industrial, religious, etc., is available for just the asking. Anyone with a Ph.D., granted that he has a valid cause and subject that warrants the making of a film however outlandish it may be, almost automatically will receive the needed funds.

With a Masters degree one has to be a little more careful. The requestee first must carefully investigate the psychosis, the specific code-language, the written charter of the donor's organization, and then make his pitch. If he has done his preparation carefully and his approach is diplomatic, funds are bound to come in great globs.

Would someone without an academic degree be bold enough to approach a foundation, he should at least realize that if the director of that organization would dare to submit his request to his board of directors, it would be his competence that would be questioned rather than the requestee's qualifications or ability to make a film.

Presuming that you, my “degree-less” reader—and after all, you are not supposed to have any education unless you have an imitation parchment with a plastic-seal dangling from a nylon ribbon—have a really good reason for wanting to make a good teaching-film, well, scan the list of your friends. Select the ones with the most impressive “degree”—first making sure that he will not take your project out of your hand once it is under way—and make a deal with him. This, done quite often, is perfectly legitimate under the triple standard system of our society.

I believe that scholastic film work is on the threshold of a new era. We are not far from the time when a teaching-film will be as readily accepted and equally valued as a paper or a monograph, indeed, a part of a doctoral dissertation, if not the whole thesis by itself. When will this happen? As soon as teachers and scientists learn how to make good teaching-films.

### AWARDS FOR 155 MACROZOOM

It is with great pride that we announce the Bolex 155 Macrozoom camera as a winner in Industrial Research Incorporated's annual design competition. The award was presented for the camera's patented lens system that makes it unique in the photographic equipment market and a “significant technical advancement,” as the award states. Chosen as one of over 10,000 technical products developed each year, the 155 was the only consumer photographic equipment cited in this year's competition.

Mr. Christian M. Lietar, Director of Optical Research, Paillard SA, St. Croix, accepted the award at the formal presentation banquet on October 4 at the New York Hilton. A two day exhibition at the Rhinelander Gallery preceded the award presentation.

This is the second award for the 155 Macrozoom since its introduction this year. In February the new Bolex was rated the best design idea, culling 50% of the votes from readers of Design News, the most prestigious magazine in design engineering ideas which has a circulation of 97,000 concentrated in the engineering community.





*continued from page 6*

can, of course, slow down this rapid-fire session and project at 5 frames per second giving you sufficient time to discern details at leisure. How about sound?

I never shot a better vacation movie and with such great ease. The Bolex 155 Macrozoom has given me this ease and has provided me with scenes such as extreme and staggering close-ups, titles, postcards, maps of the route we took and slides which up until now I was able only to shoot with bags and baggage full of titling equipment, extension tubes, close-up attachments, photo floods and the like, all of which the moviemaker can now forget. Yet I did something more. I put sound on my film.

After splicing my film together, and I have a respectable 400 foot reel of it, I sent it back to processing where they put a magnetic sound strip on the film. I got the Bolex SM8 projector and the fun really began. Remember the time when the first tape recorder appeared on the market? Whenever you went to a party the host brought out one of these machines, shoved a mike in front of your nose and asked you to say something. Wasn't it beautiful?

Well with the Bolex SM8 it is this all over again plus a lot more. You not only have a mike, you also have a short input socket that can be connected to a record player, a tape deck or any other source. My daughters went through their records and came up with some lively calypso music. You now project your film and start recording your music from the record player by a simple operation of a button. We recorded "Jamaican Farewell" with great sentiment toward the end of our epic.

Next I put on a sound effect record on my record player. By the way, sound effect records can easily be obtained at record stores. If you do get yourself a Bolex SM8 projector before the end of 1968, Paillard will send you one which costs \$5.00 free when you register the purchase. Projecting the film to where the Swissair (lacking that scene with the Pan Am Jet) plane takes off in a cool swing upwards, I noted on a pad the numbers that appeared on the projector's counter at the beginning and at the end of that scene. Rewinding the film once more, the recording button is switched on and off as the numbers reappear and the first of many different sound effects were recorded on my film. Rewinding and replaying the film again, this time with the mike plugged in, I gave some commentaries together with other members of my family. If you have not gone through this fun process yet, you haven't lived. Same as I, you may never win an academy award, but sure as heaven you will have, like I

have, the best home movie of a vacation yet.

The combination of the Bolex 155 Macrozoom camera with its exclusive one inch to infinity feature and the Bolex SM8 magnetic sound projector with which you can also, of course, at any time playback instantly commercially produced films you may want to rent or buy, is the most versatile sound movie system on the market today over and above being the simplest to operate.

As for as my vacation movies are concerned, they have taken on a new dimension and the time may not be too far off when I will even have the right airline in my opening scene.

Best regards,  
Your Editor

P.S. Similar to my friend, Geza De Rosner who writes in his story on "Educational Films" specifically about archaeology, I have used the subject on my vacation films to talk about the benefits and the utter operating simplicity of the Bolex sound movie system. Whether the reader be an educator, a home moviemaker, an industrial filmer or a professional, he will quickly be able to translate the system's vast potential to his particular vocation.





# Single Concept Films for Education

## *Improving Vocational Skills Instruction using Teacher-Made Films*

by Cy Sommer

Teaching baking in a vocational high school, in the past ten years I have demonstrated the same skills over and over again to each new class. I have often demonstrated the same skill over and over again to the same student. But when I teach my next new group of students my job will be easier—and I have reason to believe my students will learn more easily too—for I now have almost the entire baking course of study on Super-8 color film. I made the films myself.

On a grant procured through the Vocational-Technical Division of the New Jersey State Department of Education, and sponsored by the Vocational Curriculum Laboratory at Rutgers University the project was undertaken with these objectives:

- (1) To demonstrate that a shop teacher could film his own instructional material, and that such material would be suitable to the needs of vocational students, and,
- (2) To find out if this kind of innovative approach to the development of curriculum materials is economically feasible.

Both objectives have been met. More than 6,000 feet of edited films will soon be available for students' use throughout the state. The cost was about \$30 a minute—about 20% of what it would have cost to have them made commercially for the functions and duties of producer, script writer, director, actor, cameraman, lighting expert, editor and janitor were performed by two people: my son, Woody, who functioned mainly as cameraman, and, I, who functioned mainly as actor. We pitched in together on the other duties.

Recently, one of the baking trade magazines printed the story on the use of teacher-made Single Concept films at the school where they are being tried out, Middlesex County Vo-Tech, Woodbridge. As a result, a number of baking teachers (and even commercial bakeries that have the problem of training unskilled help) have written to me asking such questions as: how much experience in movie-making is needed to make good instructional films? How much has to be invested in equipment? What kind of equipment? Etc. And teachers to whom the films were demonstrated at the New Jersey Vocational and Educational Arts Convention last April wanted to know exactly how the Single Concept film "works" in a school shop. I will attempt to answer these questions in this article, but first I'd like to report on an experiment that was made to measure the degree of learning that took place when one of the films was used as an adjunct to traditional instruction.

Two randomly selected relatively homogenous groups of Commercial Foods sophomores were each taught the same lesson, "How To Make A Rose." The design of the experiment adhered formal research procedure—Campbell's Post Test Only Control Group Design. To quote from the report of the experiment:

The investigator applied the law of the single variable as outlined by Galfo, i.e., the experimental group only had the opportunity to use the car-

tridged film "How To Make A Buttercream Rose." This constituted the only significant difference in the treatment of the two groups. The dependent variable was simply the quantity of acceptable roses made.

A number of independent variables were controlled. For example, prior experience of students was controlled by selecting "pure" groups of students, i.e., Commercial Foods sophomores who had no previous instruction in baking . . . Also, the use of a paper and pencil test was avoided in evaluating final results because of the low correlation between written tests and performance tests for vocational students.

The control group of seven students received two hours of instruction and practice in making roses; on the following day after a short refresher lesson and half an hour of additional practice, they were tested. A nominal rating scale of "acceptable" or "not acceptable" for each rose was used.

On two other days, the experimental group was similarly taught and tested. The lesson and all other conditions were the same—except that students in the experimental group could also watch the Single Concept film loop on "How To Make A Buttercream Rose" during the instruction and practice periods but not during the test. The results justified the hypothesis that "students to whom Single Concept Film Loops are available as an adjunct to traditional instruction will achieve greater success than those not having the film loops." The experimental group produced 10% more acceptable roses than the control group!

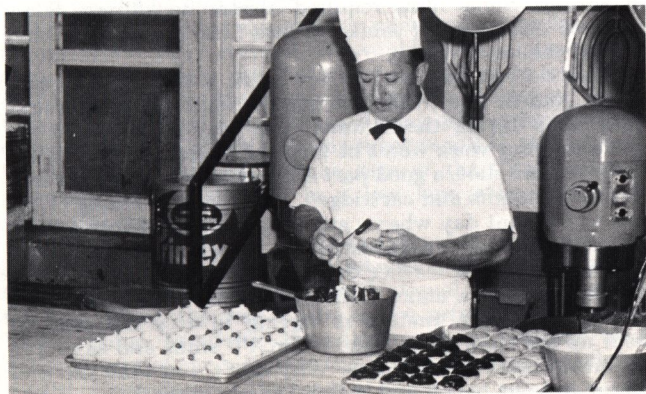
*How are single concept loop films used in the shop? How much experience in movie making is required?* We had none, except for having made home movies with an inexpensive 8mm camera that I had received for Father's Day. It was good enough to use for a "pilot" film that we made on our own time one Saturday when the shop was not in use—just to see if we could do it. Surprisingly enough, we could! Our first instructional movie was a smash hit! It was titled "Commercial Cake Decorating—As Easy As 1-2-3-4-5-6-7-8-9-10." The students liked it. The principal liked it. And the superintendent liked it so well that he suggested that a proposal be written applying for government funds to begin work toward filming the entire baking curriculum.

*How much does it cost to make your own loop films?* Our pilot film cost exactly \$6.25. That was my personal investment to find out if I could do it. After that, however, all monies came out of project funds. Not including salaries and equipment, the original 42 films averaged out to less than \$9.00 each.

When a second proposal was set up for funds to continue the project, our cost figures changed. For one thing, we already had most of the equipment. All we bought was a new camera—a Bolex 155 Macrozoom.

If we had bought the Bolex in the first place, we would not have had to buy a close-up lenses, a fader, (which proved to be too tricky to be dependable) and some other accessories and attachments. With the Bolex 155 we were able to get closer close-ups than we had ever thought possible. And we were able to save on film stock and editing time by doing most of our editing in the camera. We saved shooting time on fades too because it was not necessary to stop the action while the cameraman attached a fader; all he had to do was close down on the scene by lowering the lens hood. To convey the feeling of a time lapse he simply raised the lens hood while the action was in progress.

With the Bolex 155 we also saved time and money in titling—which had been one of our most vexing problems with the previous camera. When we found out how expensive a titler was we simply ruled out that method of getting in our titles. In some of our early films I lettered the titles myself but they showed up unprofessional; so for the next few films we ordered showcards from a professional but





they proved to be too costly—and they were never ready on time and had to be shot afterwards and then spliced in. But with the 155 we used the transparent acetate sheet for our opening title in some films against an action background—the action being the particular skill that was to be demonstrated—and then dissolved the title into the background just by turning the focusing knob. For titles during the instructional sequence, we simply had them typed up in advance on post card size white paper and shot them right in their proper sequence while making the film.

There's another thing that will affect our costs—favorably—but I'm not prepared to give any figures on it yet: because prints made from our originals shot with the Bolex 155 are so much superior, we expect to get more duplicates from the original and will be able to make the films available to more schools. Hopefully, the entire cost of making them may be recovered in this way.

*How can instructional film be any good without sound?* It is a mistake to assume that because sound films are now almost universally used that silent films are obsolete. Hearing and listening are not synonymous. Hearing and understanding are not synonymous either. Communications break down because the speaker assumes that the hearer understands. In a shop situation it is difficult for the student to focus his understanding. Particularly is this true for the culturally disadvantaged for whom even his native tongue is "foreign" because it is not the language of his milieu. And this is also true for the slow learner and the "tuned-out generation".

It is for such students that the silent, nonverbal film is particularly suited for it bypasses the deterrent of language that is not understood. The silent, nonverbal Single Concept film is a universal medium of communication because it does not use any language.

I have watched students use the Single Concept loops and I feel sure that these films do something more than bypass language. *The Single Concept Silent Loop forces a student to think.* This is how I've seen it happen: the student is watching the silent film and, because there is no voice to explain to him what he is seeing, certain natural questions arise, like "Why did he do that?" But because no answer is forthcoming from the teacher, as it might during a live demonstration, the student attends more closely to what is being done on the screen. Suddenly he doesn't want to miss anything. Almost invariably you will hear him say "Oh, I see", when, as a result of more sharply focused attention he *does* understand why the teacher "did that" in the filmed demonstration.

If the filmed lesson has been carefully prepared, the answers should be there for him to find. But if there is no one there to *give* him the answers, he must find them for himself. And when he does—perhaps by watching the loop by himself a second, or a third, or even a tenth time—he enjoys the kind of success that behavioral psychologists tell us stimulate the internal motivation which is the first ingredient for continued success.

But let's not leave the teacher out of the picture. There will be times when the student will not find all of the answers for himself and he will have to come to the teacher for help. Fine. That's what we're there for: to help him find the answers for himself. If we find the answers for him we inhibit thinking.

*How does the shop teacher go about making his own single concept instructional films?* First and foremost, he must keep clearly in mind the idea of Single Concept. "Commercial Cake Decorating—As Easy As 1-2-3-4-5-6-7-8-9-10," is *not* a Single Concept; it's ten concepts. (We learned from our mistake and later expanded this film into ten separate single concept films).

"How To Clean A Carburetor" is not a single concept either. It's a whole series of concepts. But "How To Clean The Screen Of A Carburetor" might be a single concept. A single concept is a single operation; sometimes it might be only a part of an operation.

Before undertaking the actual physical work of making the film the teacher must also have in mind that the film will be used, in the main, as *reinforcement* for part of a total lesson; the lesson itself consisting of four parts. As every

teacher knows the parts are (1) preparation, (2) presentation, (3) application, (4) test. The Single Concept film merely reinforces the presentation. It need not entertain or tell a story. The teacher simply does in front of the camera what he would do in a routine demonstration except that he should analyze the demonstration carefully as to the operations that comprise it; and he will try to see the operation from the students' viewpoint, from the physical viewpoint, that is.

In our earlier films the cameraman had a tendency to take most of his shots face to face. This is called a "subjective" view and while there are times that this is good, more often it gives the student a backwards view. The "objective" view is better—that is, the camera is behind the demonstrator—for it gives the student the view of what is being done as if he were doing it himself. In some of our baking films, the cameraman actually stood on the bench for many of his shots. And for some he was almost under the hands of the demonstrator. It was in such instances that the Bolex 155 proved indispensable.

Lighting is extremely important too, and some of our earlier films had a blue cast because we weren't lighting properly. But as amateurs we just didn't know there was a conflict between our photo floods, the overhead fluorescents, and the daylight that was coming in through the unshaded windows. When we corrected this by covering the windows, turning off the fluorescents, and using only our photo floods rated 3,200 Kelvin, the camera's electric eye did the rest. Undesirable color was eliminated, contrasts improved and all we had to contend with was shadows, which, in some cases we emphasized when we felt they might add interest or emphasis to certain operations.

While the Single Concept film itself is mainly reinforcement for the presentation part of a total lesson, the element of preparation cannot be overlooked. Even before the cameraman comes on the scene, the teacher will have to spend time in setting up the props and other materials that are needed for the demonstration. This will not be difficult for the experienced shop teacher, but if he has prepared a "story board" beforehand, it will be that much easier. The story board consists of a series of cards showing, in sequence, the various angles of the shots required. They serve as a kind of blueprint for the production team.

After all props are in place and the cameraman has set up his equipment, it's a good idea to have a dry run—without film—of the skill to be demonstrated. The cameraman should actually focus through the camera and check footage and time so that he will have some idea of how much footage a concept may take. It's at this point that "editing in the camera" takes place. Often an overly long sequence can be edited before it is even shot.

What else does a teacher have to know to make his own films? Nothing that he won't learn as he goes along. I think that's why I enjoyed making my own films. It was a new learning experience and learning is what a teacher thrives on!

*What about editing?* My editing room equipment consisted of a cement type editor-splicer, a Super-8 projector and a pair of white gloves for it's most important to avoid fingerprints and scratches.

I found that editing has its own law of inverse ratio: the more time spent in preparation, the less time must be spent in editing. Some films required almost no editing. Some required quite a bit. I think our best films are the ones that needed the least editing.

What do you edit out? If you know your subject, you'll know. And if, like I did, you get the opportunity to make your films during the summer, you may as well face the fact that your work won't be finished on Labor Day. Of the 6,000 feet we shot, a good part still remains to be edited into 50 foot segments and cartridge. But I keep thinking of the not-too-distant day when a student who hasn't been paying attention during a demonstration, or who was absent, or who is just a slow learner comes up to me and says "Hey Teach', how d'ya make a cinnamon bun?" (or a roll, or a bread, or a rose). Instead of having to drop my work or hold up the class while I show him, I'll smile and say, "It's on movie number so-and-so. Why don't you take the projector to your bench and watch it for a while."



# Industrial Training Films

## *A CSR in Super 8 Color*

by Vernon Delston

It all began quite casually in Ed Bakaj's office at RCA Information Systems Division in Cherry Hill, New Jersey. Ed is Manager of Field Engineering Training's Methods and Materials Department. He has always been keen on using the latest media in conjunction with classroom instruction.

We were discussing our audiovisual program, what had been done with video tapes, slides, overhead projection and filmstrips as well as the kind of presentations we would be likely to tackle in the days ahead. The conversation turned to motion pictures, a medium we hadn't touched as yet.

Filmmaking has become a "hot" subject in education. Young people, in particular, are making it a career as indicated by the 60,000 graduate and undergraduate students enrolled in 1500 film courses at 120 colleges around the country. One of the incentives has been the biggest revolution in the audiovisual field in recent years—the introduction of super 8mm film.

Why not produce a motion picture at RCA's Field Engineering Training Center? It was suggested that an indoctrination film about a Computer Service Representative (CSR), might prove to be a suitable subject. It would serve to give the student at the Training Center in Cherry Hill a taste of what to expect when he arrives. From the first day, when RCA makes arrangements for living quarters at a nearby motel, it would cover all phases of classroom and lab training, working with computers, recreation facilities, graduation and finally returning to the site where the CSR applies his acquired skills to corrective and preventive maintenance on equipment.

Within this framework, there would be ample opportunity to shoot both interior and exterior scenes to produce an interesting program. But there was one drawback. We had no camera.

For our initial venture into the world of cinematography, we wanted a Super 8. It would be in the nature of an experiment. We scoured the market for a camera and a projector. Our enthusiasm grew as we found a camera that could be handheld an inch away from a subject and needed no altering to do all the work we'd have for it. And a recording projector to put our own sound on the film.

"Sounds good," Ed said. "Go ahead. Try it."

Soon after, two big packages arrived—a Bolex 155 Macro-zoom Super 8 with Minipod and a SM8 Magnetic Sound Projector. It was a beginning. Now what about a "crew"?

Fortunately, this was no problem. One of my colleagues on the Audiovisual staff, Gordon Young, a retired career Lieutenant Commander and Naval pilot knew how to handle a camera. Formerly a photographic officer, he flew B-24s on missions around the world. In addition to being at home in the cockpit, leading his group in aerial reconnaissance flights, he was involved in shooting numerous training films on the ground. Gordon would double as film editor.

We'd need an actor to appear on camera if my preliminary approach was to be realized. He would serve to present the story from a single point-of-view as well as to supply a unifying thread to the material. Another colleague, Dave Forrest, had done some acting during his undergraduate days at Oberlin College and was eager to aid in the project. He was well equipped to take care of the "Voice Over" narration to be delivered in a low key, stream of consciousness manner.

Before joining RCA, I wrote and directed more than 100 documentary films for network television, industry, various Government Agencies and the National Film Board of Canada. Along the way I won a few prizes including the Valley Forge Freedoms Foundation Award for the best documentary of the year and the World Festival Television Award. I rounded out the team of three.

What were the factors to consider with Super 8? In my planning, I was determined not to be inhibited by the difference in size. Life should be simple. After all, it was just a matter of producing a smaller image on celluloid. Film is film. Without being aware of it, I had made the decision several days earlier: "Think 16 but shoot Super 8." This tidbit of reverse psychology was to serve me well.

Right off the bat, I cast aside one of the really sound practises of filmmaking. Always start with a script before a frame is shot. I believe that strongly. But here, there were extenuating circumstances. A prepared scenario would have been too time-consuming. We were all anxious to heat up the camera without delay.

This isn't to suggest that we went out and took a lot of random shots. From the very beginning, I had a fairly good idea as to how the story should be developed. That there were no words on paper could nevertheless prove a handicap. Inevitably, pertinent shots might be overlooked, appropriate camera angles missed. The length of each sequence was undetermined. A scenario would have detailed each camera direction, fully described each scene. Without it, we had to make sure that the visuals ran long enough to carry the narration. Therefore, to play it safe, we overshot in many instances. Raw stock is the least expensive part of any movie. In any event, it is not a good policy to stint on footage. A producer's sleep is laced with nightmares of false economy on location.



Concurrently, the writing was progressing one step ahead of the photography. As the production took shape, the script assumed a flow and continuity of its own.

I knew in advance, there would be a massive editing job. Filming in sequence was out of the question. Besides, it would have been most impractical: For example, soon after the equipment was delivered, a local restaurant was the scene of a graduation luncheon. The next one was several weeks away. It fitted in near the end of the story. Therefore, rather than wait, we decided to do it now.

This was one of those attractive dimly lit restaurants so



we brought along all the lights available and shot with the lens wide open.

Viewing the "rushes" a few days later, they were as expected. The color rendition was a little dark but the scene played well and the action was what we wanted. In the whole context, it would work out fine. This was the one and only time we compromised with the color quality.

To maintain an impression of authenticity, staging scenes was avoided wherever possible. Classrooms of students were filmed during the actual instruction, disrupting the progress of learning hardly at all. Lights were set up during a class "coffee break" and we were in and out of the room within a space of seven minutes.

Since the student spends a good part of his time working in the lab with computers, it was important that we convey that phase of the training accurately and with the proper emphasis. Fortunately, the equipment is "photogenic." That is to say, close-ups of each operation have special interest.

An improvised dolly, the cameraman seated in a desk chair and rolled towards a subject, supplemented the zoom lens and made the tight close-ups that much more effective. As in any film, they drove home the main points with a flair. And with the close-up feature of the Macrozoom, it was simple to take all we needed effortlessly.

To reinforce a study of the lab in depth, the Multitrix supplied with the 155 was a blessing. It permitted us to take advantage of a batch of color slides already in existence. All we had to do was put the slide into the slot on the Multitrix, put light behind it and shoot. When needed to, we could even take a small part of the slide. They added another dimension to the equipment when integrated with the motion in a series of fast "cuts."

One interesting session took place at Philadelphia International Airport. In the story, this was the farewell to Cherry Hill as the CSR returns to the site to put into practice everything he has learned at school. United Airlines was kind enough to give us access to their facilities. We photographed Dave entering the terminal, checking in at the ticket counter, boarding the plane and finally the take-off. When the big DC-8 left the ground, we were almost directly in its path on the runway.

With the camera handheld, Gordon planted himself in a good position as the plane accelerated toward us. He wheeled around to a blur plan when the aircraft took flight.

Fortunately, the Macrozoom's design makes it easy to grip tightly or both would have soared off into space.

While on the subject, the tripod was useful, but handheld, the camera was more functional as well as giving us the flexibility we wanted. In most cases, the image was steady. Since we could get close to the subject instead of filming with a telephoto lens.

Our other location shots presented no hazards. At Toms River, New Jersey, we came back with some good footage of activities at the sea shore, the amusement park, the golf course among others and several species of duck waddling along and swimming around in the water.

These were part of the recreational footage or how a CSR might spend his leisure time—if any.

The extreme close-ups, incidentally, came off very well thanks to the Bolex. Filling the frame with eyes alone,—or nose, mouth, and chin—gave us a true and faithful image, and added considerably to the rhythm and pace of the story.

Adhering closely to the actual events as they occurred, the introductory segment covered the arrival of students at the Field Engineering Training Center from a nearby motel in transportation supplied by RCA. Travel shots inside the station wagon, with the camera aimed through the windshield and side glass, captured the surrounding terrain—conveyed the proper sense of anticipation. These shots served as a launching pad for the entire program.

Although the photography was good, we were not quite satisfied. As a lead-in, a more striking audience attention-getter was preferred. We discussed the possibility of taking views from a helicopter or small aircraft. This proved unfeasible. It was too complicated to arrange. In terms of production values, it would have been difficult to justify the expense. Happily, we found a method of achieving the

effect without anyone leaving the ground.

There were some 8x10 black and white glossy aerial photos of the modern Field Engineering Training Facility in the office. The "still" pictures were placed side by side on the studio floor. Two photo floods were hooked up, the lens opening adjusted at F/2.5. By panning, zooming, and and tilting, the results, when screened, fully convinced the audience that the camera was in the air. The black and white did not jar the rest of the color but strangely enough, blended with it. It was exactly what we were after.

During the shooting, we did not overlook any sign or identifying name that made a contribution to the development of the story. There were many. As a change of pace, therefore, it was decided to use voice rather than lettering to present the opening titles—a pleasing female voice at that. It served as good contrast to our two males—the "cold" narrator for the beginning and the less formal, first person for the body of the film.

For closing titles, we went back to word designations, mounting white, 3-dimensional letters on the front bricks of the Training Center buildings. A vertical PAN picked up each credit cleanly and crisply. "Gimmicky" titles, even when well executed, can be self defeating if they stand apart from the prevailing spirit of the film. In this instance, they were consistent with the subject matter and therefore were a fitting conclusion.

All photography was completed. At a ratio of approximately two to one, there were 750 feet out of which to select 360 feet or twenty minutes. Now it was a question of splicing it together in a logical sequence. The completed script served as a guide and a standard.

Anyone can edit the 8mm. All you need is the patience of Job, and a steady hand. Gordon Young emerged from the ordeal hardly scratched by the experience, except—he was slightly bleary-eyed, his complexion turned to a pale shade of green and his fingers trembled. But the job was done expertly.

Next, the narration was matched to picture. This entailed further cutting and rearranging. Music was selected for bridges as well as for narration background. When it was synchronized properly with two separate tapes, one for words and one for music, it was all transferred to a single tape.

The last step before the magnetic striping was to run the sound and picture simultaneously to make sure all the cues were correct, that the timing was exactly right. The recording session and screening went smoothly. The preliminaries made the final phase comparatively simple. When the first composite print was shown, reactions were extremely favorable.

This is not to pretend that "The Story of a CSR" is the last word in documentaries. There are many areas for improvement. But we did establish that Super 8 is "in the ball park" as far as motion pictures are concerned. It has the advantage of requiring only a skeleton crew—one man to serve as a writer-director-producer; another cameraman-film editor. A good voice is a prerequisite to handle the narration and to complementing the picture. In this instance, an actor made a distinct contribution to the development of the subject matter but this is not a necessity. Very often, the doctrine itself may be shaped to present a coherent story.

The low cost factor is certainly an incentive. Our "out-of-pocket" expenses (raw stock, processing, miscellaneous items) were less than \$200. This, of course, is exclusive of personnel. Two men were on the project for approximately six weeks, one man, two weeks.

Technically, the film holds up very well. The image is large enough so that it can be screened in a small theatre without appearing grainy. The color definition is sharp and true. Sound is faithful to voice and music. Relief from suffocating mechanical problems opens up new doors for creativity. And equipment is being perfected and getting better all the time as we found in the Bolex products.

But the big breakthrough has been made. And if the early returns are any indication, Super 8mm has a future at RCA Information Systems Division Field Engineering Training in Cherry Hill.



# BOLEX

## REPORTER

### BOLEX FILMS WHERE THE ACTION IS

The highly skilled technicians at the Paillard factory in St. Croix in the Jura mountains of Switzerland assembling the famous Bolex motion picture cameras must every once in a while think about what magic the product they have just completed will eventually see and record in the span of its long life. • In this special section of the Bolex Reporter "Bolex films where the action is," we have assembled a number of stories from just about all around the world. These are stories from men and women with high ideals for education, adventure and sports, with great enthusiasm and admiration for nature, countries and their people. They film in order to communicate with others, whatever the message of their communication may be. • We hope you will enjoy reading their stories which are, at the same time, testimonials to the equipment they have come to trust and appreciate. Whether they are professionals or amateurs, highly skilled cameramen or novice filmmakers, they all speak fondly of their love: moviemaking with Bolex. • You cannot win a race with an underpowered car and you cannot enjoy moviemaking and hope for results with cameras that are not the best. Together with the Bolex technicians at St. Croix we wish fun and pleasure to the huge family of professional and amateur Bolex users all over the world.





## *A Dog's Life*

by Mike Banks

The husky team pelted downhill. Their paws kicked up wild flurries of snow, and the sledge bounced and lurched crazily, half out of control. My eyes streamed with tears in the cold rush of Arctic air as I scanned the surface of the snow ahead of us for signs of crevasses, those deep and murderous chasms in the glacier which could swallow the sled and husky team in one gulp if we broke through a fragile snow bridge. The motion was far too violent to attempt to film our downhill scamper. I had to hold on hard with both hands and could only wonder anxiously how my Bolex, in its canvas bag and tied to the sledge handlebars, was faring.

We reached the bottom of the slope and halted. The big-hearted, mischievous huskies yelped with pleasure and rolled in the snow, rubbing their backs, kicking their feet in the air. The Eskimo drivers lit their pipes. I lost no time in getting my Bolex out of the canvas bag. It was, of course, perfectly alright; the camera is made to survive a beating. I started filming the dogs, the drivers, the stupendous, virtually unknown mountain landscape of this cut-off corner of Greenland. It was a crisp day, about twenty degrees Fahrenheit below freezing, yet my H-16 Rex purred smoothly, far less affected by the cold than I was. This immunity to cold is a feature of the Bolex I greatly appreciate.

This was my seventh major expedition to the unknown, frozen regions of the earth. My mission on this occasion was to sledge about half a ton of food and fuel deep into an unexplored range of mountains in East Greenland, traveling in the Spring when snow conditions were at their best. The following summer, when warmer temperatures would make rock-climbing possible, a team of British Navy mountaineers were to penetrate the range on foot and, living off the food we had dumped for them, spend six weeks climbing and exploring the virgin mountains.

I was shooting a 16mm color movie which, together with the mountaineering sequences to be shot in the summer, would tell the whole expedition story.

I was also shooting film to make schoolroom "loops" on Arctic travel and life in an Eskimo village. The loop is a short 8mm film on a specific educational subject, usually shot on 16mm and later reduced to 8mm. The film is wound in an endless loop onto a special cassette which is very easily inserted into a back-projector which looks much like a television set. At the press of a

button, a teacher can have movies available to provide interesting background to, say, a geographical lesson on agriculture in India or, in my case, life in the Arctic. There is no waste of time in darkening the room or threading and re-threading a projector. It is yet another example of the increasing use of film in modern education.

My friend, Mike Thomas of the British Navy, and I had arrived in Greenland from Iceland in a chartered DC 3 aircraft, touching down at Kulusuk, a snow-covered airstrip kept open the whole year round to service the nearby American D.E.W. (Defence Early Warning) Line radar station. A boat then took us a few miles through some open water in the fiord ice to the small settlement of Kungmiut, a place famous for the quality of its husky dogs. The magnificent fiord scenery, the boat crunching its way through the thin surface ice and the animated Eskimo faces, all gave me wonderful subjects to film.

The whole town of Kungmiut (population 500) seemed to crowd the jetty to welcome the boat which was their only link with the outside world and their major source of coastal gossip. A number of huskies, which had been tied up on the foc's'le, were thrown unceremoniously into the snow, eight feet below, where, after the fashion of huskies, they howled, bounced and pranced away unhurt looking for food



and mischief, in that order. We were greeted by the two Danish schoolmasters, Johann Plesner and Erik Mejer, and as we walked up to their homes our rucksacks were borne before us by a multitude of delighted and delightful children. We possessed some novelty value being "delududs"—the Eskimo name for Englishmen derived phonetically from the "how d'you do" of some long ago traveler.

The next day we hired ten sled teams complete with drivers and prepared our stores. We held a planning conference with some of the old hunters of the village to decide on the best route for penetrating the mountains. Brown, weather-eroded faces were bent over maps and air photographs, grizzled fingers jabbed at tracts of country many miles from our sphere of operations and, no doubt, much wise talk spilled out. It was our impression that a decision had been made to sledge up the great Knud Rasmussen Glacier and this suited us fine.

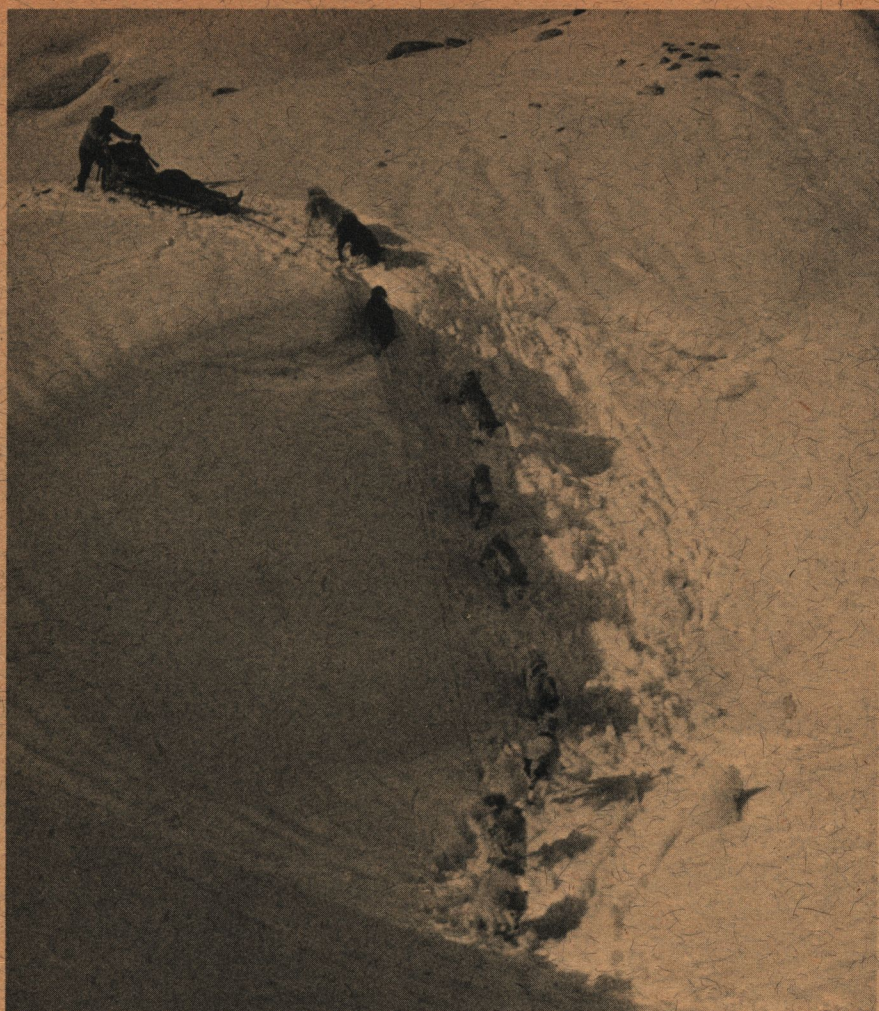
The decision survived the night and the next morning I was busy filming the sleds being loaded for the first leg, a journey of 30 miles over the sea ice to the small village of Sermiligaq. With a clatter we were away, pelting through the main street of Kungmiut, across a shoulder of land and down onto the sea ice.

The art of sledging is kept very much alive on the isolated East Coast and my Bolex recorded the skill of the drivers. They used the fan formation for the dogs whereby each dog has a separate trace radiating from a central point. The team is controlled by a whip which is a deadly accurate instrument when wielded by a Greenlander (as the local Eskimos are called) who has had one in his hand since infancy. There is no indiscriminate swiping at the whole team; if a particular dog fails to pull his weight, a fact made obvious by his slack trace, the whip flicks out and hits him without touching his neighbors. The wrongdoer gives a heart-rending howl, usually before the whip reaches him, and, for the next minute or so, gives a tremendous impression of industry. The husky is one of the best comic actors ever to stand in front of a camera.

The drivers were particularly skillful in controlling their sleds when plunging down appallingly steep snow banks or hillsides. This, again, is a skill derived from infancy for there was barely a moment in Kungmiut when a youngster was not to be seen flying down the hillside on a miniature sled, twisting through the pedestrians and slamming round corners without ever losing control. Eskimo children can even rival huskies as film stars.

After eight hours of travel we arrived at Sermiligaq, to be invited to stay at the home of Carl Nikike, one of our drivers. The first room in his house dismayed us: it was a dark, evil-smelling cavern, reeking of husky, the only furniture was a great barrel brimming with blood-red entrails. A door led to





a cosy kitchen where we were handed hunks of roasted seal meat which we held in our hands and carved with a jack knife. The Greenlanders eat their meals entirely without formality. We passed into the next room for coffee and *imiak*, a yeasty, home-fermented beer.

It then took us one full day of grinding labor to heave our sleds up 750 feet of steep mountainside but once on top we had opened a back door to the interior ranges and our main obstacle was behind us.

Now followed three days of superb sledding through some of the most starkly magnificent country I have seen anywhere from the Arctic to the Himalayas. The sharp granite peaks surged up from the gleaming white glacier and pierced the pale Arctic sky. It was a severe landscape of rock and snow without a vestige of vegetation. It was mountaineers' country, pure and simple. I thought with envy of the Navy mountaineers who would be climbing these challenging peaks in the relatively warm weather of summer.

Snow photography presented its usual problems—with a few extra ones thrown in. There is the usual difficulty of exposure. The men wore dark clothing and had dark faces yet the universal snow background was so bright that the needle of the exposure meter flicked right off the scale. If you expose for

the men the snow is over-exposed and washed out to a chalky white. If you expose for the snow the men are black blobs. There is no easy solution. You must decide which is your most important subject and expose for it, letting the rest take care of itself.

Photographing sleds on the move is also difficult. They bump along on steel runners and sequences taken on the move from the sled are jerky and can only be used in small doses. If you shoot your sled as it goes past you have the problem of catching up! It travels just faster than you can run through the soft snow. I became a familiar sight, clasp my Bolex to me and lunging after the husky team to throw myself breathless onto the sled, nursing my camera like a package of eggs.

We were successful in placing our food depot deep in the mountains and we returned to Kungmiut having sledged 170 miles in 11 days. A 16mm color film records our wonderful journey and two loops are now available in the classrooms of Britain and America, one on Eskimo life and the other on travel in the Arctic.

Pulling a sled is certainly a dog's life. But these big-hearted huskies positively enjoyed doing it and, in the process, enabled me to make a most rewarding movie.

## Filming in Iceland

by Asgeir Long

Two Bolex H-16 Rex cameras are connected with an historical event in the country of the Vikings and the Sagas where they are recording on 16mm color film a complete story of Iceland's greatest constructional project to date, the Burfell Hydroelectric Project.

At the start of the construction, a contract was made with Asgeir Long Film Productions, to make a documentary film about the whole project from start to the completion scheduled the end of 1969.

Since the day the contracts were signed between the owners and the main contractors, the Bolexes have been keeping an alert eye on all activities at the site on which one of the most famous volcanoes in the world, Hekla, casts its shadow during the



midday as the sun barely rises above the top of the mountain in the winter. In the summertime, the exposure varies very little from noon to midnight and the cameramen are busy around the clock.

The Bolexes face a variety of operating conditions at the site. A temperature drop from plus 5°C to minus 15°C in a couple of hours is not uncommon. Howling winds whirl up clouds of pumice and volcanic ash and whip it into the faces of the workmen who must wear goggles to protect their eyes. The heavy earthmoving equipment, scrapers, bulldozers and trucks churn up still more pumice and road dust and on really stormy days the atmosphere is an almost impossible to breath mixture of abrasive ingredients.



So far this has not done harm to the Bolexes.

On such a day, however, it is a relief to film in the tunnels through which the river is to be led to the turbines. There, the temperature is a steady 4°C but the humidity is very high and it takes the lenses and viewing system a very long time to clear of the mist. It is no less a relief to come out of the tunnels into a clear, crisp and completely windless day to make a film study of the ice formation in the river that is being harnessed, the Thjorsa or Bulls River, as it was to find the shelter of the tunnels on such a day as previously described. The Bolexes don't seem to feel any difference. So far, not a single scene has been lost due to mechanical failure. The flying pumice and bitter cold are withstood and nothing seems more natural on this assignment than to pull the Bolex from its case after a 2½ hour rough jeep ride from the site, wipe the lenses clean, brush the dust from the camera and mount it on the animation stand and get it working again making animated sequences about tunnel progress, sequential blasting and dam sections.

It is not by chance that Bolexes are doing this job. The film company had an old H-16 that was converted to reflex a few years ago and which has seen much use as traveling camera, both on land and sea. It has been rolling on high seas filming herring fishing as well as climbing mountains and highlands making travelogues. It has been completely dependable even after a number of mishaps like when the cameraman's foot slipped while fording a torrential glacial river and his companions saw only his arm holding the Bolex above the turbulent water. His life was saved by the lifeline which he managed to hold with his other hand while regaining a foothold. The camera kept on recording the adventures of the trip after the water and mud had been wiped off.

As soon as the contract had been made with The National Power Company to film the Burfell Project, it was clear that a new camera had to be bought. Without hesitation, the Bolex Rex-5 was chosen. The experience gained from the use of the older camera as well as the added possibilities of the new model made the choice easy.

The camera's lightweight and ease of handling are big factors on the site, as handheld shots from difficult positions are as important as highly technical shots, requiring elaborate setups. Often, the equipment must be carried by hand up to mountain tops, over the rough slopes and rocky sides and scores of loose material. On such occasions the lightness of the Bolex is blessed when you reach the top. Sometimes, though, the camera is too light. This is when it has to be weighted down when filming blastings in the tunnels. The shockwaves that follow the detonation easily shake or even blow over a camera of this weight.

The Rex-5 has proven itself to be a joy to handle and use. On the animation stand, where the single frame device, the variable shutter, the rewind and the very accurate frame counters give you almost unlimited possibilities; 100 feet up in the air, on the swinging and swaying jib of a Lindemans crane; on top of the rock driller's cage; or 300 feet down in the vertical shafts of the penstocks, the Bolex is always the same—ready and dependable. The filter slot is a fine thing. Using Ekta 7255 and 7241 or 2 alternatively, the slipping in and out of a filter becomes routine and you notice immediately if you have forgotten.

Up to now, the Icelanders have been over 90% dependent on fish and fish products for export and the currency income of the country has varied in harmony with the annual catches and world market value of fish products. For many years, it has been clear that a more stable source of income had to

be found to compensate for the unstable economics of the fish industry. As Iceland has tremendous unharnessed power in its rivers, the power consuming industry has come to mind first of all.

After a contract between the Swiss Aluminium Company and the Icelandic Aluminium Company, ISAL, had been drawn, a second contract was made with the Landsvirkjun (National Power Company) to build the Burfell Hydroelectric Station now under construction. This power station will supply the Aluminium Smelter with enormous quantities of electrical power and the two projects are by far the biggest constructional projects ever to be undertaken by the Icelanders. The Hydroelectric Power station alone is estimated at \$37,500,000.

As the first time in Icelandic history that a film will be made of such an undertaking, from start to finish, this, too, is an interesting development in Iceland's film industry.

## Discovery— Yukon Territory

by Richard Robertson

On August 17, 1896, the Indian wife of a rugged bushman, George Carmack, stooped to find a piece of shiny metal in a creek while washing her cookware. This discovery of gold in Bonanza Creek was to send nearly 100,000 men to the Yukon Territory in search of their fortunes. But due to the lag of time in getting the news out and the additional months it took roving men to walk or navigate north, all the claims were staked by enterprising local men before these new men arrived. Nonetheless these new prospectors were not anxious to turn around and walk back again over the frozen Chilkoot pass, and most of them had no money to spend on the river steamboats which could take them up the Yukon River and down to San Francisco. So they settled in the newly formed town of Dawson, built in a haste on a small slab of permafrost at the intersection of the Klondike and Yukon Rivers. And in one demented summer, forty thousand persons crowded into this town nestled in isolation by towering mountains.

Some of the ambitious newcomers knew how they could make their money without ever dipping a pan or rocking a sluicebox. They set up services for the men who did: saloons and dance-halls where hard working prospectors could spend their nuggets and buy the companionship of women who had been shipped in by clever entrepreneurs; newspaper offices to bring news of the outside to this town totally separated







from civilization; studios for snapshots; groceries and restaurants (fresh produce was so scarce that eggs and milk, for example, went for more than the best of liquors which had not been left behind in the hurry).

But the nuggets would not last forever, and by 1900 the source had depleted seriously—no longer was there enough income to sustain the town on the large scale that it had been built upon. Cries of gold to the north summoned thousands to Nome, Alaska. The town emptied and only those who had gotten a feeling of home from the town decided to stay. For years, Dawson stumbled on. By 1921, the town's population dipped to under 1000. Gold dredgers which dug up the ground in such volume that a profit could be made from the gold dust, employed several hundred men.

Dawson still breathes today even though the Yukon Consolidated Gold Company shut down operations last fall. A new asbestos mine sixty miles to the east, government operations,

and the tourist business keep her going.

Last spring in Los Angeles, 3600 miles from Dawson City, David Acoma and myself became involved in an extensive conversation with Irwin R. Blacker, a professor of cinema writing at the University of Southern California. He had been in Dawson in 1961, to gather material for a novel (*Days of Gold*). After some additional research, Dave and I surmised that this small town would make an excellent location for our master's thesis film.

As soon as school let out, we pointed our newly acquired yellow Volkswagen camper north, loaded with ten thousand feet of Ektachrome Commercial, all our personal possessions and our camera equipment—one Bolex Rex with Angenieux 12-120 zoom, an old turret model Bolex for pickups, and a good portable tape recorder (Uher 4000 L).

We had heard of the beauty of the Land of the Midnight Sun, but we had no conception of the miles of mountains, forest land, and clear waters

which constitute the Yukon. The air was so clear that you could see for miles off the peaks of the Alaskan Highway. Then on the first day of July, after a solid week of driving, we rounded the bend which looked upon the town of Dawson. We patronized the two local bars in celebration and emerged from them at closing time to find the sky completely bright!

Thanks to Ed and Star Jones, who ran the Klondike Glass and Bottle Museum, we were given free lodging in this small red building, and were ready to begin our analysis of the town and the surrounding area for filming. Dilapidated buildings from the early days, junked steamboats lying in their graves on the bank of the Yukon across from town, and old relics of the Rush fascinated us. But the most interesting facet, was our discovery of an old miner living twenty-five miles out of town on Hunker Creek, one of the rich creeks just south of Bonanza.

Peter Brady had come to the Yukon in 1908 at the call of his brother who had made some claims there. Today, Pete is still mining on his own claim in the traditional manner. His large Irish frame has lifted thousands of rocks to clear his way down to bedrock which harbors the shiny substance. With backbreaking effort, he pans the silt and wheels the results to his sluicebox.

The sluice is designed to catch the gold particles in the bottom between rubber runners. Since everything else is lighter than gold, the metal drops to the bottom and the rocks and dirt float over the runners and out the end. Then in the autumn (which is very early in the Yukon), Pete pans all the refuse in the bottom of the sluice and takes his money to Dawson where he lives for the winter.

Pete was so exciting that we devoted most of our filming to him. After we had acquainted ourselves with him and had stayed in his cabin for several days, we felt we could begin shooting. We filmed his working operations and his daily activities; simple things like eating and sawing wood for his stove. But the climax of the film comes when Pete is driven to town for the Discovery Day celebrations on August 17, marking Carmack's deed in 1896. He gets a haircut and watches the small parade. He joins in the festivities at the taverns by singing Irish songs with two young Irish singers, the Dublin Rogues, who were performing throughout the summer at Dawson's Palace Grand Theatre. And he reminisces with his old friends in town.

The film ends as Pete is getting ready to empty his sluice in the autumn. The colors have begun to turn—his whole valley has turned a magnificent yellow and red caused by birches and Yukon fireweed.

Dave and I will never forget our experience with Pete and our two month stay in Dawson. We are grateful for our Bolexes which recorded our experiences and impressions so faithfully.



## *Children of the Kobuk*

by Stan Sleeth

As the motor droned on and on, I saw crawling far below me the expanse of Northern Alaska known as the Kobuk. Meandering rivers, ponds, lakes, marshes and eroded hills filled the landscape as my bush pilot dropped the nose of the small plane and throttled back in a long descent toward the village of Kobuk, my home for the next few weeks.

I had been assigned the job of photographing the summer activities of Eskimo children for the Alaska Rural School Project, a Ford Foundation Project. Perhaps school teachers would better understand these children if I did my job well. My goal was to help teachers who saw my films understand their students and make their education more meaningful. Many teachers do not realize the life the children live in the summer.

I was still wondering how to approach the job when I was startled out of my thoughts by the quick leveling off of the plane as we swooped low. We leveled off a few feet above some log cabins and boats visible under a few stubby trees. Surely, this was not the village? Only a couple river boats were tied to the gravel shore. At the sound of our motors, several people were running toward the boats.

I was further astonished as the pilot, a man of flying reputation, indicated with a dip of his hand and a grin that we would land on a small gravel bar across from the village. A very short gravel bar.

The pilot by my side seemed cool and careful as we approached the bar much lower than I appreciated. I waited, gritted my teeth, checked my seat belt nervously, and we dropped down. After all, what could I do? We undershot the bar in a flurry of spray, bounced up and rolled to a stop just short of the end of the strip. The water drained off the glass as we buzzed, wheeled about and the motor sputtered to a stop.

By now the natives were waiting along side the plane and were smiling as I squeezed myself out of the seat and clumsily twisted my long legs out of the door. I stepped onto solid damp gravel, thankfully.

As the baggage was handed out of the door, I took a quick look about. Nothing . . . just a riverbank with low brush shorter than my head and frozen tundra. Several people were taking the mail and supplies out of the plane and placing it in a small narrow, leaky boat at the water.

Impatiently the plane motor started,

and we watched as it taxied to the end of the bar. It took off easily and faded with its voice into the distance.

I grinned at my new companions and asked for a ride over to the village, just visible downstream. I handed my equipment to those on board and took note that it wasn't placed in the water, nor under the stack of mail. The Eskimo boatman tugged at the motor and we gurgled down the river slowly.

Upon stepping ashore with the baggage under my arms, I had the feeling that I was stepping back to "Frontier Land" in California . . . but the strong smell of fish drying in the racks at my back, and the barking of the dogs chained in front of the cabins brought me back to reality. This was the real frontier, pioneering, subsistence living in the United States.

In this village, like so many in Alaska, the women do the fishing. They pull the nets early in the morning and late evening. They set their seines in proven spots along the river to provide food for their families. Fish are scraped, cleaned, and dried on pole racks along the river. I watched awhile, fascinated at the women cleaning fish and talking to each other. Small girls were working too, smiling at me bashfully. Later they split the fish and hung them glistening and flaccid over the poles. Small boys busied themselves throwing rocks at the birds which showed interest in the fresh fish.

Not too long after I got my sleeping bag and cameras stored in the cabin I rented from the trading post, I heard children laughing and playing along

the river. They played mostly in the boats and nets. They played with sticks, rocks, and toy "boats." These boats were crudely-shaped toys tied to a string and stick so they would ride in the water as they ran along the bank. Some of the older boys were playing in the boats in the river, buzzing and humming to make the motor sounds. Little girls made sketches in the mud, carefully making delicate squares. They were careful not to let me see their pictures. I later found they were making stories and used their favorite "story knives" to draw in the mud. Several small round faces would work in a group and occasionally a burst of giggles would erupt.

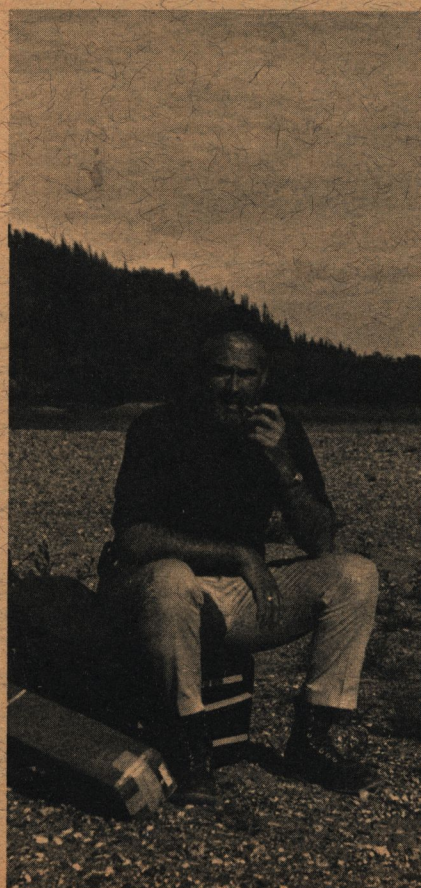
There were plenty of smiles as I kept my camera busy. First with a long shot, then with a twist of the turret a close one . . . following the action as best I could. After a while, I was being ignored, and I liked this because it would make better pictures.

For hours I would sit on the beach or wander around the village to get the natives used to seeing me. I would sit and talk to the men on the long log by the river. They would talk of hunting, boating, or work in the mines. Sometimes they would talk of their dogs. The comparison of lead dogs, strengths of animals and the best trails would be discussed endlessly.

When I asked the men what season was best, it was agreed that the winter was the best. Snow and sub-zero cold did not mean isolation and boredom, to the contrary, it meant frozen rivers which formed long smooth highways for dog sleds and snow-gos. It meant trapping and hunting. It meant freedom to travel long distances in a day with a warm fire and food in the camp at night. It meant better tracking of game and prime furs. It also meant better visibility because there were no leaves on the birch, and the winter brought quiet which helped you to hear the small sounds.

I asked the small boys questions, "What do you want to do when you become a man?" Invariably the answer involved hope of learning something in school which would help. "I will learn to repair a radio and work for an airline," I heard. Or, "I think I will go out on the coast and earn a lot of money fishing." High hopes for small children, yes, but their exposure to the immense possibilities through education is opening their future expectations. Their future is ringing with the school bells of over 300 rural schools of Alaska.

Teachers are opening the doors to the world which these children have yet to see. Teachers are trying to relate to these children the vastness of the world outside their village and outside their state. Pictures of dairy cows, automobiles, palm trees, horses, and pigs hang on the walls and abound in their books. Increasingly there are pictures of seal, moose, fox, and fish, which indicates that perceptive teachers are relating the present cultures to the learning process. The teachers are





finding that they must get into the consciousness of their students by relating to the world they know and live. The problems of communication are not insurmountable, but difficult.

One dusky evening I was watching the women clean a tub of fish. The dogs were hungry and barking. I started a conversation with one mother working by the dim light. She was a strong woman, cutting fish from a tub, and she knew I was interested in school. "I hope the new teachers will like my children. I have five, you know, they like school." I knew she was speaking for mothers all along the Kobuk and her dark eyes told me she was like all mothers.

When the day came for me to take a boat down the river to the next village, I thought I would like to stay a bit longer, but I could not. My camera must record more and tell the story to others. Through my film, I must tell of the life, the laughs, and of the mother's concern for her Eskimo children of the Kobuk.

## *Warriors With Weapons*

by Don Miller

The once-mighty Sioux nation had been brought to its knees by the White Man. Some called them warriors without weapons. But I had an idea many of them were well-armed, with religion. So, an anthropologist, his Cherokee sidekick, my wife Sue, and I set out to document on film, contemporary Indian religion in South Dakota.

The religion of their grandfathers, Yuwipi, was relatively easy to show through articulate spokesmen, including medicine men, and Ben Black Elk, who poses for pictures at the famous Shrine of Democracy, Mount Rushmore.

A Dakota who had helped dedicate the Four Faces, some Jesuit priests, and protestant ministers were able to fill us in quite well on Christianity as practiced by the red men.

But the third basic form of religion practiced by the original Americans proved to be more elusive.

The reverence for the American flag, the proud tradition of Indian fighting men (including one South Dakota Indian who had helped raise the flag on Iwo Jima), the use of the King James version of the Bible; these were clear and meaningful.

But the use of peyote (the hallucinogenic button of the cactus found in the American Southwest and Mexico), as part of the ceremony, was posing problems.

We had picked up wild sounds as a

group of singers from Yankton performed peyote songs for us. But it lacked impact. One hundred feet of film, a few gallons of gas, and a case of soda pop was all it had cost us; plus a lot of frustration.

On our way to the state meeting of the Native American Church (the peyote cult), Jay, the anthropologist, and Harley, the Cherokee, tried to fill Sue and I in on the effects of taking peyote in the form of a mash, a light liquid, or eating the entire button.

We arrived at the meeting site, an old house meant-to-be-church, squatting near the edge of the Badlands near Potato Creek.

We were warmly greeted to the Pine Ridge Reservation and told we could take all the movies we wanted . . . except inside the church during the actual peyote-taking ceremonies.

So, I shot Indian children riding ponies, men playing horseshoes, women preparing coffee with cream and sugar boiled in. Later, I shot footage of the group eating biscuits and boiled meat. There was an outside prayer meeting under a grass roof to shoot. The hearth in front of the church door where sage was prepared was good for a few feet. The graveyard with the large stars and stripes fluttering amidst the dead was good for a few more scenes.

But with each click of the footage counter, I became more and more convinced that I had no real story on film. I knew I had to get inside the church and film the ceremony.

We approached one of our Indian acquaintances and pleaded with him to let us in. After a lengthy discussion, he promised to check with the council members.

Two hours later, he returned, saying we could attend the ceremony, but we could not take any footage. The meeting was to start at 8:00. It was now 7:45. I scurried off to the station wagon with an idea.

If there had been more time, I could have perhaps arranged to divert the reflex image so I could have viewed from the top of the camera. But there was no time.

The Rex-4, with a Vario Switar 86EE, 4X reversal film, and a D.C. motor were what I had going for me—plus an Indian blanket!

Four strategically located gas lamps hummed away. With battery strapped to my belt, the Bolex blimped by the blanket, my right hand controlling the zoom, I was able to get virtually every scene I wanted, from the expressive faces chanting prayers, to close-ups of gnarled hands holding the prayer staff, and beating the water drum.

Sitting cross-legged, like the worshippers, with bowed head like they, the ceaseless hum of the lamps, and the almost ear-splitting sounds of chanting and drum beats permeated the air. And no one could hear the Bolex.

A camera can be like a wife—you get to know what she is capable of doing. So, although I could not see what the camera lens saw, I knew with



almost unfailing accuracy, what was being registered on film.

A small, battery-driven tape recorder was near my left knee—the microphone barely sticking out of the blanket.

At 8:00 the next morning, the meeting was over. The acrid peyote had been consumed. Prayers had been offered in the Sioux language. It was time for the participants to take long draughts of cold, clear water—called "taking the morning waters." After that, we took our leave.

As we drove away, I began to question my motives in taking the film. The more I pondered the question, the more I realized I had done wrong.

When the film came back from the processors, I screened it. It was good. Focus, exposure, composition, impact. But I knew I could not use it—doing so would break a promise.

So, the film safely rests in a city in another state. Perhaps someday others will see it. Perhaps not.

But the challenge had been there and was accepted; and man and Bolex rose to the occasion.



## *A Day on the Sky Slopes*

by Elroy Anderson

It was on January 15th, 1967, that my wife and I, and of course my "Old Trusty" 8mm P-2 Bolex, got into the family station wagon and took off for the hills. Mount Ashland Ski Resort, about thirty miles away, was our destination.

It was a beautiful day. The snow laden trees were so heavily blanketed that they took on all kinds of geometric shapes and forms. Frost crystals, twirling in the sub-zero atmosphere, had the appearance of trillions of tiny diamonds glistening in the early morn-

ing sunlight! A perfect day for photography.

An amateur photographer, bent on taking movies of professional skiers. I got right out on the slopes, so I could get plenty of close-ups! My Bolex has a 30mm telephoto lens, but I still wanted to get as close as possible. I don't ski so I just slid around out there with just my heavy overshoes, which were plenty smooth on the bottom. That was how I got into trouble.

I had already shot three rolls of film, and was almost to the end of the second half of my fourth, when I decided to go down one of the slopes in order to get a little closer to the action for my finishing shots. I had a unipod on my Bolex, which I use when it is impossible to use a tripod. This bit of extra equipment, (also made by Bolex) with my camera mounted on the top, acted as a sort of staff or cane to guide my skiless feet down the slope. Suddenly I started sliding, and couldn't stop until I fell flat on my chest, knocking all the breath out of

my body!

Several of the skiers skied over to where I fell, to see if I were badly hurt. After informing them that I was alright, one picked up the barrel of my Bolex, which had broken off at the film-plane, and handed it to me. The rest of the camera landed about fifteen feet from where I lay. I was soon able to get up and walk back to the car under my own power. Here I dug the hard packed snow out of my precious Bolex. The winding mechanism or spring was not hurt one bit. I removed the film and sent it into the processing lab along with the other three. When I got them back there was not one single foot of that fourth film ruined.

To sum up the whole story, I had 200 feet of the best ski movies that a home movie enthusiast could ever hope to have. And all they cost me was a broken rib, three weeks work, and a \$65.00 camera repair bill!

My Bolex P-2 is now as good as new, and we plan on going up there again this year.







## *The Dune Buggy Beat*

by Maggie Weisberg

Had Mick's guardian angel not been working overtime that weekend, I dread to think what could have happened.

It started out as one of those beautiful spring weekends that Southern California sometimes spawns in February, and we had driven to the desert to shoot a film of the increasingly popular sport of dune bugging.

We had asked "Windy" Morton, a former Hollywood cowboy-stuntman, who had retired to the desert after a heart attack, to notify us when there was a happening. For who would know better than the man who rides herd on over 200 dune buggies parked in his corral? The Borrego 100 Rough, Windy notified us, was the happening, and it was happening the very next day.

Loaded with three 16mm Bolex motion picture cameras and a couple of dozen rolls of color film, Bob (Mick) Mickelsen, his gorgeous wife Dorley, my husband Maynard and I arrived, eager to see some action. And action is exactly what we got.

Johnny Jones, co-arranger of the race with Willie Wilson, offered to take us on a preview of the rugged course he had laid out for the meet. So we hitched a ride with Gary Marks, a still photog-

rapher, and followed Jones' powerful blue buggy—or should I say, tried to follow it!? For in seconds, Jones' car was out of sight and we were left to follow the cloud of dust his 200 horses kicked up.

Up dune and down hill we raced along until suddenly we found ourselves at the foot of a 60° hill. Gary sped up the incline at sand-spraying speed before we could recover our breath, only to find the drop on the other side so sudden that the front wheels of our jeep were suspended in air. He set her down slowly, but our angle was so precarious that a sudden shift of weight could have sent the jeep rolling sideways down the hill. Very gingerly we inched over to the driver's side and slid out one by one. Equally gingerly Gary got back in and carefully turned the wheel until the

jeep was headed nose down the steep hill, and half-skidded, half-rolled to the bottom.

This was going to be *some* race!

We noticed several low-flying Cessnas wheeling around the crowds like buzzards, and it was decided that one of us should go up to take aerial angles of the race. It fell to Mick's lot to go—if it could be arranged by Gary, who had already made his reservations to go aloft. Mick would try to tag along with Gary.

We awakened very early next morning—in time to shoot the rosy sunrise and to glory in the wonder of the stillness around us. The tips of the ocotillo were a reddish orange, in preparation for an early debut. A remarkable plant, the ocotillo, indigenous and true to Ocotillo Wells. You can drive for miles without seeing one of these upside-





down-tentacle like shrubs, and then suddenly there they are by the hundreds, and you know you've arrived at the Wells.

We reached the grounds early, in time to hear the instructions to the drivers and their co-pilots (or in dune buggy parlance, the guys who ride shotgun). One camera stayed with the long queue of sand buggies awaiting the GO flag. Another went up ahead about a mile to a point where a sharp bump on the road was sure to send the buggies flying. And the third camera was perched atop the treacherous hill that had given us so much trouble the previous day. We intended to leapfrog our way over the whole course.

But even before the first car was flagged off, the Bolex at the starting line was injured in a fall, and the leisurely schedule we had set for ourselves was blasted. From then on it was a frantic race across the floor of the desert to keep ahead of the drivers.

Halfway up the course we inquired when the plane would be available and were told that for the past hour there had been no contact with it. So we spent the day on our bellies, in river washes, scaling telephone poles for high-angle shots, catching the spray of wet sand smack in the lens face as the buggies skidded around hairpin turns, jouncing around in the back end of a dune buggy, with the Bolex strapped to the safety bar (bless it, it performed beautifully under the wildest conditions), and shooting and shooting and shooting.

For an unusual angle shot we dug a hole in the desert floor, planted our Bolex lens-level, tied a string to the trigger to trip the camera remotely, and then let four dune buggies roar overhead.

Some of the sturdier buggies thundered over the finish line all in one piece. Others limped in after three hours of grueling desert-driving, caked with mud and with auto parts broken and hanging. One miraculously completed the 100-mile course on a corrugated wheel rim, having lost his front tire half-way through the race. And another made it to the finish line

after ingeniously substituting rope for his broken radius rod.

It was all very exciting, and we got some wonderful footage. Right now we're in the process of trying to decide where to go next to catch another kind of sand buggy activity. We think it will be Pismo Beach. And we won't mind one bit if the action is a little tamer.

You see, after the race we learned that the pilot of the plane Gary and Mick were to ride in had swooped too low, decapitating a young spectator, crashing the plane, killing both himself and one of his passengers and seriously injuring his son who had been strapped into his seat toward the rear of the plane.

That was one camera angle we were grateful Mick didn't get!

## *Bolex Humoresque*

by Don Sutherland

According to popular mythology, there once was a time when a bachelor could satisfy his amorous appetite simply by inviting some sweet young thing to his apartment to "see my etchings." Whether or not this was ever true is a moot point; what is significant to today's young-man-about-town is that this line is equally as effective bait as an anchovy might be for the man-eating tiger. There are three reasons for this: 1) As already stated, this is a popular myth—too popular. Today's young lady knows the line as a cliché and a fake, and even if she is interested, she must reject so corny an invitation, and 2) even if she hasn't heard the line before, she would, in this day of mass entertainment, rather watch TV, and 3) who has etchings, anyway? But bachelors, do not lament. If you own a Bolex, you have in your possession one of the most devastating aids to seduction ever devised by the mind of man.

Which is not to suggest that one should buy a Bolex simply for the advancement of one's love life. The Bolex is a precision machine designed for the making of serious motion pictures and it should be used as such. But even the most serious filmmaker has other interests, and if women is one, there is no reason why the Bolex should not get, shall we say, double duty.

Nor would I suggest that all that's involved in using the Bolex for seduction is, say, one's journeying to the park, seeing some attractive young lady, and saying to her, "Jeepers, whatta tomato! How'd you like to be a movie star, sweetie? Heh, heh." All you'll get from this approach is a) her absolute disdain for your boorish, and obviously

fraudulent come-on, or b) a fat lip from her boyfriend, who you hadn't noticed several yards away taking pictures of her himself, or c) arrested. Rather, you might apply your Bolex as a sort of ice-breaker, the framework within which you build your pitch. For, in meeting a girl for the first time, the Bolex is most effective as an introduction—from which you should quickly depart to areas of deeper interest.

Take, for example, the time I was crossing Central Park with my Bolex on my way home. Mind you, the camera wasn't even loaded with film. I'd just purchased a Rexofader, and was crossing the park to the subway. But I was diverted by a redhead whose snug-fitting sweater and jeans created an effect that can only be called astonishing. It was spring, and as we all know, this makes a young man's fancy even fancier, so I moved in for the kill. Our dialog went something like this:

ME: Pardon me, but do you feel particularly flattered to know that you have been recorded for all eternity in living color?

SHE: Not particularly.

ME: Well, I didn't really expect you to be bowled over by it, but, er, you see, I'm making a movie in which a guy, er, daydreams that he is rescuing beautiful girls from awesome perils. Kind of Walter Mitty-like. You're one of the beautiful girls.

SHE: (Brightens) Oh? What does he rescue me from?

ME: Oh, well, er, I haven't decided yet. You see, I won't until I've developed the film. Depends on how you look on film, you see. How photogenic you are, and all that.

SHE: I once met a photographer at a party, and he told me I was very photogenic.

ME: I'm sure he was right. You certainly have a good structure. Facial structure, that is. Perhaps you'd like to see the film when it's developed?

SHE: Am I being invited to see your etchings? (Yes, she really said it. I told you the line was too well-known.)

ME: (Chuckle, chuckle) Well, er, either that, or I can bring my projector to wherever you are. And maybe you can show me your etchings. But I'll tell you what, I'll call you up when the film's ready, and we can make all the arrangements then. Got a pencil?

SHE: Yes, but no paper.

ME: What a shame. Well, there's a Rudley's over in Columbus Circle, so why don't we go there and have some coffee, and maybe we'll find a paper napkin or something, and you can give me all the vital information.

SHE: Fine.





You see? By this time we were old friends already. We are even older friends today. But it never could have happened without the Bolex. As a matter of fact, if you've been reading analytically, you've recognized that she was more than willing to maintain a conversation with me, and for reasons you'll understand before the end of this article, the Bolex was directly responsible for this.

The analytical among you have also observed that the turning point in our encounter was my flattery of the girl. Flattery is a key point in all attempts at seduction. Not raucous, blatant, blaring flattery ("Boy are you a peach" or "crimminy, you turn me on,") but the gentle, subtle variety. There is also a type of reverse-flattery which is often very effective, and once again your Bolex can be the means through which you achieve your ends.

As an illustration I'll tell you about the Kitty episode. Kitty and I had been friends for several months, and her lovely face and figure made her a voyeur's delight. However, our relationship had never gone beyond the most Platonic level. My acquisition of a 10mm Switar for my Rex presented, I felt, an excellent opportunity to end this despicable situation.

I phoned Kitty and told her I would like her to pose for me. This in itself is flattering to a girl because it's an acknowledgement of her attractiveness and Kitty was quite willing. She arrived at my apartment early on a Saturday afternoon, and changed into her bikini. I had told her to bring as scant a costume as possible, because I was particularly interested in seeing how well the Switar would capture flesh tones.

Since she is a go-go dancer, Kitty was dancing around on my roof-patio, and I proceeded to apply what I call the double-entendre approach. I spent the first few moments of her dance with my eye at the viewfinder, occasionally sighing. Finally, I said, "Man, if Richard Burton could see what I see in this viewfinder, he'd leave home and spend the rest of his life right here."

"Why?" said Kitty smiling. She was smiling because she believed (and rightly so) that my reference was to the amazing sight before my lens. However, the double-entendre approach is designed to arouse mild confusion as well as mild annoyance.

"Well," I answered, "he's interested in directing, and he'd be impressed, I am sure, by the interesting distortion of perspective the wide-angle lens creates in the lines of the cornice, there. Psychologically stimulating, you see."

"I see," she said. If all was working well, Kitty was thinking behind her frown, that in all this time I'd never made a pass at her, and apparently I never would. Ho ho. "But my word!" I continued, "All that motion is stimulating!"

Since her bikini presented practically no restraint to her ample figure, she again assumed my meaning and





answered, "well, that's from being healthy."

"Healthy?" I said, "healthy? What's that got to do with it? I'm talking about the pigeons that just flew by behind you . . . oh, I get it. Healthy. Healthy pigeons can fly. Very good, ha ha."

"I'm beginning to think this is a bird-brained movie," she said. She superficially intended this as a pun, but again, you analytical readers realize as I did that it really expressed her growing exasperation.

As far as my ultimate intentions were concerned, the situation couldn't have been better. It was now time for me to strike. "Kitty," I asked, "how do you suppose it would be if I came on to you?"

Of course, she was now quite cynical, and so she applied a cinematic meaning to my question. "For a close-up?" she asked disinterestedly. "I guess it would also show interesting perspective."

"I didn't say come in on you, sweet-heart," I said with my best seductive grin, "I said come on to you. You didn't really think I meant perspective

or pigeons, did you?" She was so confused, by this point, that she stopped dancing altogether. This was exactly what I wanted to happen, since it's much easier to put your arms around a girl when she is standing still.

"You see," I said softly, approaching her, "this is the first time we've been alone together. The first time I've been able to really . . . talk to you . . . tell you the things I really wanted to. And now . . . I find myself . . . almost unable to say the things I want to . . . how can I tell you what I feel?"

Kitty's answer was a smile whose description would not be permitted in the mail, so we decided to stop making movies for a while. I should point out, however, that the 10mm Switar proved itself to have extremely high resolving power, and even at full aperture it maintains edge-to-edge sharpness. As for color rendition, it is superb—it captured Kitty's flesh tones beautifully.

One aspect that I've hinted at, but not explored, is a very grave and sobering fact: Mere possession of a Bolex does not necessarily guarantee success, any more than it guarantees you fame and glory as a moviemaker.

In both instances, the Bolex is only the medium through which you express your ideas—cinematic or otherwise. So, if you're the type who has had difficulty in approaching a girl, I'm afraid you'll find no great reversal simply by owning a Bolex. I wish I could give more encouragement than this, but I feel a greater responsibility to be realistic and not to mislead. To those of you who stammer, become nervous and blank-minded when the time comes to make your pitch, I suggest you learn to dance, and take Charles Atlas courses, and read a book of Freudian Psychology; you will then be fun at parties, have self-confidence from your physique, and be able to say things of Great Insight ("My dear, are you conscious of your Libidinal fixations?" is a wonderful opener).

Nor should you depend on the Bolex to provide you with an infallible "line." In fact, you should not depend on a line at all. The so-called infallible line is another myth—used by pseudo-hippies in Grade B Hollywood flicks, and by real-life impotents who are afraid to talk spontaneously to a woman. I think the widespread acceptance of the line concept is caused by a general tendency to regard a girl as a thing rather than a person, especially when she is the object of pursuit. Nothing could be more lethal to your goal. Always remember that women are as unique and as equally individual as you are (you are, aren't you?). And you must treat them as such.

In the first few moments of your encounter, be alert and observant. Watch out for the little characteristics and traits, the revealing little phrases and gestures that give you clues to the girl's identity, and act accordingly. You must aim for the common emotional ground you share with her. If, for example, she seems a sensitive individual you must indicate to her that you are too, and that you use your Bolex to express the things you feel. If she seems egotistic, make associations between your Bolex, the glamour and ego-gratification of movies, and her. If she has a sense of humor, tell her jokes about moviemaking, or relate the amusing incidents you've experienced with your Bolex. If she is serious-minded, then discuss moviemaking in terms of its potential for Social Statements, Artistic Processes, or whatever. In other words, present yourself through your Bolex in the terms she finds most palatable. Only by acknowledging her unique identity can you achieve success. And only by the same means can you fully appreciate and enjoy that which you've achieved.

The reverse is equally true, and immensely relevant to the idea of using the Bolex as a means of seduction. Your very possession of one reveals things about you, you see. First of all, it indicates that you are interested in making movies. Consider the implications of this: You are receptive to sight and you are creative. Also, you are master of things (the Bolex looks like such a





complex, difficult machine—yet, you handle it with such ease and assurance). Furthermore, since the Bolex looks much more expensive than it is, it not only indicates that you are devoted to filmmaking (and devotion is so admirable a trait, isn't it?") it also implies that you've got money. So, you see, the girl who sees you with a Bolex has already been given some clues to your own identity, and she can more readily relate to you once you've approached her.

She will probably respond more readily, too. You see, our culture has reached a sort of moral limbo, standing halfway between yesterday and tomorrow. We have become frank and realistic enough to acknowledge the existence of sex. Yet we are overshadowed by three-hundred years of Puritanism, reinforced by Victorianism, which dictate, among other things, that girls are pure and innocent, and that sex is not. None of the girls I know really believe the latter, but they do feel as if they are expected to. So the girl of today is torn between both factions when you approach her. Which way she ultimately swings is up to you. If you cause her to regard you as lecherous or bestial, she will withdraw from you. If she regards you as cultured and sophisticated, she will be drawn toward you. The Bolex will make you seem more the latter.

So, as you see, the Bolex has potentials beyond those for which it has been advertised. Therefore, all you bachelor-types should carry your Bolexes more often. And all you married types (aren't you ashamed of yourself for reading this article behind your wife's back) can spend the rest of your days wondering why you met your wife before your Bolex. But don't feel too badly. You are probably raising sons for whom you want the best. Give them a Bolex—it will be just another advantage they have that you did not.

## Surinam Expedition

by B. G. Smith

Bolex equipment is as much at home in the jungle as anywhere. This was demonstrated by the experience of our group when we visited Surinam.

Surinam, once called Dutch Guiana, is on the northeast coast of South America. While a part of the Netherlands, it has its own parliament made up of representatives of the five different races who live harmoniously there. The most interesting are the Djukas, about 35,000 Bushnegroes who have lived in the depths of the jungles since escaping from plantation slavery over three hundred years ago.



When the ruling chief of one of the largest tribes died after a reign of 25 years, his successor was chosen through the female blood line as is done in much of Africa. Because of the importance of this tribe to the country, the prime minister of Surinam took a government party on a four-day trip to the native village of Drietabbetje to officially install the new chief, and receive his oath of allegiance to the government. Our party of Bolex photographers accompanied the movement over the awesome river course to the interior, and photographed the entire proceeding.

Conditions of humidity were extremely bad for both cameras and film. But with a lot of caution in transporting film, and the natural ruggedness of Bolex, no problems were encountered. Frequent portages around rapids and falls necessitated loading and unloading our boats often, but no effect on our equipment was seen.

Most footage was shot on a new daylight film with an ASA rating of 64, while night scenes were with our portable floods on ASA 125. The wide range of apertures available on the lenses was all important. Fixed lenses were Lytar, Pizar, Cinor and Switar, all performing beautifully. The fast Switar lenses were real "life savers" in capturing some of the best film ever made of night Voodoo Fire Dances on hot coals and broken glass.

Two cameras used 86EE automatic exposure zoom lenses for the entire time. They captured shots that would have been lost otherwise as some action moved into and out of dense jungle shade. The 86EE's never failed to compensate properly. In addition, since most of the scenes in native villages had to be taken quickly and sometimes surreptitiously, the ability to frame quickly with the zoom lens was a big help.

For ceremonies that were scheduled and fairly well confined to a specific area, Bolex tripods and unimotors were

used. However, because of the unpredictability of action on most of the trip, shooting "from the hip" was more common. Even with the 86EE's our Bolexes were comfortably and smoothly hand-held. The aluminum tripods performed admirably, though despite frequent swampings in the boats. They were even used as "walking sticks" in wading through rapids, etc.

By far, the most awesome part of our journey was the river travel. The native canoes were hollowed logs about thirty feet long and four feet wide, equipped with modern outboard motors. They were ideally suited for the rugged task and operated by Djuka boatmen, the world's best.

Even so, three boats were overturned and submerged with the loss of one life, (but not in our party). One of our boats did overturn with the loss of hundreds of dollars worth of personal effects but, fortunately, without the loss of photographic equipment. It would have been a different story except for the ruggedness of the Bolex case in which one of the Rex 4's with 86EE lens was kept. The case floated downriver for several hundred yards before being recovered. The camera was perfectly dry and, in fact, later took some of our most important footage. Enough water seeped into the case to damage only the lining, a small price to pay for so serious a problem.

Another anxious moment was when the other 86EE equipped Rex was inadvertently dropped from about five feet onto a rock. After straightening the lens shade, the camera was used for the remainder of the trip, no damage or misadjustment having occurred to the intricate exposure coupling mechanism.

In spite of the unusual story we saw and photographed, it may well be that the flawless performance of our equipment under the most adverse conditions, was the biggest story of all.



## Trip to Altiplano

by Lelslav A. Giermanski

When we left Cozco for Puno, I kept thinking of how my camera would survive the hard conditions of the Altiplano, but soon I found my fears taking a back seat to my imaginings of what lay ahead.

The views were so beautiful that for our entire trip I did nothing else but take pictures and change films. The air was very clear and sometimes we could feel that it was also much thinner than at sea level, but we must remember that the altitude is higher than 12,000 feet.

On both sides of the road, which inclined slightly upwards, naked mountains were capped with gleaming white snow. The brown color of the mountains and the white snow atop them against the blue sky was most rare. The panorama was breathtaking, and in that crystal-like brightness I kept my fingers crossed and hoped that the pictures I took would capture the

beauty exactly as it was.

At La Raya Abra the mountains meet forming a kind of majestic frame around the flat plateau—*altiplano*—which spreads out for miles. One cannot help but think that La Raya Abra resembles a gigantic gate.

Now for miles and miles all we see is this flat, brown-earthed terrain. From time to time an adobe appears, the same color as the earth from which it is made. The fence surrounding the adobe is also made from the same earth. There are no trees. The grass is dried and burnt so by the sun, that at the first attempt to bend it, it snaps like a dry twig.

It is difficult to understand that with this dried grass for food, large herds of llamas, sheep and donkeys can survive. Herds of these now begin to spot the terrain. All these animals have very dense, downey long fur. Even the dogs have it. Sometimes they can be mistaken for sheep.

One form of amusement the dogs participate in is to run barking alongside the train. It has its ultimate reward in the form of food which is thrown to them from the train by the passengers.

The day and the trip comes to an end. Soon after the sun sets, the dark night begins. The train makes yet another of its many turns, and suddenly we are taken aback by an in-

credible sight. In the inky blackness of the night, the horizon displays two enormous moons. One, of course, is real and the other is its reflection in the calm waters of Lake Titicaca, which acts as an endless mirror. In a few minutes the train stops at the last station of the trip. This is Puno.

The next morning we visited the floating islands of the Uros. The Uros' ancestors of a few hundred years earlier had escaped from the mainland to the lake in fear of the coming Spaniards. On the surface of the lake the Uros have built islands from the Tortora reed that grows abundantly along the shores of the mainland. The reeds are cut and brought to the place where the island is built. The first layer is placed on the water surface and then on layer upon layer of Tortora the Uros compose the base of their floating island.

On top of the layered base, they build their homes, also from Tortora. The boats which they use to travel on the lake are also made from Tortora. After a while you have the feeling that the only thing on the island that is not made from Tortora are the Uros.

The trip to the first island (there are many islands on the lake) takes about an hour by speedboat from Puno. As we approached the island we got the impression that the island is uninhabited. All was silent and there were no signs of life on it. But our guide, a





## Report from Bogota

by Charles Marden Fitch



fourteen year old Indian boy, assured us that this was only an impression. The Uros were hiding and watching us carefully looking for the first signs of the gifts we had brought them. Their favorite gifts are small breads (*panecitos*) and candies (*dulces*). We were very well equipped for we had two large plastic bags filled with both.

Our boat reached the "shore" of the island. In disembarking, the jump from the boat to the "shore" ends by having at least one leg up to the knee in the icy waters of the lake. The Tortora at the "shore" is not as compact as on the rest of the island. The island still looked empty, but the moment we raised the bags over our heads the wonder began.

It was as if the Uros came from under the island. Mostly very small children. In a very short time there was a large crowd of them. The stampede for the gifts was breathtaking. They jostled one another. Their hands were like lightning taking and quickly hiding the gift they received under their garments in order to appear empty once again for another *panecito* or *dulce*. The older children would reach up for the gifts, but the younger ones had their own strategy. They would crawl inbetween the legs of the others; once locating the legs of the gift bearer, they would commence to pinch them in order to be recognized and given their gift.

The children were magnificent, and like all children eager and playful at the sight of a gift. They are afraid of cameras and cover their faces when they, as if by instinct, feel the camera is on them. They believe that when their picture is taken their soul is also taken away. But they also know how to do

business; for an extra *panecito* they let you take their picture and their soul.

At our departure they followed us to our boat. By this time the gifts had all been distributed, but it was hard to convince them of this. As confirmation of it, we gave them the empty plastic bags.

As our boat left the island heading back to the mainland, it was a marvelous sight watching them jump into their boats to follow us for as long as they dared. Soon the distance between us became greater, and after a while it looked as if they had disappeared in the haze.

During the next few days we visited the villages of Juli, Pomata and Juliaca. We also visited the Chulpas, the pre-Inca burial grounds. Wherever we traveled the vistas were magnificent.

All over this part of the country with its prevailing desert conditions, the earth is powder dry and there is very little one can do to protect the cameras. The dust seeps into everything. Also very unpleasant are the jumps in the temperature. During the day we had to protect ourselves from the strong sun. But as soon as the sun sets, the cold winter winds chilled us to our very bones. At times, it was so cold that any water thrown on the streets would soon freeze over.

We returned home quite anxious to see how the difficult conditions of that magnificent land had been borne by Bolex. But the moment I projected the first film on the screen our fears were erased and once again we found ourselves in the land of the Incas. The Bolex had passed the test with a grade of Excellent.

Charles Marden Fitch, naturalist, writer and television director-producer now working with the United States Peace Corps in its first educational television project reports that the Bolex Rex-2 is giving exceptional results in all areas of the rugged Colombian terrain; from chilly Andean cloud forests to hot, steamy Amazonian jungles.

Fitch, who received his Master of Arts degree from the Communications Department of New York University in 1962 joined the Peace Corps in June of 1963 after several years of television work in the states. He used his Bolex Rex-2 to film waterfowl and other native wildlife for a series of programs he presented on WNBT-13 TV before going to Colombia, South America with the Peace Corps ETV project. Naturally he brought his Bolex with him to Colombia to help him create films for Colombian educational television.

"The Rex-2 I use is equipped with the Vario-Switar zoom lens with a ratio of 18mm to 86mm. The automatic diaphragm or iris is very useful when I've got to film subjects in bright sunlight such as the Fiesta Brava or a cattle drive on the vast llanos. When working in tight quarters I often use the 10mm Switar f 1.6. This same wide angle lens is also useful when filming sports events for educational television since I can stand in the middle of a soccer field or plaza and follow action on all sides with ease," explains Fitch of Bolex performance.

Films created with the Bolex Rex-2 by Charles Marden Fitch are used in educational television programs broadcast by Radiotelevisora Nacional, the government television station in Colombia. During the first year of this ETV project in which the Peace Corps volunteers are working, over 50,000 school children received the benefits of educational broadcasts. Fitch is a director-producer of natural science





programs and also a member of the special cine unit so the Rex-2 he brought with him is an especially useful instrument for bringing to television the excitement and splendor of Colombian natural history.

Fitch reports: "While we were filming in Leticia, a small town on the Amazon river, I was using my Bolex Rex-2 and my partner was using another make of 16mm motion picture camera. We were not able to get tropical pack film for this job so the film we had in the cameras swelled slightly due to the extreme humidity and heat. All during the trip my camera ran smoothly, producing excellent results, as did another Bolex-Rex that a third cameraman was using. The other make 16mm camera that my partner used constantly jammed and caused us to lose valuable shots because it didn't have the all important spring-riding pressure plate. Being able to wind back portions of exposed film is another useful feature of the Bolex and, of course, the optical quality of the Vario-Switar zoom lens is impossible to beat."

After his service in the Peace Corps as a director-producer of natural science programs with Colombian national educational television, Fitch plans to return to the states where he will continue to work in educational fields using his Bolex Rex-2 to create revealing films of nature's world.

## *Behind the "Iron Curtain" with my Bolex*

by W. Eris Houchin

A mutual interest in photography led me into an extended correspondence with Karel Krahulec, a resident of Prague, Czechoslovakia and an invitation to visit him. He would take his vacation at that time and assist in the filming of a travelogue.

Checking airline schedules, I found that Pan Am has two flights a week to Prague via Glasgow, Scotland. With my Bolex H-16 Rex, 3000 feet of Kodachrome N and a Sony TC 800 portable tape recorder, I caught flight 77 out of New York, Monday, August 7, at 2100 hours, arriving Prague Tuesday morning at 11:20 hours—from then on I became used to the European method of telling time. Met at the airport by the Krahulecs, my passport and visa were stamped and on claiming my bags I was not even required to open them for inspection. My equipment was noted on visa, however, a Bolex with the exposure meter mounted on it and a Gossen color temperature meter, all of which worked to perfection the entire trip.

At the beginning of our tour of the city, we utilized the trams for trans-



portation but this involved a great deal of walking and I insisted on a taxicab which are inexpensive and also have cooperative drivers. With Karel assisting in the setting up of the equipment, light and color readings, we were able to complete our filming of the city in five days. From the hills around Prague, some spectacular pan shots can be made and down on the street level, the people, trams, churches, etc., are equally interesting photographically.

A good place to start in Prague would be the castle, of course, St. Vitus cathedral, St. George chapel within the complex and certainly the gardens. Schwarzenberg Palace, too, where the Musketeers give a realistic demonstration of swordplay. But I was forbidden to film the action—it seems some American made "big money" selling a film to television! From Belvedere Palace with its "singing fountain", which we recorded, we continued on to old Jewish cemetery and the oldest Jewish Synagogue in Europe, Charles Bridge, Loreto Church and bells (also recorded), Vaclavske Square, Vrtba, Ledeburg and Pa'lfz gardens, Strahov Library and the new municipal swimming pool.

Other points of interest in Prague which should not be missed: Kreuzherren church and square, Little

square, Apostles clock (recorded), Church of Peter and National Cemetery alongside, 139 Bertramka, Mozart's home in Prague where he composed Don Giovanni and his piano. High on a hill there is the Vitkov statue and down in Lower Town, the Maltezeke square. An afterthought: don't miss the performance at "Laterna Magica", a fantastic show of multiple screen movies and live action; a hit at Expo '67 in Montreal.

Leaving Prague on Monday in a Skoda car, owned and driven by an uncle of Karel's (I might add that this is the ideal way to see a foreign country; assistant photographer, interpreter, driver and porter!) our first stop was at the memorial in Lidice, then to Lany, the burial place of the Masaryks. And from there to Karlovy Vary (Carlsbad), the largest and most beautiful of spas in Czechoslovakia, where the blue mountain light required a 3-red filter.

Through the countryside, skirting the lovely old town of Stribrov, we arrived in Plzen, home of the Skoda works and the world famous Prazdroj brewery, the square and St. Bartholomew church built in the 14th century. Loket castle and Cheb, its town square lined with buildings in Gothic, Romanesque and Baroque architecture, was a



pleasant side trip prior to our arrival in Plzn. A short stop at the moated castle of Svihov and then to Klatovy, its Archdeaconal church, White and Black towers, Jesuit church in Baroque style and the gloomy catacombs underneath.

Blatna and Orlik castles were photographed and to Zvikov for the night at a new hotel, where the tap water was non-potable and smelled so! Pisek, named for the gold bearing sound found there, provided us with the opportunity of viewing the oldest bridge in Czechoslovakia (10th century) lined with statuary from the 17th century and the late Baroque Town Hall. Past Vodnany to Hluboka castle, a museum of porcelain, paintings, furniture and armory.

Ceske Budejovice boasts the largest town square in the country and the Samson fountain and Black tower merits a visit: so does Cesky Krumlov, situated on a double bend of the Vltava river; the city dates from the 13th century and the tower of its castle impressively dominates the skyline. Through Trebon to Jindrichuv Hradec where it is worth seeing its Gothic church, Jesuit college, statue of the Virgin Mary and the town square. Telc rates a stop as well as Trebic and Namest nad Oslavou before arriving in

Brno.

Our main interests in Brno was Spilberk castle, a fortress-like edifice from the 13th century and the fact that our hotel accommodations, two rooms with bath and breakfast, came to the ridiculously high price of \$10.00 in the opinion of Karel and his uncle! Outside of Brno at Slavkov is the Napoleonic Battlefield Peace Memorial (Austerlitz).

Olomouc's Flower Festival, changing varieties of blooming specimens for each of the four seasons, afforded us a spectacular view of outdoor and indoor flora. Inside the "greenhouse" the light was poor, but mounting my Bolex on a tripod and filming at the rate of 12 frames, I was able to get a good exposure in this beautiful setting.

Viewing the many towered Bouzov castle from the highway, we spent the night in Zamberk. Then on to Opocno castle with peacocks strolling in the courtyard and the storks flapping atop the chimneys, and to Nove Mesto Metuji, a fine example of Renaissance architecture around its rectangular town square.

At Nachod is one of the most unusual churches in the country, the lower section in white stucco with black wooden cupolas, giving it a contrasty appearance. At Kuks castle,

the statuary represents religion, the beatitudes, the virtues and vices, as well as many other subjects and was the lifetime work of Matthias Braun. The castle itself is a monument of Baroque art and is now a hospital and rest home for the aged.

Jicin is a manufacturing center, but its greatest days were from the middle ages to the beginning of modern times. In the conference room of Valdstejn castle, in 1813, the Holy Alliance was signed. Via Humprecht chateau and Kost castle, we were in Prague Saturday evening. Sunday, we headed south to Karlstejn castle, founded by Charles IV in 1348. The most exquisite decorations in this huge castle are in the chapel of the Holy Rood. The vault of the chapel is adorned with gold plates and the walls lined with semi-precious stones and 128 paintings depicting the armies of Christ.

The last stop of my tour of Czechoslovakia was at Erezin fortress just outside Litomerice, which the Germans converted into a concentration camp. Thousands died here and are buried outside the walls, while inside, it is just as the Germans left it: shower room, operating room, dining hall, bunkhouses, bunks, barbed wire and signs.

After a leisurely lunch at the airport,





I bade goodbye to my friend Karel and headed for customs, this time with my exposed film in my bags. Again they were not opened and no questions were asked. Flying to Glasgow, I spent two weeks in this ruggedly beautiful and free land—still unable to understand the language and encountering unpronounceable names of cities in Czechoslovakia such as Ceske Budejovice and in Scotland, Tighnabraich!

## *An Archer's Adventures in Africa*

by Bob Swinehart

No matter what type of traveling a person does, the trip generally isn't too meaningful without pictures from which to reminisce and show friends. In my case, good pictures are a must—I write and lecture professionally about my bow 'n arrow safaris in Africa.

Since I have successfully bowhunted dangerous game like Africa's Big Five—Cape buffalo, lion, leopard, rhino, and elephant—obviously my archery tackle is quite important to me. But almost equally important is the type of camera equipment to record these experiences, and the fascinating sights of native life, animal life, and spectacu-

lar Mother Nature.

In the beginning years of my archery expeditions, as my former hobby "got out of hand," I mainly used still cameras, leaving the movie end of things to companions or the guide. Often these people with movie cameras were not, regrettably, where the "action" was. Although I was fortunate in obtaining some exceptional still shots—because these cameras were always with me—it soon became apparent something was missing from the adventure without a complete moving picture record. And besides, I liked using a movie camera almost as much as shooting a bow.

When I made the decision to purchase my first movie camera, it was after months of research—recalling what some of my outdoor colleagues use, what a couple of professional cameramen used behind me in Africa on occasion, what "camera-bugs" had to say and reading the photography magazines. After gathering all the facts, I unhesitatingly decided on a Bolex. But which Bolex? What lens?

The final decision was made after contacting the Bolex factory in New Jersey. Mr. Braun, Vice-President Advertising and Sales Promotion, promptly replied to my request with much literature, plus some personal suggestions after having analyzed my specific needs. The result was an order for the Bolex H-16 Rex-5 with Vario Switar 86 EE zoom lens (fully electric exposure control).

The type of hunting I do in all sorts of weather and terrain subjects the

camera mechanism to the ultimate test for dependability. I range from the thin cold air of high altitudes to the dry dust filled atmosphere of desert country—climbing among rim rock ledges; wading papyrus swamps; loading film in rain and snow with wet and muddy hands. It hurts to hear the dirt grind away in the moving parts of the camera! Unable to alleviate the problem at hand, I could only hope the camera would keep functioning. Pictures were most important.

During my treks afield things often happen so fast there is scarcely a chance to get the camera to the eye to say nothing of taking the time for a light reading. A charging cantankerous three-ton rhinoceros waits for no one. The electric eye with the zoom lens is obviously a tremendous asset. With the distance pre-set to a depth-of-field to cover most situations, my cameraman or I rarely miss a scene. Seldom is there an opportunity to work from the ultra-steadiness of a tripod, yet the finished film is always acceptable.

I find that 100 foot reels are the most practical for outdoor photography. At 24 frames a second, that's a run of 28 seconds, before rewinding spring motor. That is more than ample for almost all wildlife scenes. The larger reels with accompanying motor, batteries and such, add too much weight and bulk when hiking long hours on foot, and are difficult to steady when hand-held.

Africa is a photographer's paradise . . . the huge elephant that crosses in front of your vehicle; the gaping mouth of a hippo swimming in the river; a baby zebra; or pretty Masai girls walking from a village with the fashionable half chest exposure, as a warrior looks from a distance leaning on his spear. But aside from filming animal and native life on bowhunting safaris, I also like to make like any tourist to and from a hunt—capturing the culture of the civilized world in Europe, the Far East, Mexico, Canada, and our own country. Some of the states such as Pennsylvania and Colorado are abundant in wildlife and beautiful landscapes, offering much to any camera lens. For all of this—the serious hunt or casual city sight-seeing—the same Bolex (the H-16 Rex-5) is my choice. If I should later decide to film sports events or location moviemaking, my model Bolex can adapt to the 400 foot reels. A nice feature.

Still photography has its place on any trip along with movies, particularly for the outdoors writer. For articles it is simpler and cheaper to mainly use slide transparencies or black and white negatives rather than cut-up movie reels, especially for posed shots or special photographs—particularly of action—then go to the movie film. For lectures, both slides and movies can be used to equal advantage, but some subjects can only be done justice by a moving film. And for TV, the latter is a must.

It may seem obvious to some of you to take spare cameras on a trip, but it







amazes me how many people take only one. Should an accident occur, or a malfunction from unfavorable elements—thus endeth the filming. A needless shame. I take a minimum of two of everything as follows: two 16mm movie; two 35mm for color slides; and two roll type for black and white  $2\frac{1}{4} \times 2\frac{1}{4}$  negatives. When traveling to isolated places or on lengthy expeditions, rough on cameras, I suggest three movie cameras. For instance, if a pack horse smashes one against the wall of a canyon or it is dunked in a swamp, it isn't likely to work again until it is overhauled by the factory—assuming enough is salvagable to send to the factory.

Over an extended period of time in high, dusty regions, such as sandy SE Angola, the dirt will usually cause one or more cameras to become inoperative. Or going from Africa to Colorado, take the case of my recent hunt for mountain lion at high elevation, climbing the slippery south slopes of half mud, half snow, with a wet snow falling. I was soaking wet and muddy all over thru to the skin, as was my Bolex. The beating my camera was taking was enough to make a man cry. The guide, Jim Peters, exclaimed, "My God, is it still taking pictures?" It apparently was, though it sounded more like it was mixing cement. Every change of reels let in more mud. Frankly, I was not very optimistic as to what the results might be. The light was bad and subjects contrasted sharply from sky silhouetted cat to hunters in shadowed rock canyons.

No one was more pleasantly surprised than this archer when the films from this hunt were viewed. At the risk of sounding like a braggart, they were just perfect! The huge mountain lion looms clearly with good color atop a 30 foot pinon tree. From a ledge approximately 25 yards away, level with the cattle-killing cat, the camera recorded my shot. The arrow 'knocked' him from the tree. Although appar-

ently mortally wounded, the lion raced down the steep slope. At over a 100 yards I let fly with another arrow from my 65 pound bamboo bow, which miraculously struck the animal—causing it to falter and fall dead within the next few strides. Luckily, all of this got on film.

So the next time you see an archer with back pack (full of film and still cameras), a quiver full of arrows over one shoulder, a pair of binoculars hanging from the neck, a longbow in right hand, and a "beat-up looking" Bolex hanging from the other shoulder, leaving the left hand free to munch pretzels, and hang onto trees, vehicles, and such, stop and say hello—that's me.

## *Bolex Safari in Rhodesia*

by Carole and Robin Harvey

Rhodesia, recently described as being a "Tourist Paradise," is situated between the Zambezi and Kimpopo rivers in Central Africa and bordered by Zambia, Mozambique, Botswana and Republic of South Africa.

In this land there are to be found the animals of God's Kingdom, unmolested by man, in fact, preserved by him in many Reserves. It is two of these Reserves that we will be visiting.

Towards the end of last year my wife and I visited the Wankie National Park and the Victoria Falls National Park, both lying in the west of the country. We left our home and headed for Bulawayo, the second largest city in Rhodesia. Here we checked all our equipment. We took with us two Bolex H-16 reflexes, and an assortment of

lenses which included 10mm Switar, 25mm and three telephoto, a Bolex tripod, Brockway exposure meter and several hundred feet of Kodachrome-II.

After a hasty lunch we departed from the city towards our destination, Wankie. By late afternoon we had arrived at the turnoff. All the motoring was on full tar. A few more miles and we arrived at the entrance to the park, Main Camp, where we registered. This park covers an area of over 5,000 square miles and was first set aside as a park in 1928. It has over 250 miles of gravel and dirt viewing roads. Accommodation is spread out between three camps. Available for 120 persons, it varies from luxury cottages to one or two bedroomed rest huts. All facilities are close at hand. It was decided that we would stay here the night and set off at dawn the following day.

As the sun rose over the tops of the trees we departed on the main game road. The air was filled with the singing of the birds as they acknowledged the coming of another day. The sky was clear as crystal and the sun glinted off the autumn leaves shedding so many different hues of color any artist would have been envious.

Our Bolex was loaded with film and the lens set out in readiness for any event. I drove the car with caution and as each bend approached I took a careful look so as not to disturb some animal. After a few miles we came upon the first of many pans. This one was the Nyamandhlovu Pan. Water is available throughout the year to quench the thirst of all who come.

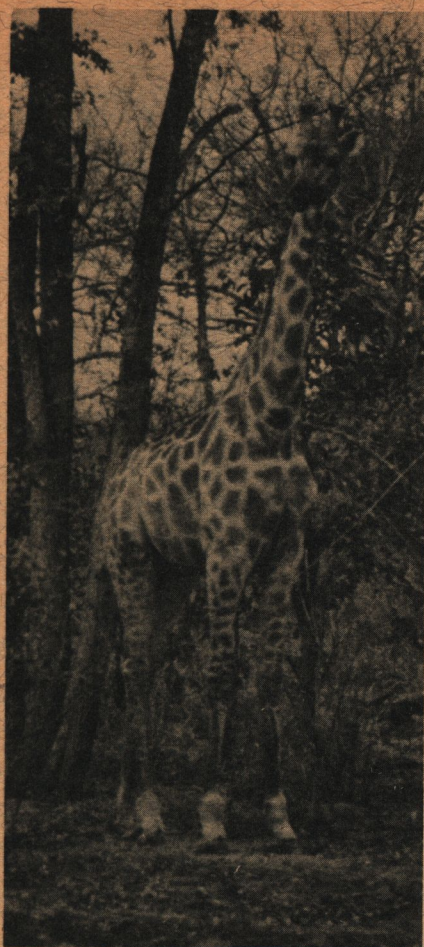
On the far side of the pan we observed two elephants enjoying a morning frolic. Both were in the water and kept sucking up the liquid in their trunks and squirting it on each other's backs. The tripod was erected and the 150mm lens set into place. An exposure of f/11 was read and the sequence filmed. The pair seemed oblivious that we were present. It looked as though they were in love for every now and then they would entwine their trunks and then grunt. This park is famous for the size and condition as well as the number of elephants that may be observed drinking at one time. There are approximately 4,000 elephants in this park.

We moved on, halting every now and then, not necessarily to film but just to sit and watch some aspect of animal life. Both of us are animal lovers.

Some of the water holes in this Park bear exotic names like Guvalala Pan, Shumba Picnic Site, Mandava Dam, Deteema Dam and Chingahobi Dam. The park caters to all forms of life including elephant, lion, leopard, buffalo, roan antelope, sable, kudu, giraffe, zebra, gamsbok, eland, waterbuck, tsessebe, warthog, steenbok, reedbuck, impala and ostrich.

I have found by experience in this country that the best time to photograph game is when the sun is either still on the rise or decline, that is up to 10:30 in the morning and after 3:00 in the afternoon. I think this is because





between these times it is liable to be hot and the game will keep in the deeper shade of trees and not venture out until it gets cooler. Photographically, it is a disadvantage to have the sun high because the subject is liable to be flat.

As we traveled on, my wife said, "Look at that giraffe looking at us from the tops of the nearby bushes." It was a young animal eating the tops of the new leaves. I managed to shoot a few feet of film before it decided that we had seen enough and turned and walked away. A word of caution—they are timid animals and frighten easily. Slow movements and no talking are the keys to success.

We stayed at the Wankie National Park for four days, enjoying the friendly atmosphere and joining in the past days' thoughts over an open fire while we broiled some steak for supper. Visitors come from many countries to see the game and its surroundings and we enjoyed their company.

On the morning of the fifth day we bade farewell and drove off north to the Victoria Falls National Park. I have seen the falls a dozen times before and yet each time I recall the words of the discoverer, David Livingstone, "Scenes so lovely must have been gazed upon by angels in their flight." The camp is within hearing of the mighty falls as they drop three hundred feet and roar throughout the year. From the falls arises a spray which can

be seen for miles around. The local population have given it a name which when translated means "The Smoke that Thunders." The river which runs over these great falls is called the Zambezi River, and from the falls continues on its way into the great Kariba Dam.

We soon set off again to follow the game viewing road which runs along the river above the falls. The waters here are tranquil and seem to enjoy bathing under the rays of the Central African Sun. On the other side of the vehicle the jungle reaches down to the edge of the water where every now and then an open space is formed. It is here that game is likely to be seen.

We traveled for an hour or more and by this time the sun was on a steep decline so we started to make our way to camp. Suddenly out of the tall grass at the side of the road a herd of elephants started to cross about fifty yards in front. They were led by a huge bull whose tusks must have weighed at least sixty pounds apiece. He was followed by the female and a youngster. My wife who always has the Bolex ready was able to obtain the sequence thanks to the design of this fine instrument enabling her to handle it with ease. I thought that they all had passed when all of a sudden there was a crashing of branches and trumpeting as another old bull made his way directly towards the car. His ears were wide and trunk held high which indicates that he does not mean business, only to try and frighten. To us this is known as the feign charged. Within twenty yards of the vehicle he wheeled off into the grass to rejoin his companions.

The falls and its surroundings gives the photographer endless opportunities for his cameras. I used the standard lens and wide-angle on the actual falls with an occasional use of the telephoto to bring up any particular subject like birds and insects. Those who are prepared to wait a little

can often be rewarded with marvelous sights of rainbows in the spray. They look as though they rise from the very depths of the gorge. A word of caution: be careful of the spray in the valuable lens of yours. A light raincoat in the immediate vicinity of the falls is useful if the wind is blowing the spray in your direction.

The next morning, feeling refreshed from an excellent sleep, we drove off up the river on the Chamabonda Drive which passes through the glades of the Fan Trees or *Hypaene Ventricosa*. On the way, impala were seen coming from the water's edge.

This park, as far as I am concerned, has some of the finest sable in Africa. Herds from 100 to 160 may be seen at one time. Although his antlers are elegant they can be a fearful weapon and used with terrible results on an attacker. Many a lion has learned a painful lesson on their points.

As we continued on, suddenly the close-knit bush opened out onto a plain and there all at once we saw that a dream was about to be unfolded—lions making a kill. The light was excellent so 24 frames per second and an aperture of  $f/8$  were chosen and the camera was set up on the Bolex tripod and the telephoto lens quickly set into place. Ready now, we watched and waited.

The meal was to be a wildebeest. The lionesses had by this time encircled the animal in a wide circle. The wildebeest made a charge at one of the lions but when it failed to give ground the animal retreated back to its position. Another lioness made a charge but this was deflected by the wildebeest. Suddenly as if timed to a stopwatch a third lioness made a sprint and jumped onto the animal's back. A fourth went at its neck and with a violent twist and pull the animal died of a broken neck. Soon all the lions of prey were eating their well-earned meal.

The kill sounds cruel but the doomed animal felt little. The laws of nature must remain if a balance is to be main-





tained. This method of survival has been going on since life commenced and must continue.

As was expected, even under the excitement and speed of work, the pan head of the tripod made panning a pleasure and the reflex viewing allows consistently high results.

This incident was a grand climax to our short trip during which we covered twelve hundred miles. Apart from the Bolex our only other camera was a 35mm still.

Once you have seen the animals in their natural habitat the call to return to the wilds will repeat in your thoughts. For our part, we hope to return soon.

## Wildlife

by Roman R. Pawlowski

Wildlife photography is not only a fascinating activity in itself, but places exacting demands on the photographer, testing his knowledge of wildlife, his skill and, his equipment. Still photography specialists' work is easier and less costly. Two 35mm cameras and three to four lenses are about all the photographer need carry on his person. But when it comes to cinematography under conditions where the photographer must work on his own, a million problems always seem to arise. How the first wildlife movies were produced with huge 35mm box-like cameras operated by rhythmically cranking a large handle, I shall never know. It makes me feel like taking my hat off at the mere mention of the names of devoted men who pioneered this industry.

How different it is today! Working in rivers, the cinematographer can hold the outboard tiller with one hand, the Bolex in the other and shoot. He can cling with his legs to a tree, hold himself with his left hand, hold the camera with his right and shoot into a bird's nest or whatever it may be.

Admittedly, this can be done only with the Bolex Reflex and I have often wondered whether it was not designed by a wildlife photographer. It certainly could have been. The Bolex will balance perfectly in the right hand allowing the forefinger to fit snugly against the release knob. For camera steadiness, this method is superior to the use of pistol grip when only one handed operation is possible. A neck strap, however, is essential.

One danger to which newcomers to wildlife photography expose themselves is the overabundant use of gadgetry. They have their uses, to be sure, but when the going is rough in the outdoors, accessories should be reduced to

the minimum if they cannot possibly be left behind. Burdensome attachments can be put to excellent use when a photographer has the time to use them. Speed of operation is often everything and it is in such situations that the Bolex Reflex, in its basic form, is at its best.

A prerequisite to successful wildlife photography is good huntsmanship, natural in most men, full appreciation of the requirements of his markets and, of course, photographic skill. These qualifications are rather pleasantly acquired.

Usually those who have mastered photo-composition in miniature format still photography which does not favor cropping, find cinematography present-

ing no new problems. In his recent address before the Institute of Australian Photographers, Paul Trenoweth, a leading fashion photographer, summed this up when he said: "... we started with a Bolex in one hand, and a Kodak 'How to Make Movies' booklet in the other ... and found it dead easy."

One valuable exercise during training in cinematography is the exposure of single frames. There are about 4000 frames to each 100 ft. roll of film. They are then projected either in a movie projector with single frame operation, or in a miniature format slide projector using the right size cardboard mount. Few beginners and freelancers have the means to invest in an analytical film projector and this method will provide him with the same service. Single frame exposure experiments give the new cinematographer the added advantage of becoming familiar with his Bolex with which he will eventually settle down to serious work.

Without question, the Bolex has done to 16mm cinematography what the Leica did to 35mm still photography—it made it. Not that one should be ungrateful to Messrs. Arnold and Richter for their camera. But when portability and economy are essential without the sacrifice of quality, the Bolex Reflex is without peer. Particularly so in news reportage and wildlife work.

In many cases the Bolex Reflex has become a professional status symbol. During a production discussion concerning marine life in the Gulf of Carpentaria, New Zealand born Miss Elizabeth Pope, one of the world's leading marine biologists, asked me what cameras I proposed to use. I admitted that I decided the Bolex Reflex are the only ones suitable for that sort of neckbreaking work among rocks. Miss Pope's charmingly grey haired head nodded in approval. I was accepted.





## Three Trips to Antarctica

by Bjorn G. Bolstad

"The worst place on earth" is just one description of this world's last frontier—the 7th continent—given by explorers who risked their lives to go there. However, I have made three trips and every one has been quite pleasant. I might add a few more descriptions of my own and some statistics of this fabulous place. Antarctica is the most beautiful, the coldest, the driest, the most treacherous, the most fascinating place on earth, but I'd go back there again and again.

In November of 1964 I flew there as a guest of the National Science Foundation and the United States Navy to photograph and publicize Operation Deep Freeze. We boarded the C-135 in Washington, D. C., and flew non-stop to Honolulu—11 hours. From there to Christchurch, New Zealand, Deep Freeze Headquarters. While there we were briefed on the dangers of flying down "to the ice" and what to do in case we crash landed in the icy waters or on the ice itself. One never knows when the dreaded "white-out" will occur which confuses a pilot in the sky as well as a man walking from one building to another on the base. A "white-out" is a strong snowy blizzard with perhaps 80 miles per hour wind which plays tricks on your mind and eye. Men have lost their directions and have frozen to death not far from safety in such a storm.

In those days I used a Hasselblad and an 8mm Bolex. My Bolex had been winterized to withstand the severe

cold on the ice plateau. On the edge of the continent during the summer season, as at McMurdo, the temperature is much higher so that practically any camera would perform well without fear of freezing up. It is so warm the ice melts in the bay and the ground is exposed after the winter snows have melted.

We were briefed on how to take pictures "on the ice" in the blinding surroundings. When told to "believe our lightmeters" it put a doubt in my mind. I have done a lot of snow photography both in black and white and color. My experience is that when one "reads" a snow scene, generally, it is wise to use at least one stop over-exposure. My experience paid off. I came back with good pictures, with detail in the snow. Still, I have given some of them about 2 - 3 stops more exposure than the meter read. For my Bolex 8mm I had to use a 2x N.D. filter shooting at 16 frames, f/22, and I was pleased with the results. Yet, after I had taken the pictures and all the while on the flight back to the states, I must admit I was quite anxious not really knowing how they came out.

One day all the photographers were called together. We were asked to draw lots to find out who would go on a special flight to the Russian Base, Vostok. I won. I hurried to pack all my cameras. In my case I had two cameras wrapped in plastic bags. These were to be used indoors. For some strange scientific reason, cameras thusly wrapped will not fog up indoors although their temperature is still very cold.

The flight to the Russian base was smooth. I spent much of those three hours in the cockpit looking for picture angles. The sun shone brilliantly. One could imagine himself in another world—vast areas of ice, snow, crevasses. Finally we saw a few dark spots near the horizon, this was Vostok.



Soon we could see a wide stripe in the terrain of different texture running diagonally to our course. This was the landing strip. The giant ski-equipped Hercules set herself down easily and came to a halt. I was warned not to walk fast or become exhausted because people have passed out in these altitudes. The base is over 14,000 feet in elevation and the air is thin and dry with absolutely no humidity. The door opened and I felt a most beautiful sensation from the ice cold air—minus 45° F. Inside the plane was cold anyway so it was no shock to step out onto this far away frozen outpost. I took a few pictures and then walked to the mess hall some 200 yards away. It taxed my lungs and soon I felt very tired. One of my "outdoor" still cameras froze up just outside the door.

The Russian scientists welcomed us as if we were old friends. On the table were caviars, cream cakes, salads, muffins, hot punch, vodka, strawberries and cigarettes which revealed their age after the first puff. I gave one fellow a half pack of my American brand. The food was at least five months to a couple of years old.

Before my week at McMurdo was up, I had a trip to the South Pole, Amundsen-Scott Base. We spent three hours here so I had the opportunity to photograph the geographical South Pole which was discovered by Roald Amundsen, a countryman of mine. When I was a young boy in Norway, I remember seeing him in a parade. At Byrd Station which is also under the ice, I photographed the construction, the buildings and passageways.

When I returned to McMurdo from Vostok I had the black and white films processed and from seeing the negatives, I knew that my colored slides and movies must be of the same good quality. I used Verichrome black and white with a K-2 filter which is equal in speed to Ektachrome-X.

In February of 1967 my wife and I were on a tourist trip to Antarctica, sponsored by Lindblad Travel, New York City, visiting the Antarctic Peninsula just south of South America.







With my Bolex H-16 Rex-4 and still cameras, I recorded my wife stepping on to the "frozen continent" as one of first eighty women ever to set foot there.

During the coldest temperature experienced (25°F.) my Bolex performed wonderfully. (In Norway, Christmas 1967, both my Bolexes purred like kittens at minus 4°F.)

Again in February of 1968 my wife and I set out on another trek to Antarctica, also sponsored by Lindblad Travel. This time, armed with two Bolex Rexes and a couple of still cameras, we flew from New Jersey to Honolulu to Fiji Island and to Auckland, New Zealand. At Rotorua, N.Z., we got some footage of Maori culture. Our trip included a flight over the New Zealand Alps. We landed near Mt. Cook, boarded a 4-seater plane and landed on the Tasman Glacier in bright sunlight. Soon we were in Bluff where we boarded the Danish Ice breaker, the M/S Magga Dan. At midnight we set out towards the Antarctic Ocean. This ship rocked and rolled so much that the next morning one of my still cameras fell out of the bag and slid back and forth across the floor while we were at breakfast. For the rest of the trip I only had to worry about one still camera, but it created extra work in that I had to change lenses on the remaining one.

We enjoy the snow and ice, that is why we travel to the Arctic. I don't mind mentioning here that whenever we walk around with our Bolexes and the still cameras, we invariably hear people say, "Why he's got two of each!"

On our way down to McMurdo, Antarctica, we stopped at a few of the sub-Antarctic islands where no women have ever set foot before. This was an historic trip; it was also the first tourist trip to McMurdo. Three years ago when I lectured and showed my pictures from Antarctica I told my wife that here was a place she would never get to. Yet, in some magazine articles I predicted that Antarctica would become a tourist attraction.

At these bases I carried all my cameras and films which were very heavy. For example, on Campbell Island we climbed a mountain in deep mud to photograph birdlife and other things. The climb up and down was one of the worst "photo-trips" we'd ever been on. On Macquarie Island we had to wade ashore as our lifeboat could not get close to shore because of seaweed and rocks. But it was well worth the effort and tiresome hike to photograph elephant seals, King and Rockhopper penguins, plus many birds. The scientists and other personnel were very friendly to us and quite hospitable.

I would not hesitate for a moment to recommend a Bolex for its reliable performance in temperatures as cold as we experienced in Antarctica, which was between Zero and 10° F. Not only will it withstand cold temperatures, mine have withstood traveling a distance equal to three times around the world in the last year.

## *Around the World in 80 Minutes*

by D. H. Crosse

Since 1955, Pan American World Airways has been using a unique system of Airport and Route Qualification for its pilots through the use of 16mm color movie film.

On the second floor of the Pan Am Training Building at the San Francisco Airport, a Captain or First Officer can qualify for approach and landings at any one of 130 airports throughout the world without leaving the building. There are similar facilities at New York and Miami. The qualifying is done by the use of wide screen, sound and color motion pictures of approaches and

landings at the many airports used by this international carrier.

A Bolex H-16 movie camera, with a Bolex anamorphic lens attached, is used for the filming with either Kodachrome II or Ektachrome Commercial film. The camera is mounted on a monopod which is attached to the roof and floor of the cockpit on the co-pilot's side within two inches of the windshield, pointed straight ahead down the runway. This monopod was designed and built by the Pan American maintenance engineering depart-



ment and replaces the conventional tripod. Being anchored to the aircraft makes it a much steadier mount, and it allows the co-pilot to have full and unobstructed use of the aircraft controls. This single rod mount can be quickly installed in all types of airplanes ranging from the tiny twin engine Cessna 310 to the giant Boeing 707 jet.

Another technical problem to overcome was devising a means of setting the "f" stop of the primary lens for the camera when mounted on the cockpit, since the Anamorphic lens mounted in front blanked out the diaphragm readings. This was solved by making an auxiliary pointer which indicated the "f" stops on a plexiglass quadrant marked so that the "f" stop numbers could be seen from the rear of the camera while sitting in the cockpit. This handy accessory is mounted by simply slipping it into the metal shoe on top of the camera. Every airport is filmed, edited and narrated for sound, using magnetic tape so that the running commentary can be changed and updated to conform with the most current data pertaining to that particular airport.

Two versatile 16mm projectors with Anamorphic lenses similar to the one on the camera are used alternately in the projection room. This allows one film to be reloaded while the other projector is running, thus speeding up the qualification program. These project a picture 16 feet wide and 7 feet



high, in a theatre room only 35 feet long!

Formerly, pilots had to actually land at a specific airport accompanied by a check pilot in order to qualify for future landings there. Now, thanks to this unusual visual aid program which is approved and endorsed by the FAA, a Captain can qualify for an airport by seeing the film and receiving the briefing accompanying it. This results in an enormous saving of pilot and check pilot time as well as aircraft and maintenance costs.

Any Pan American pilot who has been off a particular route for over a year must requalify by this method prior to being re-assigned by Crew Scheduling. All of the people working the Airport and Route Qualification sections are former flight personnel and have a great variety of experience and knowledge of aviation, both commercial and military.

However, there are many problems and difficulties connected with producing a film of this type other than the usual ones of photography.

First, the airline has to obtain Government and Military approval from the county in which the airport is located. Then there is the question of obtaining a suitable type of aircraft and qualified pilot for charter in order to film the approaches, landings and taxi sequences. Since good weather and a minimum of 8 miles visibility is required in order to obtain good results, it is often necessary to wait many days for such conditions to occur.

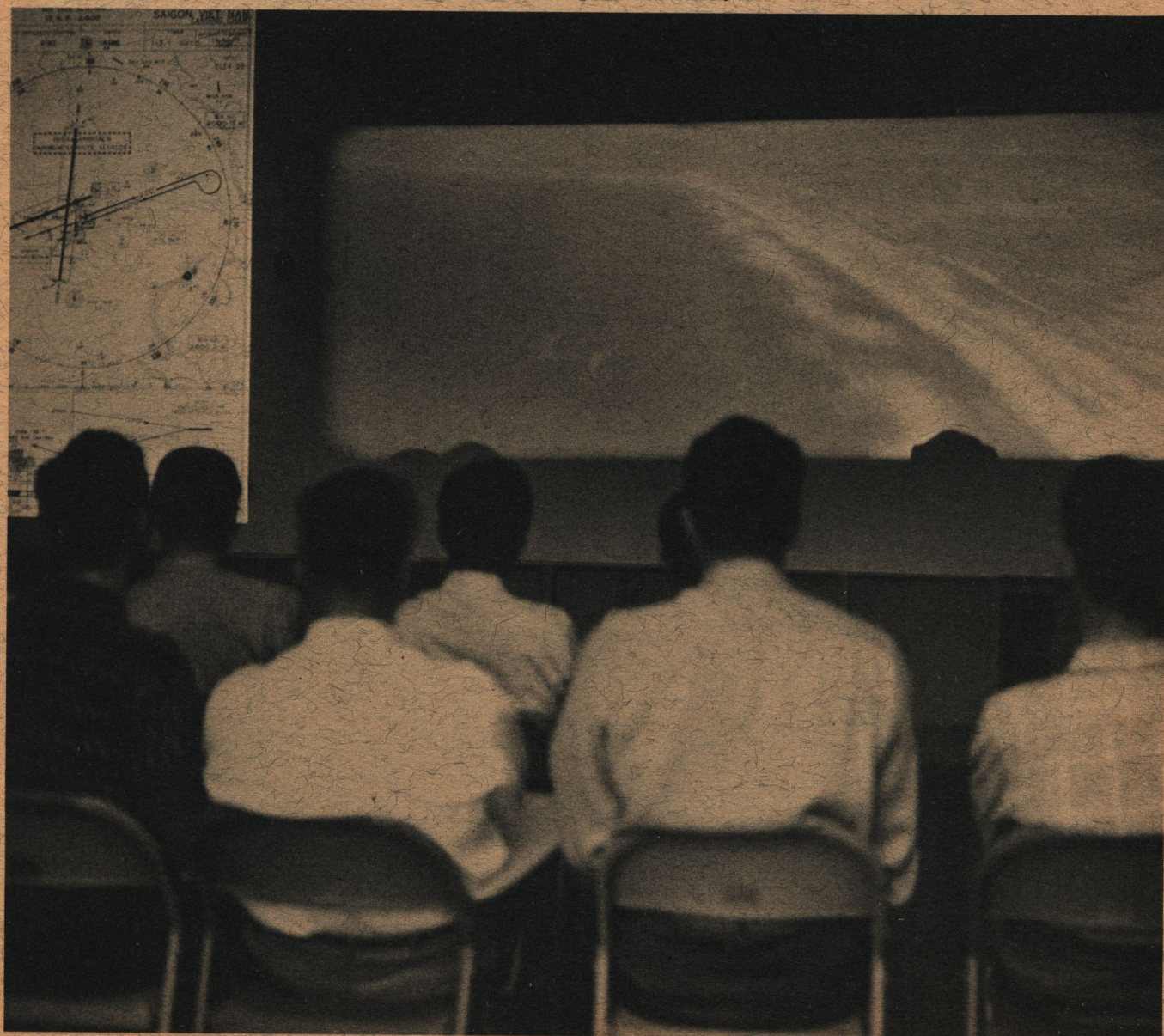
The photo plane makes several approaches to the airport to cover all runways available. A low pass over each runway is made to give the observer a close look at all obstructions on both approach and climb out as well as the approach and runway lights, and type of runway markings.

The narration accompanying the film tells the pilot everything he needs to know about this particular airport, even going over details such as runway gradient and surfacing. In many cases, it is a more satisfactory method of qualifying than an actual flight into the airport since the pilot can clearly see

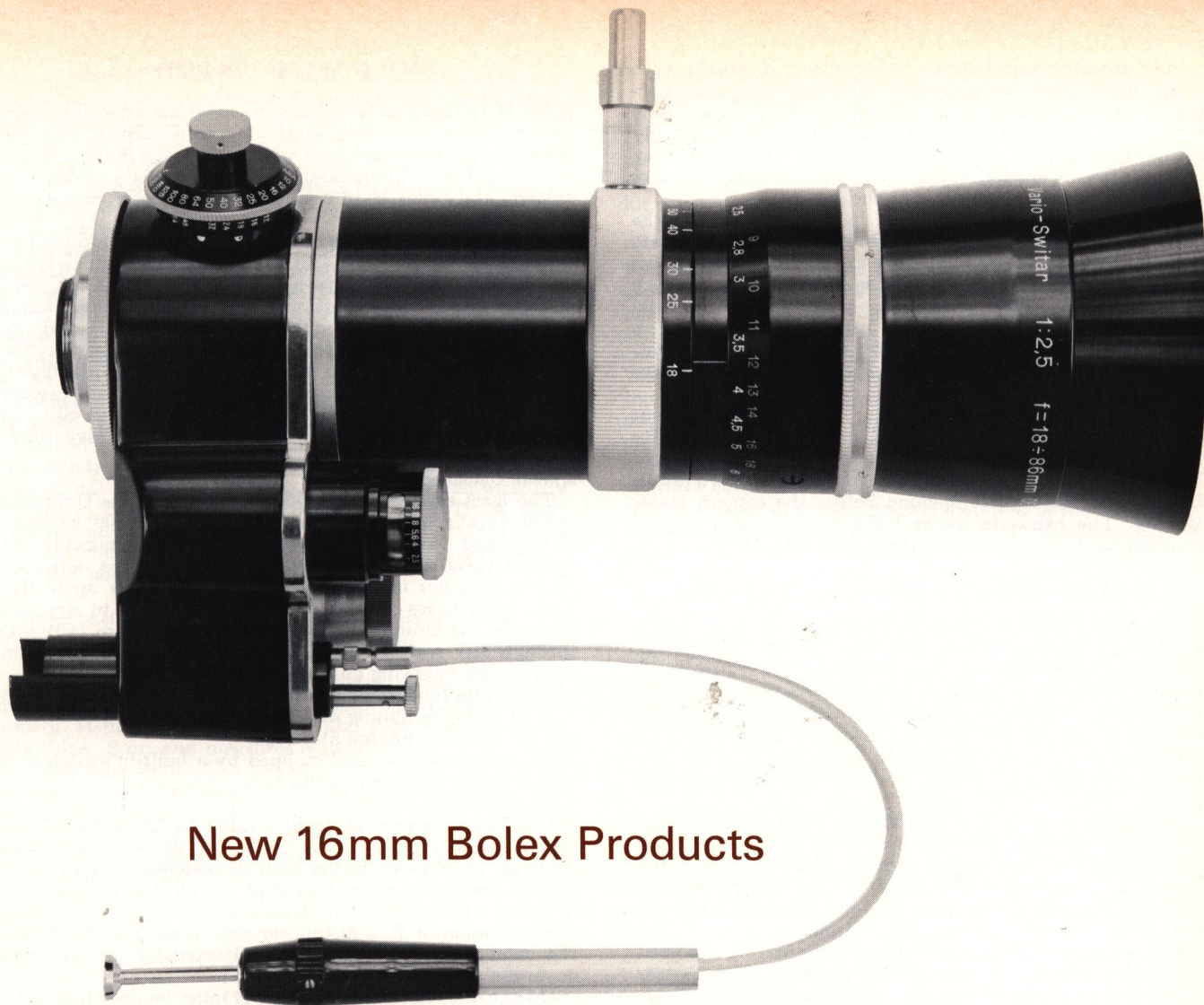
the airport, surrounding terrain and obstructions which is not possible under weather instrument conditions or night approaches.

The average film running time is 10 minutes in duration, however, the longest film in the library is Hong Kong which runs for 42 minutes and includes a series of night approaches showing a rather complicated system of hi-intensity approach and runway lighting. Over 3,000 feet of film was taken on this assignment and some six weeks were spent on location.

Since Pan American has pioneered and developed this method of airport and route qualification for its pilots, several other carriers have adopted the same method or variations for their qualification program. The system has proven to be efficient, convenient and economical both in money and time saved. The ideal camera for this type of work is one that is compact, easy to handle and operate, and, most important of all, gets quality results, an absolute *must* in this type of training film.







## New 16mm Bolex Products

### 16MM FULLY AUTOMATIC THROUGH-THE LENS EXPOSURES WITH BOLEX H-16 CAMERAS

Through-the-lens light measuring with fully automatic diaphragm adjustment is now possible when filming with Bolex H-16 Rex cameras. This excellent, extremely versatile, most accurate, and most modern light measuring system is incorporated into the Vario Switar 86-OE zoom lens, which can be mounted on all Bolex H-16 cameras with reflex viewing.

The advantages of through-the-lens light measuring are obvious: The meter measures only the field covered by the lens and is not influenced by surrounding areas. This is especially important when filming at long focal lengths where the area coverage is much smaller than the area measured by an ordinary light meter. With the Vario Switar 86-OE zoom lens, the area measured by the meter changes with the field of view covered by the lens, and exposure is as accurate when filming at the maximum focal length of 86mm as it is in minimum wide-angle focal length of 18mm.

Through-the-lens light measuring is tremendously valuable in close-up photography where exposures must be based on the small area coverage, which is often difficult to obtain with an ordinary exposure meter. The Vario Switar 86-OE/H-16 Rex combination is ideal for close-up filming. Two close-up lenses are available which permit covering an area as small as  $1\frac{1}{2}$ "x1". The automatic exposure meter measures the  $1\frac{1}{2}$ "x1" area, and the reflex system of the H-16 Rex camera permits accurate framing and focusing of the subject.

Through-the-lens light measuring takes guesswork out of exposure. Regardless of the shooting distance or the focal

length of the lens, you simply view through the reflex finder, and you know what area is measured by the electric eye.

Through-the-lens light measuring, however, answers only half of the filmmaker's requirements. It gains its full advantage only when combined with fully automatic diaphragm adjustment, which is the case on the Vario Switar 86-OE. The Vario Switar filmer is constantly ready for filming whenever something happens in front of the camera. There is no need to turn rings, align needles. Such operations are too time-consuming for today's candid filming and often result in losing an important action in a scene.

Automatic exposure gives a new freedom to filmmaking, which one must try to fully appreciate. It lets the filmmaker concentrate on his subject, instead of worrying about technical manipulations. Possibly even more important, fully automatic diaphragm adjustment allows the filmmaker to do things which are impossible or difficult to do otherwise. The filmmaker can follow moving subjects without worrying whether they move into bright or dark areas. He can follow a crane lifting a load from a dark city street to the bright top of a building under construction; he can follow people going from the bright outdoors into a dark building lobby; he can follow a child running from a dark alley into the sunlit park. The filmmaker can film a subject in bright sunlight and instantly switch or pan to another subject in the shade without adjusting the lens manually.

Sunsets can be filmed in single frames. Time-lapse studies can be made in daylight from morning until evening, day after day, regardless of the weather, without anyone attending the camera, yet with perfect exposure frame after frame.



Full exposure automation is especially desirable with zoom lenses where an exposure adjustment is often necessary while zooming in or zooming out. On the Vario Switar 86-OE, the diaphragm closes down automatically when zooming into a bright subject and opens up when zooming into a shaded area, thereby providing the most satisfactory exposure throughout the zoom.

Although the through-the-lens light measuring of the Vario Switar 86-OE provides in most cases the most accurate exposure fully automatically, there are special cases where a compensation in the opening may be desirable and, for such situations, the 86-OE offers the possibility of manual diaphragm setting, just as on any other lens. It even offers more limited automation—whereby the automatic adjustment of the diaphragm can be limited to any desired range at either end of the scale.

Focusing with the Vario Switar 86-OE is convenient because of the built-in automatic pre-set diaphragm. By pressing the release slightly, the diaphragm opens for focusing at maximum brightness and closes down automatically to the correct opening before the camera starts running. The exposure meter built into the lens can be adjusted for film sensitivities from 10 to 200 ASA.

### 16MM LENSES WITH DIAPHRAGM PRE-SETTING

Filming with fixed focal length lenses has been made easier with the introduction of two new Switar lenses—the Switar 10mm f/1.6 and the Macro Switar 26mm f/1.1. Both lenses are equipped with a preset diaphragm arrangement which results in much more convenient filming with Bolex H-16 Reflex cameras for which the lenses are designed. The diaphragm ring is equipped with dual levers which are pressed together and rotated for setting the diaphragm opening.

For focusing at full aperture, the longer black lever is turned to the left. When the distance is set, the black lever is simply turned to the right until it stops, and the diaphragm is automatically back to the correct opening without the need of removing the eye from the camera's reflex finder in order to check the setting.

Both lenses provide macro focusing, eliminating the need for extension tubes for normal close-up work. The Switar 10mm focuses down to about 1" measured from the lens, covering an area as small as 1½"x2"; the Macro Switar 26mm goes down to about 4" from the lens, also covering an area 1½"x2". Both lenses have the Visifocus automatic depth of field scale and a rotating rear ring for positioning the index.

Both lenses provide the by now well-recognized Switar image quality obtained through a combination of 9 lens elements in the 26mm and 10 elements in the 10mm lens. This quality holds true, even at the extremely large f/1.1 aperture of the standard lens—a lens almost a full stop faster than f/1.4. (f/1 would be a full stop.)

Bolex H-16 cameras have been designed for versatility—for use in practically every motion picture application. One of the major considerations when cameras are used in the various fields of filmmaking is the method of driving the camera, and Bolex H-16 users have a variety of choices.

#### 1. With springmotor

All Bolex H-16 cameras have a built-in springmotor which runs the camera for 16½ feet at speeds from 12 to 64 fps or about 27 seconds at 24 fps and 36 seconds at 18 fps. This may seem rather short, but, in actuality, few motion picture scenes are filmed longer than 10 to 15 seconds and are afterwards cut even shorter. If one can be certain that the actions to be recorded do not exceed the above-mentioned times, the springmotor provides the most compact camera unit and the most reliable operation especially in climates where batteries are known to lose power or give other problems.

#### 2. With Unimotor #800

The least expensive electric motor drive is the Unimotor #800. It is exclusively designed for use with a 100' capacity camera and cannot be used with the 400' magazine. It permits variable speed filming from 12 to 32 fps, adjusted by the governor in the camera. It is driven by up to five dry-cell batteries in case #810. In addition to dry cell batteries, the Unimotor #800 can be driven from 110V AC through any transformer which is built to take 0.6A and delivers the following output voltages:

- 18 volts for filming at 12 to 16 fps.
- 24 volts for filming at 18 to 24 fps.
- 30 volts for filming at 32 fps.

The motor is started and stopped by a built-in switch or a switch in the extension cord.

#### 3. With Unimotor B #802

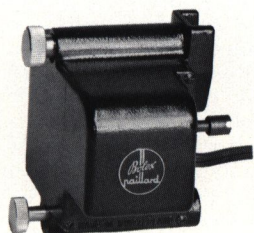
Unimotor, version B, looks similar to the regular Unimotor but is designed for use on 100' or 400' capacity Bolex cameras. In addition to the built-in switches, it can also be started and stopped by means of the electric camera grip #787 or a remote cable with switch.

The Unimotor B is also a variable speed motor, driving the camera from 12 to 32 fps, adjusted by the camera's governor.

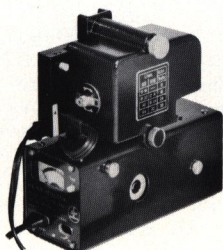
On the 400' camera, Unimotor B must be used in combination with voltage regulator #803. Both mount easily on the side of the camera and are driven by six dry cell batteries in case #813. On the 100' camera, Unimotor B can be used with voltage regulator, in which case battery combination #813 is used, or it can be used alone, in which case it is driven by battery combination #810.

#### 4. With MST Constant Speed Motor #806

The constant speed motor drives the camera at exactly 24 fps. It is equipped with a sync pulse generator, which records a 60-cycle signal on tape for synchronous double system sound recording. It can be used on the 100' or 400'



UNIMOTOR



UNIMOTOR B W/VOLTAGE REGULATOR



MST MOTOR



MACRO-SWITAR 26mm f/1.1



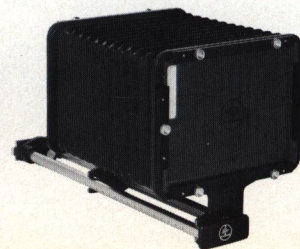
BATTERY CASE 810



BATTERY CASE 813



RECHARGEABLE POWER PACK



MATTE BOX



Bolex cameras. The motor is easily attached to the one-frame shaft in the camera and is driven by the compact, rechargeable 12V power pack #808. It is operated by the built-in button with lock, a remote cable with switch, or electric camera grip #787. The constant speed motor is the proper choice for sync sound filming or silent filming at 24 fps when the smallest and lightest power pack is desired.

#### 5. Take-up Motor #804

Motor #804 does not drive the camera but is used to drive the take-up spindle on the 400' magazine. The motor bayonets directly to the magazine and can be changed quickly from one magazine to another. The take-up motor connects to the MST constant speed motor or the Unimotor B.

#### 6. Single frame & Animation Motor

The Paillard Wild camera motor MBF-A-60 mounts on the side of the camera and turns the shutter for single-frame shooting. The motor is operated and the exposure time controlled by an external control unit MBF-B. The exposure time is adjustable from 0.2 to 10 seconds per frame. The control unit works on 110V AC but can be driven by a 12V battery in combination with converter MPF-D. A timer MBF-C can also be coupled to the control unit, providing automatic single frame filming at regular intervals from 1 sec. to 6 hours.

### BATTERY PACKS

Three battery packs are available, and the choice depends on the motor drive mounted on the camera.

#### 1. Rechargeable Battery Pack #808

This 12-volt battery is always used with the MST Constant Speed Motor, whether it is used on the 100' or 400' camera. It has a built-in charger and voltmeter. It weighs only 3 lbs., 8 oz. and measures 8"x4"x2¼".

#### 2. Battery Case #810

Leather case #810, which holds up to five 6-volt batteries (Eveready 510S) is the least expensive choice with Unimotor and Unimotor B when the camera is used with 100' rolls exclusively. It weighs 9 lbs. with 5 batteries and measures 8½"x5½"x5½".

#### 3. Aluminum Battery Case #813

Battery case #813 is designed for six 6-volt batteries (Eveready 509) delivering 36 volts. It is used whenever the 100' or 400' Bolex cameras are driven by the Voltage Regulator/Unimotor B combination. It weighs 10 lbs., 8 oz. with the six batteries but has a narrow shape (9"x8½"x3"), for convenient carrying.

### 16MM MATTE BOX

Filmmakers using zoom lenses for all their shooting can greatly enhance the versatility of their equipment with the new Bolex Matte Box. The matte box guide rail is 12" long, thereby bringing the front frame 2" to 3" in front of any zoom lens—Pan Cinor, Vario Switar, Angenieux 95 or 120. The rear frame is cut large enough to fit over the barrel of those zoom lenses. With this matte box, zoom lenses can be used to produce such special effects as filming through masks, the most popular ones being in the shape of binocular, keyhole, and filming through silhouettes, which might be subjects like a windowframe, a fence, or a doorway, cut from paper or cardboard and mounted in the matte box.

Wipes of all shapes and moving in all directions can be produced by moving a cardboard mask in the front frame. If two masks are cut properly and moved simultaneously, a transition of an opening or closing circle can be obtained.

Split-screen scenes are easily made by masking off a portion of a scene, winding back the film in the H-16 camera, and re-filming with the other portion masked off.

All these interesting and professional-looking effects are produced with the zoom lens set to the short focal lengths. Although the matte box is designed primarily for use with zoom lenses, it can also be used with fixed focal length lenses, in which case it can also serve as a stand for copying slides, or as a titler, especially for titles on acetate sheets superimposed over a live background.

The matte box mounts on the camera's base and is supplied with four short and two long guide rails, masks, a glass plate, opaque and acetate sheets.

## The Line Island Experiment

by Roger Ewy

Last spring a new type of invasion took place in the Line Islands, some one thousand miles south of Hawaii. The Colorado-based National Center for Atmospheric Research headed a massive scientific study of little understood equatorial weather patterns from three of the Line Islands, Palmyra, Fanning and Christmas.

As lead photographer and supervisor of photographic services at NCAR, (as the National Center for Atmospheric Research is more commonly called) I was asked early in the planning to help instrument the study which required a huge amount of photographic data. Scientists stated their needs for non-stop daytime time-lapse weather photography for the two month "Line Island Experiment" from each island, from aircraft and from a Coast Guard ship. A study of cameras available which would meet requirements of ruggedness, flexibility, precision and budget gave us, as I saw it, only one choice, the Bolex.

NCAR purchased five Bolex H-16M cameras, each with a Switar 10mm f/1.6 lens. Since they were to photograph always in one direction, and to cover the same angle, the single Switar lens gave us the needed wide-angle view of clouds above the sea-horizon. Simple solenoid operated time-lapse devices attached to the side actuating buttons gave us the camera-package-needed. A white-painted "mail-box" enclosure gave protection from the elements. An overhanging double roof provided air passage for cooling above the actual enclosure, and its front projection kept all but driving rain off the protective window. (One seaward site on Christmas Island was so badly exposed to salt spray that the enclosure window had to be wiped clean every ten minutes.) For about two and one-half months,

Bolexes ground out time-lapse movies of the tropical weather every day, from sunup to sundown. There was one Bolex on each island, Palmyra, Fanning and Christmas, and additionally, one on the Coast Guard ship, *Surveyor*, which sailed on fixed trajectories in the neighborhood of these islands. One Bolex was kept in reserve, but was not needed in spite of the tough environmental conditions. Weekly flights from and to Hawaii provided by the Air National Guard gave us an additional opportunity for time-lapse movies at ten thousand feet over the trajectory of the flights.

Two types of time-lapse mechanisms were devised to suit varying degrees of camera accessibility. One device actuated the main drive and rotated the shutter and pull-down escapement once every twelve seconds with a synchronous motor. Long exposure times were compensated for by neutral density filters. (Blur from slow exposures was not a problem.) One hundred feet of film could be continuously exposed with this camera. The other mechanism was merely a solenoid pulser with a circuit providing twelve-second pulses. The camera drive was dependent on its internal spring wind and therefore had to be tended more often.

The objective of this extensive detailed color cine coverage was to have continuous detailed records of cloud patterns over the two and a half month study period.

Just prior to the manning of the Line Islands, NASA was successful in orbiting an extremely successful satellite camera, the ATS-B. In one exposure it proved capable of viewing the total sphere of the earth. When it was kicked into its final position, it was stationed "synchronously," or permanently, over the equator above the Pacific Ocean,



with the Line Islands almost dead center in its camera image.

This camera provided a view of the entire earth in each image. The Bolexes, with their highly detailed color frames provided excellent cloud description from points at ground level which can be correlated with the ATS-B satellite views. Scientists then can "calibrate" or evaluate what detail actually was in the ATS-B views by referring to the fine scale ground-and-airplane-exposed movies, of same time, date and place.

Time-lapse photography permitted observation of cloud growth rates and modes of development and decay. Airborne time-lapse photography extended the ground-based photography over extensive flight legs, providing the capability of accurate cloud mapping and height determination. The Bolex images are being compared with satellite pictures as noted above with respect to identification of cloud types, their precise location, time changes and dimensions. The ultimate goal of this phase of the program is to establish the calibration firmly enough so that data utilization from ATS-B and its successors can be safely extended to those vast regions where auxiliary photography is lacking.

A great number of other experiments and observations were made by scientists visiting the Line Islands. They were concerned with what atmospheric scientists call the "equatorial trough zone," standard measures of pressure, temperature and humidity, wind direction and intensity (both surface and upper air). Radiation studies, aerosol collections and sea temperature variations were other areas of interest.

So much for the scientific use of Bolexes in the Line Islands.

My own participation in the Line Island Experiment beyond helping with instrumentation development was most rewarding. My particular problem was, in essence, rather simple: document the Line Islands Experiment in film and with still color and black-and-white.

In execution, it was something else! Since the decision for me to go came rather late, there was no opportunity to write a script for the filming. It was all I could do to even garner full information on the experiment from the extremely busy scientists. Reports sifting back from personnel in the field were somewhat discomfiting tales of torrential rains, planes down at sea (one was ditched on its way to the islands), waves of land crabs, hermit crabs and coconut crabs, and squadrons of inconsiderate terns nesting by the thousands in the Islands, not to mention shark-and-mantas-filled lagoons.

I armed myself with a Bolex H-16-Rex with the Switar 10mm, Pizar 25mm and Yvar 75mm lenses, and a Bolex-Gossen meter, all protected in a Halliburton case. I took five thousand feet of Ektachrome commercial and Ektachrome EF for filming. The still camera was my Hasselblad 500C with 50mm, 80mm, 120mm and 250mm lenses. Film for this camera was Plus X Pan and Ektachrome-X. Since I was to be moving about a good deal under less than ideal conditions, I packed all my film and still camera in a ruck-

sack and carried the Bolex in its case. I was constantly haunted with thoughts of losing a bag or tripod among the piles of support material being shuttled from island to island.

Filming itself was a delight, but a constant drain on my powers of observation. I was there to literally shoot everything "of significance." This meant the experiments, the discussions, the important scientists, the aviation activity and the environment! So it was imperative that my Bolex and Hasselblad be ready for everything. I had to anticipate not only action but editing exigencies and had to do my best to cover activities in cine and still also. Often, for example in the case of aircraft, I set up the Hasselblad on a tripod pre-viewed and focused and then shot continuously with the Bolex, tripping the Hasselblad only at the opportune moment.

Subject matter varied tremendously. The scientific experiments involved complex electronic apparatus such as extremely capable multi-channel digital recorder mounted in NCAR's Queenair, or completely self-contained weather stations set out on reefs, remote from island headquarters. Radiometers, Radar, Rawinsonde, the three "R's" of the Line Islands, were important to the data gathering.

Fascinating people, such as Dr. Vern Suomi, who developed the ATS-B satellite camera, and Dr. Edward Zipser, the coordinating meteorologist (and an ex-Juilliard music student), were there to photograph. Contrasting with these types were the handsome, happy-go-lucky Islanders and the hard working support crew.

Palmyra, a last ditch stronghold for American World War II defense in the Pacific was strongly fortified and garrisoned, but timely reversals in the conflict kept it from ever having to serve as a fortress. It now serves mainly as a nesting ground for thousands of terns and booby birds. The terns were so thick they formed a real hazard to aircraft landing and taking off from the re-habilitated World War II Airstrip.

Fanning Island was another coral atoll paradise, though unlike deserted and wild Palmyra it was inhabited by friendly, ex-Marshall Islanders who harvest copra for a living. Mantas flapping in the lagoon and scuttling land crabs, as well as the tree-climbing islanders, provided excellent material as background to the Experiment.

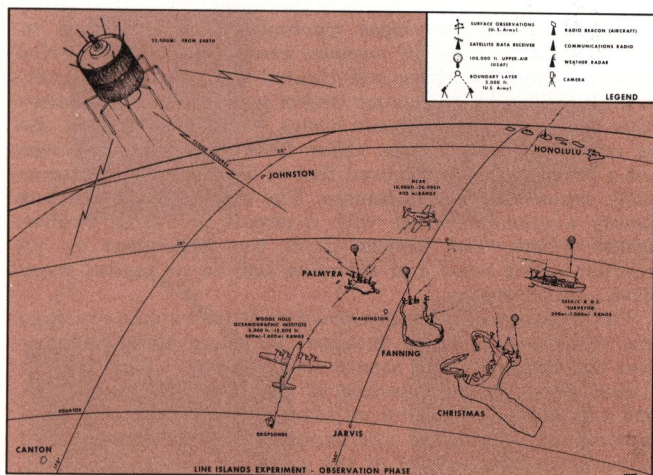
Christmas Island was something else. If you can imagine a desert in the middle of the Pacific, this is it! Low rainfall, a large flat coral expanse and a rather inhospitable British Island governor made Christmas a rather barren site, much different than the other lush green islands. Those who have followed the development of nuclear weapons may remember this island as the site of British-American bomb tests in the early '60's.

Our inter-island transportation consisted in the main of an old Catalina flying boat, known best to the experimenters as the "Leaky Tiki." Since Fanning had no negotiable airstrip, this plane was the only means of access other than slow boat. The Tiki's lagoon landings were something to experience—"three crashes and a shower," as one rough-water landing was aptly described. I braced my Bolex and shot several such bone-breakers through the PBY "blisters" with great effect.

On my return from the Line Islands to Hawaii, I visited the University of Hawaii where the mounds of data from the Experiment were being received. A few scenes of participating scientists there, some with Diamond Head and Honolulu in the background, served to wind up my coverage of the Line Island Experiment.

Both the Bolex and the Hasselblad had served well under extremely tough circumstances. Rain, salt water, heat, dust, mud, vibration, shock—none of these caused a single malfunction. My only footage losses were from unavoidable rapid field film changes where intense sunlight bore into some of the reel ends, in spite of shaded loading.

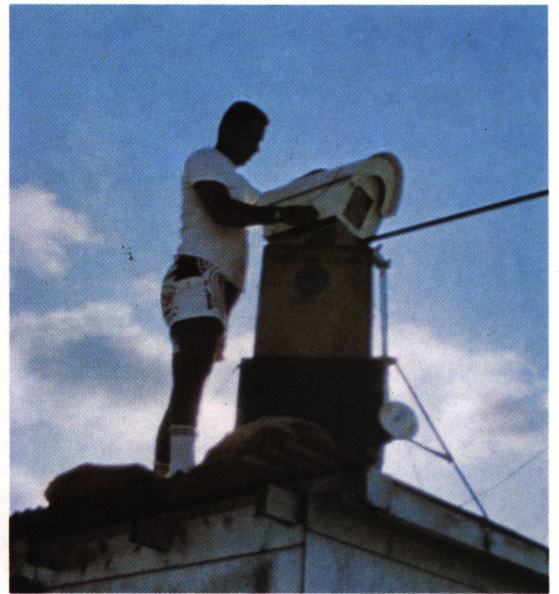
A rough work print, assembled from the first copy, has been already pressed into work-horse duty. Scientists, all over the United States, more interested in learning about the Experiment than in seeing a finished movie, have been shown this now well-worn copy many times. So even long before it moves into finished form, my Bolex footage has earned its way.



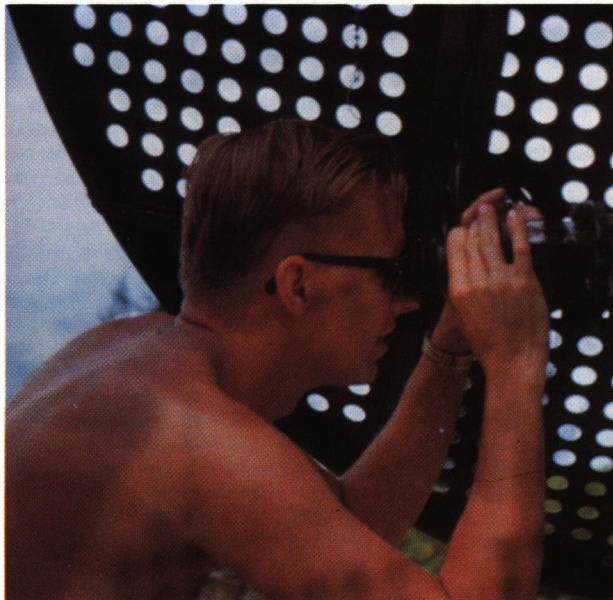




1.



2.



3.



4.



5.

1. Vast number of Sooty Terns, a variety of seagulls, seen silhouetted against the sun over Palmyra Island.
2. Technician tends a Bolex time-lapse camera in a protective "mail-box" enclosure on Christmas Island.
3. A Radar Tracker at Rawinsonde Station on Fanning Island photographed by the author.
4. Take-offs and landings on Palmyra Island's runway were made hazardous by the gulls hovering about.
5. Palm trees enhance the exotic look of Fanning Island, another station in the experiment.



# 1000 Feet Deep for Science

by Ron Church

*Editor's Note: Our author also informs us that the film, "1000 Feet Deep for Science," filmed with a Westinghouse owned Bolex in a special underwater housing, won the Medalist Award from the Academy of Underwater Photographers and the First Award in Science at the 1966 Underwater Film Festival in Santa Monica. The author and Joe Thompson were given a special award for their filming and editing efforts by the Westinghouse Electric Corporation.*

The trembling twin-engined "Lodestar" leapt from the San Diego runway and almost instinctively turned toward the Baja Peninsula of Mexico stretching some 900 rough and treacherous miles to the south. At the controls was A. Rodriguez, known popularly as "Rod", co-owner of a chain of luxurious hotels in Mexico with Bing Crosby, famed American crooner-sportsman. Rod has a very colorful background and yet is probably one of the nicest millionaires you'll ever meet. In fact, his cordial, nonchalant attitude makes you feel like you've known him all your life. My personal impression is that Rod truly enjoys life, and having a lot of money is coincidental. Rod's flying prowess is from his experience as a test pilot for North American Aviation, flying P-51 Mustangs, and also as an RAF pilot during the war. His father was a past president of Mexico and Rod follows the hereditary lines in the pioneer spirit.

It seemed ironic to be flying nearly 300 miles an hour, 10,000 feet high to our destination of Capo San Lucas, where I soon would be photographing a flying saucer or, more aptly put, a "Diving Saucer" that flies through the oceans' depths to 1,000 feet with the mobility of an airplane. A better description would be a space ship, since like a flying saucer in space, the Diving Saucer is not subject to the relentless, tenacious grasp of gravity. Its air chamber provides a neutrally buoyant vehicle that can glide majestically over the bottom at a speed of one knot. The Cousteau Diving Saucer, SP-300, or *Soucoupe Plouange 300* (French for Diving Saucer, 300 meters) offers a unique contribution to the undersea researchers. For the first time scientists can plunge to depths of 1,000 feet and remain there up to four hours. The Saucer's extreme mobility allows us to pursue the narrow and steep submarine canyon walls to more fully understand these strange phenomena, and the creatures that dwell there. Scientists from Scripps Institution of Oceanography and the Navy Electric Laboratory were gathered at the fascinating Cape to assault the depths and confirm or deny speculations of its environment.

High above the jagged, desolate Baja Peninsula, we watched the relatively unexplored country pass below. Amazingly, this remote country has changed but little since it was discovered in 1533 by Fortun Ximenez, a pilot of one

of Cortez' ships who took command after spurring a mutiny and putting the captain, Diego de Becerra, to death. Cortez personally investigated the unscrupulous pilot's findings and stories of black pearls by organizing an expedition to the southeastern tip of Baja. He also attempted to establish a colony in a small protected bay he called "Santa Cruz," now known as the peaceful little town of La Paz. There was great interest in finding and charting the passage between Baja, California, which they believed was by the "Island of California," and the mainland. It was believed that this non-existent passageway would lead these inquisitive Spaniards to a new short route to the rich and fabled land of "Cathay" described by world explorer Marco Polo.

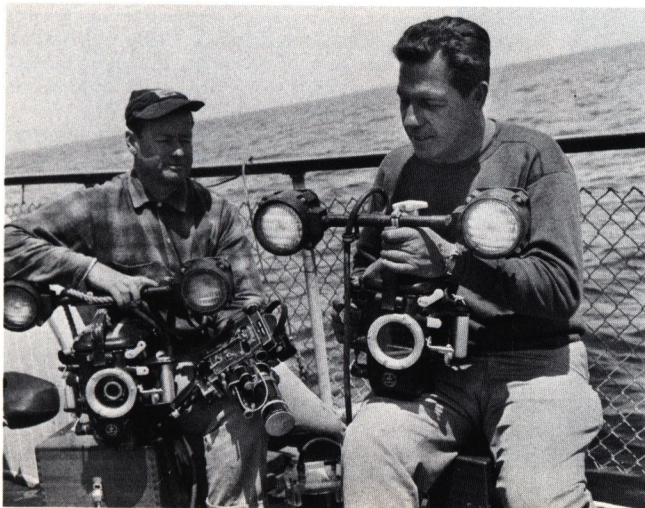
Soon a familiar landmark began to creep out of the horizon, a landmark sought annually by some three to four thousand during the cold months of January, February and March. The incredible part of this unusual trek is the perseverance and navigational accuracy of the three month swim it takes to get here—and without food. You must surely realize by now that I'm talking of the annual gray whale migration to Scammons Lagoon located some 400 miles down the jagged, desolate Baja coast line. These barnacle encrusted Grays spend over six months traveling to and from Scammons Lagoon annually to spawn and give birth to their young which are ten to twelve feet long when born. The baby gray (it's hard to think of a 2,000 pound, twelve foot long whale as a baby) is taught to swim by the mother in the sheltered confines of the shallow lagoon area and then, after a two to three week training period, will accompany her on the long journey back to the Bering Sea.

At one time the gray whales were nearly slaughtered to extinction because of their maternal habits leading them back to Scammons. Greedy whalers entered the small lagoon containing as many as 2,000 whales and literally massacred them. A rigid protection of gray whales now guards against any such reoccurrence.

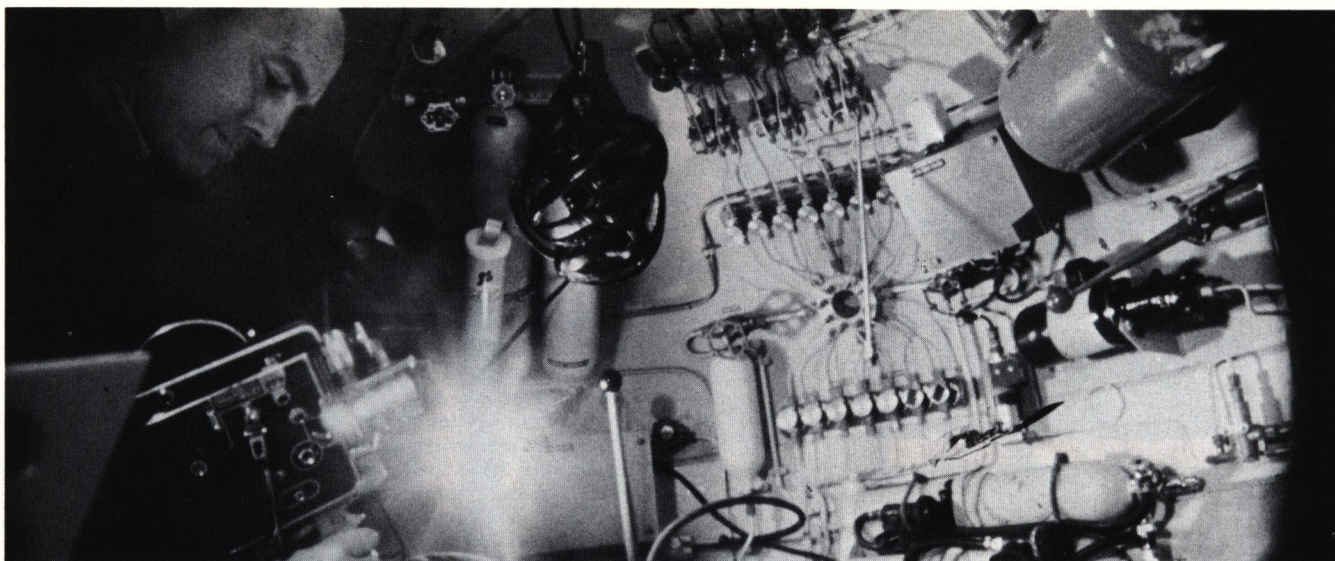
One reason the gray whales journey so far to the Scammons shallows to spawn is to protect the mothers and young from their voracious enemy the killer whale (*Orcinus orca*). Just a short distance up the coast at the San Benitos Islands the killer whale ravages with the voracity spelled out in the legends and stories from the tongues of seamen around the world. No other animal is so cunning and fearfully renowned. The killer whale, largest member of the group *Cetecca* and family *Delphinidae*, is considered just as, if not more, intelligent than his close relative the porpoise or dolphin. Many scientists also believe that the mental capacity of the dolphin is equal to that of man, even capable of communication. So it is easy to see the potential of this thirty foot king of the sea. As far as is known, the only enemy the killer whale has is man, with the exception of the enormous sperm whale. There would probably be no contest between one sperm whale and one killer whale; the *Cachalot* (sperm whale) would almost certainly be victorious. But this would hardly be possible, since the killer whale usually travels in packs, each member trained in the deadly serious business of killing like a well-disciplined army.

Continuing down the narrow Baja Peninsula, we could clearly see the jade colored gulf waters on our left and the darker blue of the open Pacific on our right. The fourteen passenger plane piloted by Rod is just another service of the unlimited hospitality of his hotel chain in Mexico. Charter flights directly to his hotels take out the familiar red tape experienced in previous Baja vacations.

Another familiar form began to materialize as we approached lands end—the saintly, tall granite spires jutting from the clear blue waters of Cape San Lucas . . . a picturesque landmark never forgotten. Rod quickly lined up the throbbing Lodestar with a dirt cactus-lined runway extending directly uphill from his Pamilla Hotel located on a rocky point about twenty miles east of the Cape. This initial letdown would be to leave several passengers who were







vacationing here. We were to continue with our bulky diving gear and underwater cameras to the Hacienda Cabo San Lucas located right on the beautiful bay of the famed Cape.

After removing the mountain of cameras and diving equipment from the *Lodestar*, we waited for another of Rod's smaller planes to ferry us to the Cape along with an arriving passenger. A sleek twin Cessna bumped up to a dusty stop a few feet away looking as out of place in this environment of cactus and buzzards (Mexican turkeys) as Cinderella in the city dump. As I turned to talk to Rod, I heard a cry similar to that of a wounded African orangutan . . . "Ooooh-aap." This strange sound somehow or another had its birth from the enthusiastic members of the NEL diving and scientific party who stole it from the French Calypso crew, who stole it from a strange Fiji Island bird. It's used as a sort of greeting, password, or boat hail and quickly announces the arrival of a friend. As the cabin door opened, an unexpected but very familiar face emerged—that of Tom Horton, Westinghouse Electric Corporation, Public Relations and Marketing Manager of the "Deepstar" Deep Submergence Project. Tom, smiling typically from ear to ear, is the perfect image of the Ivy League type PR man and well suited for the elite Westinghouse Team. Tom's eastern cold weather attire did not lend itself to the desert-like climate of Mexico, and beads of perspiration were soon dampening his collar.

Tom had come to oversee the Westinghouse-maintained Diving Saucer Operations and to exchange first hand observations with scientists actually making the dives. A very enthusiastic and upcoming scuba diver, Tom was eager to probe the transparent, warm gulf waters, quite a contrast to those of the Chesapeake Bay nearly frozen over. After loading my camera gear aboard the small Cessna, there was barely enough room left for the three of us. I sat wedged in the back seat, covered with duffle bags, suit cases, and cameras, while Rod and Tom took pilot and co-pilot positions. With the skill and experience of a master, Rod piloted the bouncing little plane down the runway, then turned low along the coast toward the granite cliffs to Cape San Lucas. Looking like many small islands, several large whales were visible in the clear water very close to shore.

Among the many shaped boats in the bay, we could easily identify the Westinghouse "World Wide Charter Facility," the *MV Burch Tide*, with its precious Diving Saucer passenger nestled beneath a big crane on the stern. The *Burch Tide* epitomizes scientific research operations: It is a 136 foot long craft with only a small superstructure at the bow for the wheelhouse, galley and crew quarters. The rest of the ship has a long flat deck with several trailer-like vans nestled on top. The vans hold quarters for the scientific party (complete with hot showers), Westinghouse Deepstar crew quarters, storage vans, a work shop with metal lathe and other necessary tools, and a photographic van to house the cameras, film, and equipment used to document scientific dives. A completely automatic air compressor with scuba

tank storage rack is located next to the vans. The large crane at the very stern lifts the Saucer easily in or out of the water in nearly any sea condition.

Soaring high above the turquoise bay, the deep blue outline of the submarine canyon was clearly visible. We swooped in low enough over Rod's hotel to see people frolicking in the large swimming pool and playing on the tennis courts look up and wave as we flashed by.

A few minutes and several loud "Ooooh-aaps" later, we were on the *Burch Tide* and able to hail a small boat captained by none other than Captain Dr. Robert Dill. Bob and Tom are old and good friends and the reunion, needless to say, was a joyous one.

Aboard ship we learned that diving operations had been slowed because of a broken propeller shaft on the *Burch Tide*, but scientific Doctors Curry, Shepard, and Dill had made a series of very successful dives. Dr. Shepard's dive in the precipitous Cape San Lucas Canyon, following the path of the "Rivers of Sand", proved most enlightening. Dr. Curry had completed some very successful dives off the coast of Nayarquette. At one point at about 200 meters deep, large freshly sheared granite boulders, some of them ten feet to twelve feet across, were scattered over the bottom of the canyon. Dr. Shepard pointed out that they may have been the result of an underwater avalanche. The very transparent waters of Cape San Lucas needless to say, provided excellent opportunities for underwater photography of the Diving Saucer, as well as the natural environs.

I was very much impressed by the clock-like precision of the Deepstar crew aboard the *Burch Tide*. Each man fulfilled his job well, including the members of Cousteau's own *Calypso* team, who gave technical advice, and piloted the Saucer. The group was a jovial one and association with them was a pleasure. The excellent food aboard the *Burch Tide*, compliments of the chef "Little Joe", soon extended many belts to new notches.

The French Saucer crew never ceased to provide some type of amusement, from Andre Laban's (Saucer engineer and pilot) quiet humor to Gaston's (Jacques Roux, technician) quick witticisms and comical gestures. On one particular occasion an injured pelican boarded the ship. It somehow had its pouch ripped loose just below the bill-line on one side. When trying to eat the food after catching it, the fish escaped out of the torn pouch as he tried to swallow it. No doubt the poor bird was starving to death to face the risks of boarding the ship and being approached by us while overhead his compatriots carved pirouettes in an azure sky. The French team, spearheaded by Raymond Kientzy (known as "Canoe" and hereafter known as Dr. Canoe) decided to operate. Armed with needle and thread, Dr. Canoe began to stitch up the cavernous gap in the poor pelican's punctured pouch as Gaston and others held the very frightened bird. The immobilized bird seemed to sense the seriousness of the operation, or perhaps it was the professional-like touch of





Dr. Canoe's suture that restored its confidence, and it remained quite still. In the meantime, the photographers led by Andre Laban began to record the historic event for posterity. After stuffing its gullet with fresh fish stolen from the evening's proposed meal, the now pleasingly plump and pacified pelican was launched into the sunset and, we hope, lived happily ever after.

After a slight delay to replace the motor armature of the Diving Saucer, other scientists from Scripps Institution of Oceanography and NEL arrived to participate in further undersea investigations. Besides Doctors Dill, Curry, and Shepard, who had already completed successful dives to 1,000 feet, Doctors Barham, Rosenblatt, and Inman arrived to seek out the unknown secrets of the abyssal depths at Cape San Lucas. Dr. Barham, a very congenial and progressive scientist from NEL, made several day and nighttime dives in open sea to study the mysterious deep scattering layer. By correlating precision depth recordings of the DSL with visual observation from the Saucer, Dr. Barham was able to stay with the layer as it migrated upward or downward. Constant communication with the Diving Saucer by the small tracking boat and underwater telephone gave precise location and information throughout the dive. Finding an exciting location would be of no value if you could not chart its location for further study. Besides the usual DSL creatures, such as *Myctopids* (lantern fish) *Siphonophores*, and abyssal shrimps, Dr. Barham discovered a very rare flatfish swimming in the open waters. Sometimes referred to as a fanfish, Dr. Barham believed that it had not completed its metamorphosis which would explain its present planktonic existence. It is very common to find a good percentage of plankton in the form of larval fish, eels, and crustaceans, but this one was nearly a foot long. Dr. Barham's photographs of this strange animal proved extraordinary. Needless to say, we'll be hearing more of Dr. Barham's exciting discoveries.

Following Dr. Barham, Dr. Douglas Inman and Earl Murray of SIO made dives to study the geological aspects of both the Cape San Lucas and Los Frailes submarine canyons. Dr. Inman had the honor of participating in the 300th dive of the SP-300. The event was highlighted and celebrated with the baking of a miniaturized "Saucer Cake" complete with all accessories by our clever cook.

Dr. Richard Rosenblatt, a renowned ichthyologist, really put the Diving Saucer through its paces. Accustomed to pursuing fish into their lairs for close investigation while scuba diving, Dr. Rosenblatt terrorized the fish population, pursuing one fish after another. As with any ichthyologist, he wanted to get close to the fish, close enough to count scales, fin rays, and observe behaviors. It was a comical sight to see the pie-shaped submarine, sneaking stealthily through the sea fans, between boulders, and over ledges in hot pursuit of a terrified two and a half inch long fish. It could only be likened to an elephant, tip-toeing through the jungle (if they do that sort of thing) in hot pursuit of a mouse.

In spite of the comical situation of trying to force a twelve foot in diameter submarine into a three foot crack in the bottom, Dr. Rosenblatt discovered many new species of fish. He also related that many species considered rare at the shallower depths, were in fact very common below scuba diving limits, where few collections have been made.

Since the Cape San Lucas dives, Dr. Carl Hubbs, famed ichthyologist of Scripps, devised and attached a suction pump and strainer receptacle to collect deep water fish. He has tried the system off La Jolla, California and it proved quite successful after a few minor modifications.

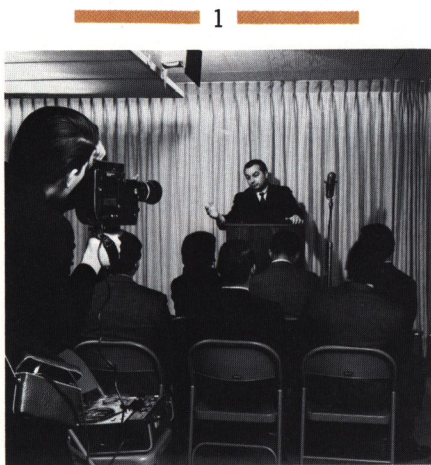
From the joint cooperative efforts of OFRS (Office of French Research Sous Marines, Cousteau's Group) and Westinghouse, there is a new saucer-type submersible now ready to advance man's understanding of the seas even more. It is called the "Deepstar DS-4000". The Deepstar-4000 is somewhat similar to the Saucer, but will take three men instead of two to a depth of 4,000 feet, compared to 1,000 feet of the Saucer. Added speed, better controls, and longer dives will be other advantages of the "Deepstar-4000". Indeed, man's conquest of the sea is just beginning and deep submersibles such as the Diving Saucer and Deepstar-4000 will contribute immensely to that ultimate aim.



# Sound Production: *Add Reality to Films*

by Ernst Wildi

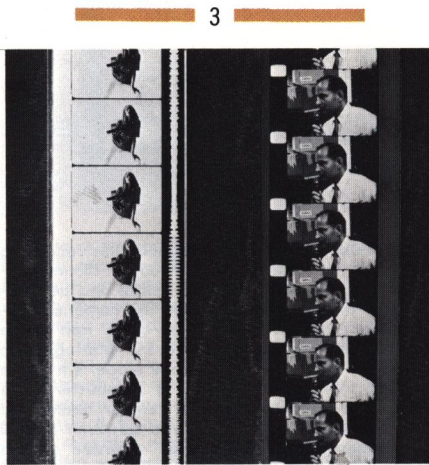
Modern approach to news and documentary filming dictates use of portable 16mm cameras and recorders.



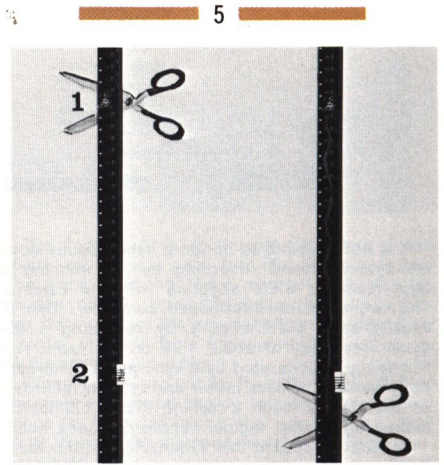
## SYNCHRONOUS SOUND FILMING— SINGLE SYSTEM—DOUBLE SYSTEM

Synchronous sound filming in a completely professional manner and with the required quality is possible with a Bolex H-16 camera and a tape recorder. The Bolex sync sound system is lightweight, compact—designed for today's candid approach to film making, which requires portable, frequently handheld, camera equipment. When used with a battery-operated portable tape recorder, sync sound filming can be done anywhere, out in the field, and can be done by one man if necessary.

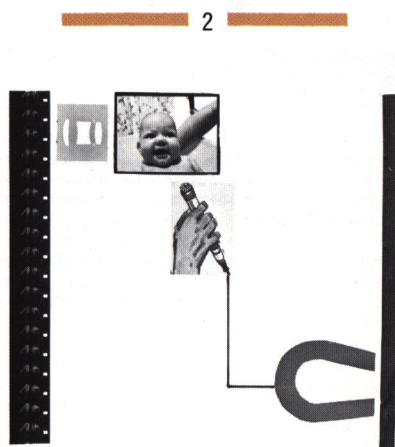
Bolex sync sound films are made in the double system sound—the system used in professional filmmaking where quality sound is required.



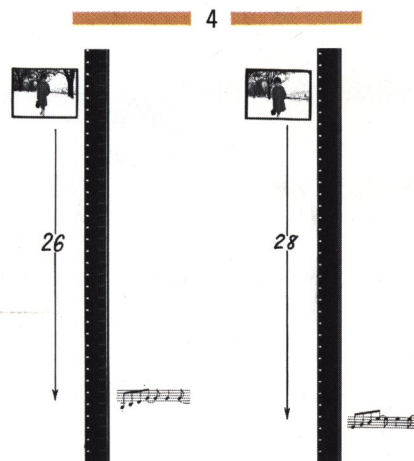
In the other sound system — single system sound — both sound and pictures are recorded on the single perforated 16mm film, which runs through the camera at 24 fps or 7 inches per second. This can be done optically or magnetically. In the optical method (filmstrip on the left), the sound waves are actually photographed along the edge of the film and become visible, together with the picture, during developing. In a magnetic recording (filmstrip on the right), pre-stripped 16mm filmstock must be used, and the sound is recorded on the magnetic stripe at the edge of the film by means of a recording head built into a single system sound camera. The quality of a single system recording is limited by the characteristics of the film and the performance of the sound equipment in the camera.



This separation of sound and picture in single system sound recordings presents a problem in film editing. If we cut the film at (1), the sound which belongs to this frame and which is located at (2) is cut off. If, on the other hand, we cut after the desired sound as shown on the left, we may have in our film 26 to 28 frames of images which are not desired. The problem can be overcome somewhat while filming by starting the camera at least 1 1/4 seconds before any sound is to be recorded.

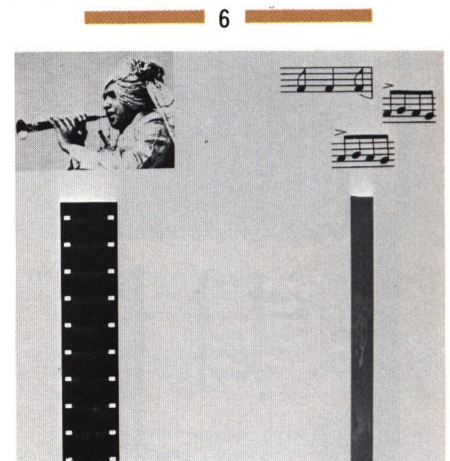


In double system sound, sound and picture are recorded on separate bands. The picture is recorded on 16mm film and can be any type, any make, that fits the camera. The film can be double or single perforated. The sound is recorded on a tape recorder on standard 1/4" tape. Any type of tape can be used, but those with acetate base are generally preferred since they do not stretch as easily as the polyester types.



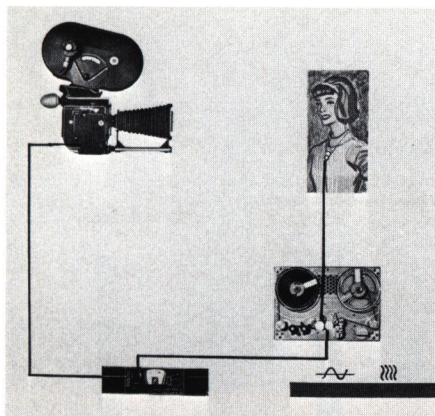
Since the film at the aperture in a camera moves intermittently, rather than continuously as necessary for sound recording, the sound in a single system recording can not be recorded right next to the aperture but must be done in a different position in the camera, usually after the film has been stabilized by the lower sprocket.

The sound that belongs to a certain frame, therefore, is not right next to its image but advanced by a distance which is standardized as 26 frames for optical sound (left) and 28 frames for magnetic sound (right).



In double system sound, sound and picture are completely independent of each other, having been recorded on two separate bands. This system, therefore, offers complete and unlimited possibilities for film editing. The film can be cut anywhere without worrying about cutting off a necessary part of the soundtrack.





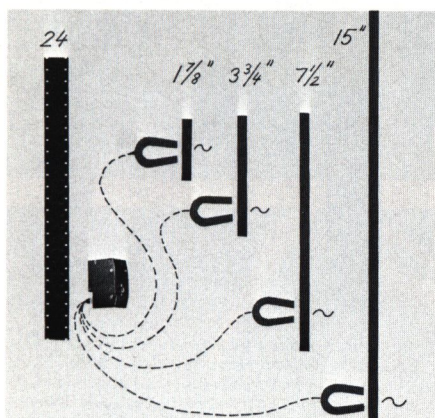
It is not possible to obtain a synchronous double system sound recording by just running a tape recorder while shooting with the camera. The two must be interlocked somehow. This is usually done electronically by recording a 60-cycle frequency of about 1.2V on the tape. The frequency is generated by a sync pulse generator built into the camera motor and is then recorded on the tape in such a fashion that it cannot be picked up by the regular record/playback head.

In order to record this sync pulse on the tape, the tape recorder must be equipped with a special sync pulse head in addition to the regular erase and record/playback heads. The wires carrying the 60-cycle signal from the motor over the powerpack are connected to this special head.

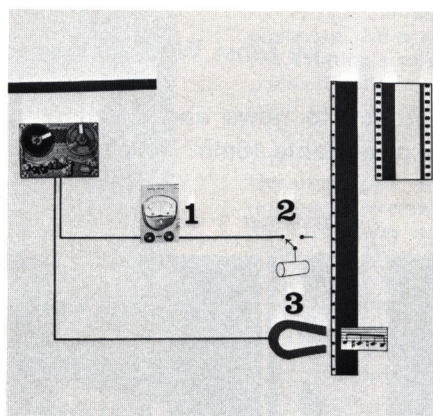
Camera motors used for double system sound filming must run at a constant speed.

Various sync pulse systems are used—Ranger-tone, Pilotone, Neopilot, to name a few—each differing only in the way the 60-cycle frequency is recorded on the tape. The system is determined by the sync pulse head on the recorder, and all these systems can be used with the Bolex sync pulse generator.

The audio signal from the microphone is recorded on the tape through the regular recording head.

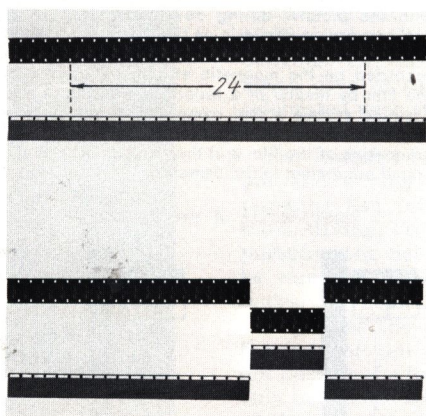


While the film in the camera always runs at 24 fps, no specific tape speed is necessary. Sound and pictures will be in perfect sync at any tape speed as long as the 60-cycle sync pulse is recorded on the tape. This provides great choice in recording equipment, which can be compact for field recording at a slow tape speed, studio size with a 15 i.p.s. speed in indoor filming. The quality of the recording depends on the tape recording equipment and the tape speed.

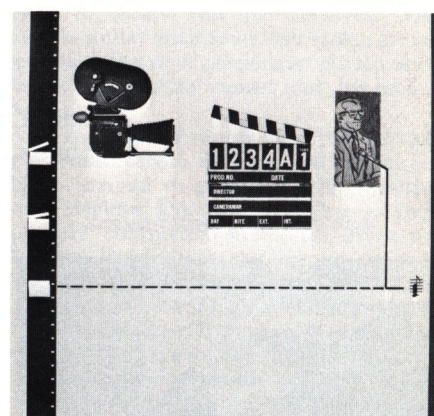


For editing picture and sound, the recording from the  $\frac{1}{4}$ " tape is transferred to 16mm magnetic film, which is identical in size and perforations to the 16mm film used in the camera. Magnetic film, however, has the same iron oxide coating as tape, instead of the photographic emulsion used on the camera stock. (In some studios, the transfer is made to 35 mm (far right) instead of 16mm.) During the transfer, sound and picture remain in perfect sync because the 60 cycle pulse signal which was recorded on the tape while shooting is now amplified in a special Synchronizer (1) and used to control the speed of the motor (2) in the 16mm film recorder.

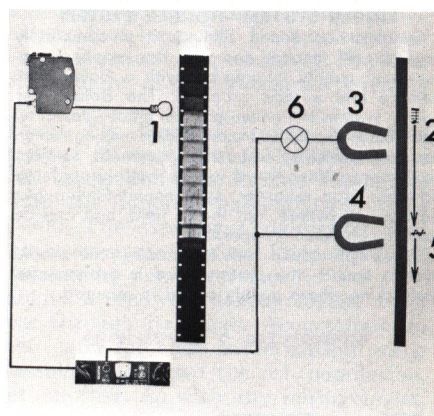
The audio signal on the  $\frac{1}{4}$ " tape comes through the playback head on the tape recorder to the recording head (3) on the film recorder.



When the transfer is completed, we have two separate, but equally long, rolls of 16mm film—one with visible images, the other with the audible sound. 24 frames on the picture track corresponds to 24 frames on the soundtrack. In order to keep sound and picture in sync during editing, we need to make certain that we cut only the same number of frames in both films.



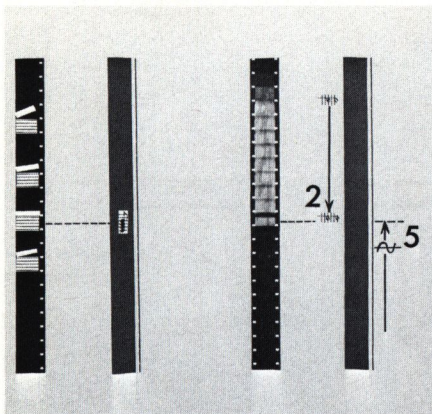
For easy editing, start marks are necessary at the beginning of every scene. The traditional method—still preferred today by most professionals, is the clapboard which is quickly closed and opened by an assistant in front of the lens at the beginning of every scene. The image of the clapboard is recorded on the film; and, at the moment it is completely closed, an audible signal is recorded through the microphone onto the tape.



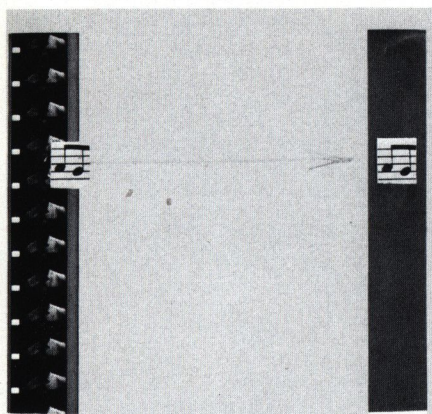
A more modern method of "startmarking" movie scenes is with a slating lamp built into the camera and connected to the constant speed motor. The procedure is as follows: When the motor is started, the slating lamp (1) lights up, fully exposing the film frames in the camera. During this time, the sync pulse (5) is recorded on the tape through the sync pulse head (4), and a voltage coming from the camera motor records a 1000-cycle audible tone (2) on the tape through the regular recording head (3). As soon as the camera motor reaches the correct 24 fps speed, the slating lamp goes out, and the audible beep stops. To record the audible start signal (beep) on the tape, the tape recorder must be equipped with an oscillator (6) to which the wires from the camera motor/powerpack are properly connected.

The above method is called "Sync pulse while slating." There are also 2 other systems: "Sync pulse after slating," where the 60-cycle pulse starts as soon as the slating lamp goes out, and "Beep contact," where the audible beep starts as soon as the motor is connected to the tape recorder.

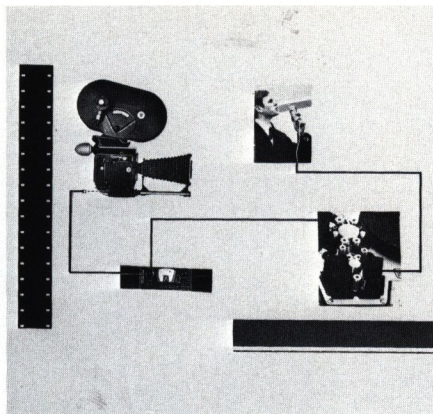




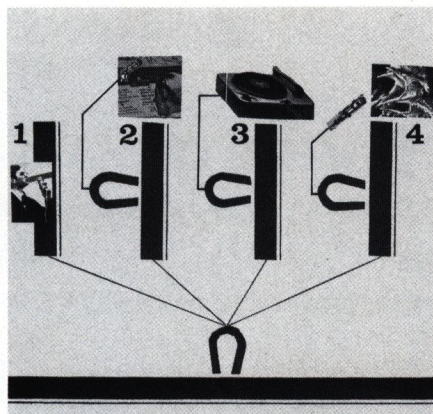
In editing, the 16mm film with the sound and the 16mm film with the pictures are lined up over a common gear in an editing synchronizer with their start marks opposite each other. If an ordinary clapping board was used in filming, (illustrated on the left) the audible closing sound on the magnetic track is placed opposite the film frame that shows the clapping board completely closed. With the automatic built-in slating lamp (shown on right) the end of the beep (2) is lined up with the last frame fogged by the slating lamp (right).



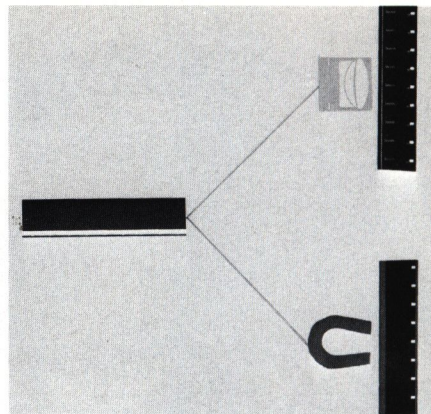
It should be mentioned here that the same extensive editing of sound and picture tracks is also possible in single system filming but only after sound and picture have been separated. For this purpose, the optical or magnetic soundtrack from the edge of the film is transferred to 16mm magnetic film, and editing is done as described before.



There is also equipment available whereby the original recording in double system sound can be made on 16mm magnetic film, thereby eliminating the necessity of transferring the sound. The basic recording principle is the same. The camera films the visible images at 24 fps. The audio signal is recorded on the 16mm magnetic film through the recording head on the recorder. The camera motor emits the same 60 cycle sync pulse which, through the powerpack, goes to the 16mm recorder where it controls the speed of the motor, so that both camera and recorder run at the exact same speed.

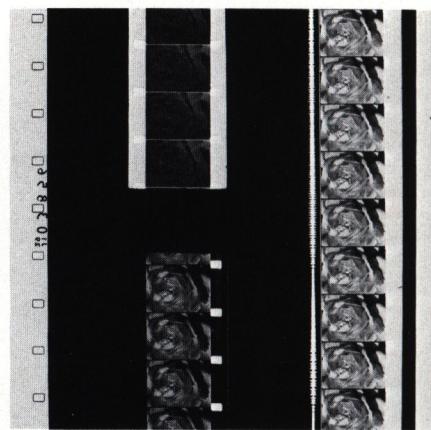


The completely edited sync sound track (1) can be further enhanced with additional sounds. To do this, each type of sound, the narration (2), the background music (3), and the sound effects (4) are recorded on separate 16mm magnetic tracks, each edited to the picture. In the next step, all the individual tracks are mixed, at which time are added also the necessary sound fades, dissolves and superimpositions.



The last step is to transfer the completed 16mm soundtrack onto the film for projection. The track from the 16mm magnetic film can be transferred to striped 16mm film (bottom), which can be a print or the original 16mm footage. This transfer is made from the magnetic film directly to the striped 16mm film.

When prints are made from the original film, the magnetic sound can be transferred to optical which is recorded along the edge of the print (top). Practically all commercial films have optical sound.



When an optical track is desired, the magnetic soundtrack from the 16mm magnetic film is made into an optical soundtrack which is printed along the edge of 16mm sound recording film (left). This 16mm film carries nothing but the soundtrack and is then combined in printing with the 16mm picture to make the final sound release print (right).

The release print can be made from the original reversal color film (center bottom), which is recommended when maximum quality is desired, and only a few release prints are required, or from an internegative (center top), which brings down the cost of the release prints considerably and is therefore recommended when larger quantities of release prints are necessary.





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