THE BOLEX H-8 SYSTEM OF FILM MAKING

PAILLARD Incorporated, 100 Sixth Avenue, New York 13, New York

BOLEX
TECHNICAL INFORMATION
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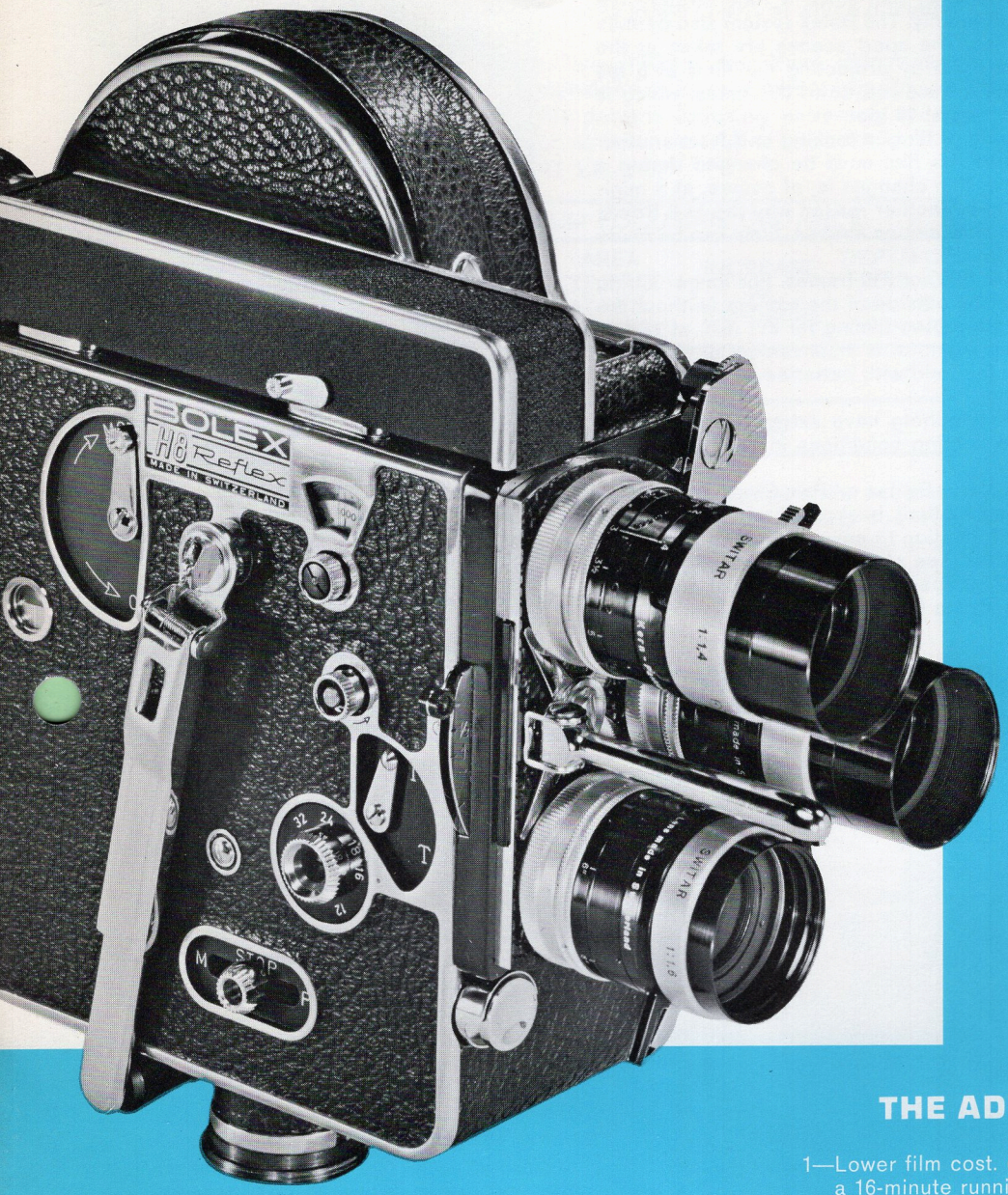
H-8 REX CAMERA



APPLICATIONS

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THE QUESTION OF FILM SIZE

Until recently, 8mm has been considered the film size exclusively for amateur use, where economy, compactness and simplicity of equipment are major considerations. Since the introduction of better 8mm color films and 8mm sound equipment, however, serious consideration has been given by educators and sales promoters to the use of 8mm in other fields. The sharpness and definition of an original 8mm film made on these new high resolution color films is satisfactory to suggest itself for many purposes other than amateur, such as industrial training films, for industrial work simplification studies, for data recording, for local school productions, teacher training, sports films, in research for macrocinematography, cinephotomicrography, time lapse and nature studies, in the medical field for surgical films, behavior studies.

THE ADVANTAGES OF 8mm

1—Lower film cost. (The color footage for a 16mm film with a 16-minute running time costs $60.00. An 8mm color film of the same running time costs $21.50, if the film is purchased in 25′ rolls, or only $17.70, if purchased in 100′ rolls for the Bolex H-8. The Bolex H-8 is therefore the most economical motion picture camera to operate.)

2—More portable projection equipment.

3—Film of smaller size and weight. (A 16mm film with a 30-minute running time mounted on a 10½″ reel weighs 2½ lbs., while an 8mm film of the same running time may be mounted on a 7″ reel weighing only ½ lb.

The choice of film size is determined by the way the finished film is being used and projected. 8mm is ideal for groups up to about 80. It should never be considered for large auditorium projection where the picture sharpness and brightness would be unsatisfactory. 8mm should also be considered only if the original film is projected, but not if prints are to be made, because at the present time good quality 8mm prints can be obtained only by reduction printing from original 16mm.

FOR SPORTS FILMING

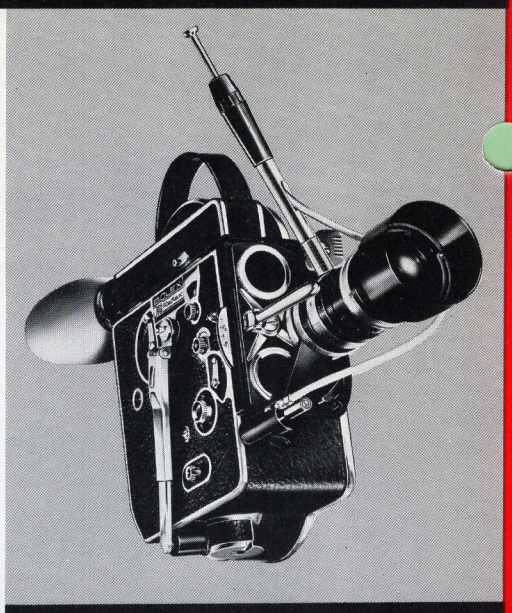
The most valuable feature in a movie camera for sports filming is the possibility of slowing down the sports actions so that they can be analyzed by the coach, instructor or athletes. The Bolex system permits two ways of doing this. The running speed of the H-8 Rex can be increased to 24, 32, 48 or even 64 frames per second thereby slowing down the action two, three or even four times when projecting the film at the normal 18 fps. This is the typical slowmotion with the only disadvantage of using up large amounts of film since it runs through the camera two, three or four times as fast as ordinarily. The Bolex system also permits an entirely new type of slowmotion studies. The sport scenes are taken at the standard 18 fps and the action is slowed down by projecting the films at 5 fps with the Bolex 18-5 Projector. The actions are slowed down 3½ times, which is about equal to filming at 64 fps and projecting at 18 fps.

The advantage of this system is the saving of film, or looking at it from another point of view, limiting the number of times the film must be changed during a football or basketball game. The number of film changes is, of course, at a minimum due to the 100′ film capacity of the H-8, another reason why the H-8 Rex is the ideal 8mm sports camera. For extreme slow motion studies, films can be made at 64 fps and projected at 5 fps.

The spring run in the camera is made for 10½′ or 840 frames. For longer spring runs, the Bolex Unimotor can be added to the outside of the camera (without the need of any tools) thereby permitting uninterrupted filming for 8½ min. at 16 fps, important in sports where rewinding the springmotor is inconvenient or time consuming. The Unimotor can be used out in the field with batteries or inside on AC current together with the Bolex transformer.

The Switar lenses, including the 36mm telephoto have extremely large apertures to permit filming nightgames where lighting conditions in the stadium are not too favorable.

The Bolex H-8 Rex equipped with the Vario-Switar or Pan Cinor Zoom Lens becomes the ideal instrument for recording football, basketball and other sports. One can go from a close-up of a football formation to covering a long pass without interrupting the action. The Vario-Switar (see photo) has focal lengths from 8mm (30½°) to 36mm (7° angle) and an f/1.9 aperture. The Pan Cinor goes from 8mm (30½°) to 40mm (6° angle) and has also a large f/1.9 opening.



IN THE FIELD OF SCIENCE AND RESEARCH

The tremendous versatility of the H-8 Rex makes it ideal for all types of research analysis from extreme close-ups to extreme telephoto cinematography.

Areas of less than 1″ in width can be covered and accurately framed without any additional accessories, while the Yvar 150mm can fill the frame with a 17″ object 50′ away from the camera. For cinephotomicrography the H-8 Rex is equipped with the Switar 36mm f/1.4 Rx and a special microscope adapter and is mounted on the Bolex Titler or a special camera stand for photomicrography. The H-8 Reflex finder permits accurate framing of the microscopic specimen.

The Bolex H-8 Rex combined with a time lapse unit becomes a data recording camera or a research instrument to record phenomena moving too slow to be visible to the naked eye.

Research instruments must naturally be accurate and reliable. The Bolex Cameras made with Swiss watchmaking precision have proven their performance over many years, under most adverse conditions and at tropic and arctic temperatures.

FOR MACROCINEMATOGRAPHY

All H-8 Rex lenses, with fixed or variable focal length, are in focusing mounts to permit sharp results not only at distances of feet and miles, but right down to inches. Focusing mount lenses are an absolute must for any amateur or professional interested in making fascinating 8mm films because close-ups are the most powerful and telling scenes in any motion picture, especially in 8mm. The Switar 5.5mm focuses down to 4½" at which distance it covers an area of 2½" x 2".

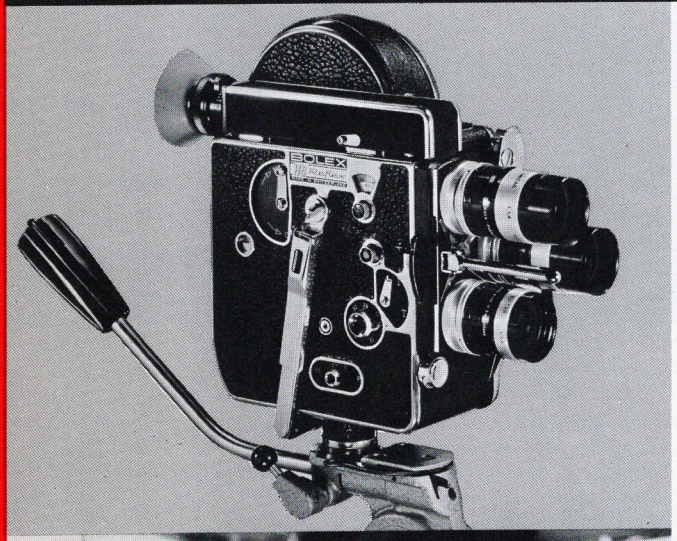
The Switar 12.5mm, Switar 36mm, Yvar 100mm and Yvar 150mm are equipped with a close-up focusing extension for macrocinematography, an exclusive feature on 8mm lenses. This permits focusing extremely close without any additional accessories such as extension tubes or portra lenses.

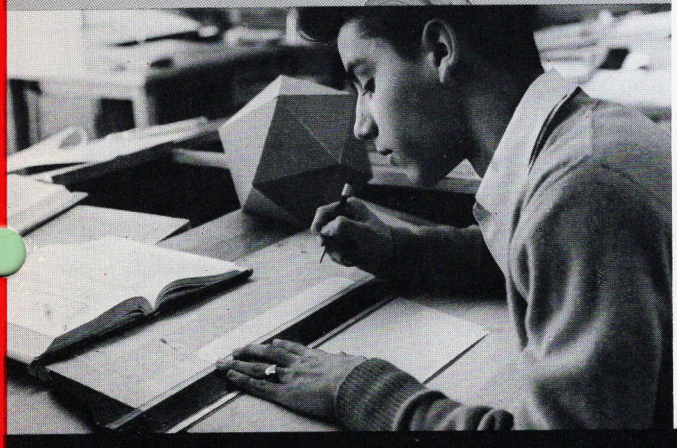
(SEE CHART BELOW)

AREA COVERED AT MINIMUM FOCUSING DISTANCE

LENS	DISTANCE FROM FILMPLANE	DISTANCE FROM FRONT OF LENS	AREA COVERED AT MIN. DISTANCE	INCREASE IN EXPOSURE	DEPTH OF FIELD AT MAX F OPENING
Switar 12.5mm f/1.3	2⅞"	¼" (w/o sunshade)	⅝" x 7/16"	⅔ stop	1/39"
Switar 36mm f/1.4	10 11/16"	7 3/16"	15/16" x 11/16"	½ stop	1/16"

Even at these extremely close distances, the H-8 Rex permits accurate groundglass focusing and complete parallax free framing and the H-8 Rex can, therefore, truly be called a macromovie camera; the ideal 8mm camera for nature and research studies. Photo shows diaphragm and focus controls of the Switar 12.5mm and Switar 36mm.





IN EDUCATION

This field covers many different applications.

Performance films—to record performances of a student, actor, dancer, public speaker or teacher.

Record films—to record on film important happenings around the school.

Demonstration films—to teach manual skills, hobbies by means of a visual demonstration.

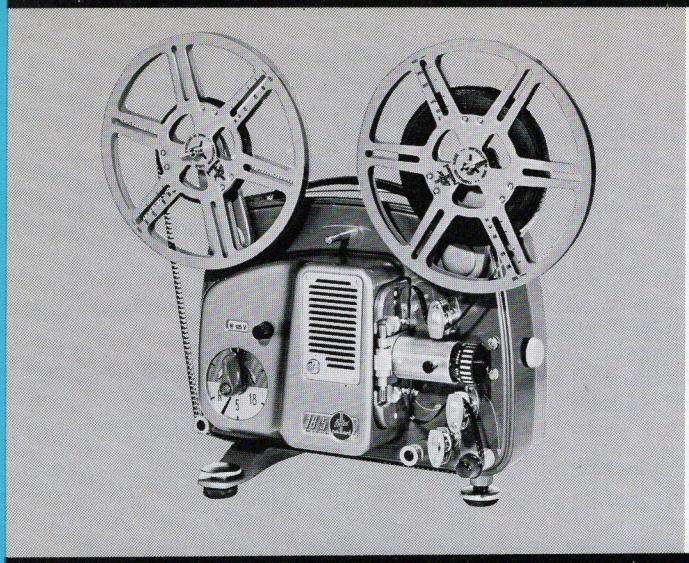
Research films—to record data for research studies.

Public relations films—to show school activities to parents, teachers.

Sports films—to analyze the performance of athletes.

Regardless what type of educational film is to be made, the Bolex H-8 Rex, either alone or with special accessories, can solve the problem. The operation of the camera is simplified so that teachers or students with little photographic knowledge can obtain good 8mm footage. The loading of the camera, for instance, is automatic and foolproof. The footage counter is automatic and does not require manual re-setting. The reflex viewing through the taking lens eliminates such mistakes as incorrect framing with cut off heads, off centered titles, filming with the wrong lens, unsharp pictures due to incorrect focusing, filming with incorrect filter, filming with a lens cap on the lens, or with the lens partly obscured.

In spite of this simplicity of operation, the Bolex H-8 Rex offers the greatest versatility of any 8mm camera and one H-8 Camera is all that is necessary for a school to produce any type of 8mm film. If it is necessary to record sound while filming, the Bolex H-8 Rex is combined with a sound recording unit. For most educational films, however, the sound is recorded after the film is edited using an 8mm magnetic sound projection unit, or the films are projected with a live narration by the teacher.

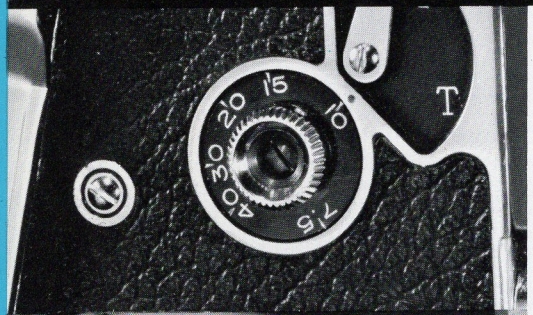


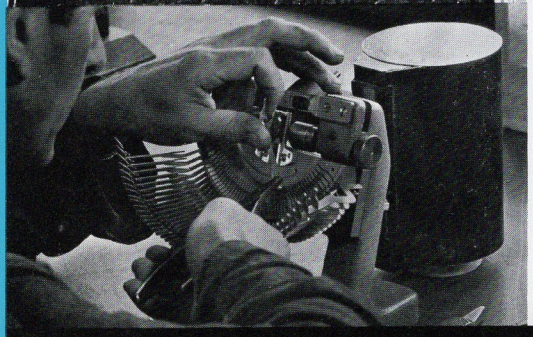
FOR SUPER SLOW MOTION STUDIES

The fast running speeds up to 64 fps permit slow motion studies of sports, machines, microscopic specimens or for work simplification studies. These fast moving actions can be analyzed more thoroughly by projecting the film at the standard 18 fps speed. Furthermore, the speed of the action can be slowed down an additional 3½ times by projecting the film at 5 fps with the Bolex 18-5 Projector. The subject can then be watched at a speed equivalent to filming at 230 fps., a speed not possible with any other 8mm camera and projector combination. Such super slow motion studies offer tremendous new possibilities in research, education, as well as for fun and entertainment. The 18-5 (illustrated) offers also reverse projection permitting a section of a film to be reviewed several times.

FOR UNDERWATER FILMING

The H-8 Rex is inserted into the Bolex Underwater housing, designed for depths down to 330 feet. The 100′ film capacity becomes a most valuable feature, eliminating the most annoying point in underwater photography—the frequent changing of film. The camera yields eight minutes of filming instead of two, before it becomes necessary to turn the film over. The Switar 5.5mm f/1.6 Rx is the perfect underwater lens due to the tremendous covering power. The Bolex Underwater case (illustrated) is equipped with its own parallox corrected viewfinder. Winding the spring motor and opening or closing the lens diaphragm can be done from outside of the case. No tools are required to lock or remove camera from case.





IN INDUSTRY

Motion pictures serve industrial firms in many different ways. Promotion films are used to show manufacturing, testing and research procedures to prospective customers; research departments use motion picture cameras to record on film all types of data and developments; training films are used to acquaint new employees with the correct method of operating a machine, assembling components, performing other manual skills. Another major application is in the industrial engineering department for work method studies.

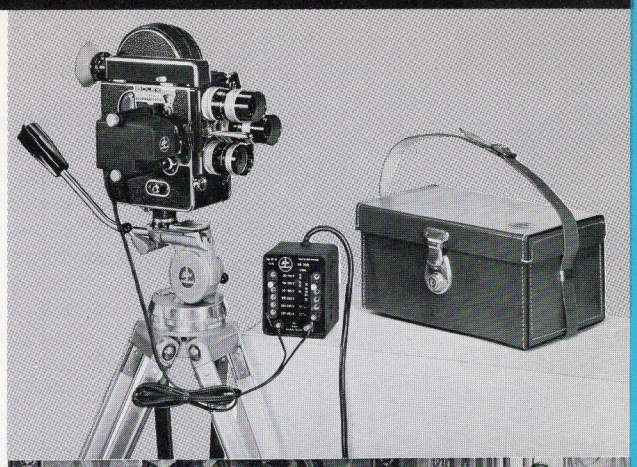
The Bolex H-8 Rex together with two photoflood lamps permits an engineer to make excellent motion studies at the normal working speed or he can slow down the movements for more detailed studies.

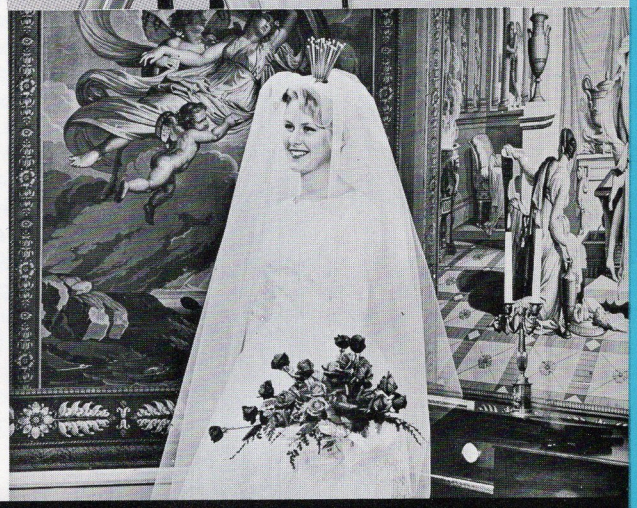
The Bolex H-8 Rex is calibrated in speeds from 12 to 64 fps., however, the industrial engineer engaged in this type of work sometimes desires a camera engraved in frames per minute rather than the regular 12 to 64 fps. The Bolex H-8 Rex is available on special request and at a slight increase in price with a special dial engraved in 750, 1000, 1500, 2000, 3000 and 4000 frames per minute. Each speed is individually calibrated and the speeds are governor controlled for constant running. For greatest accuracy, it is recommended to drive the camera with the Bolex Unimotor.

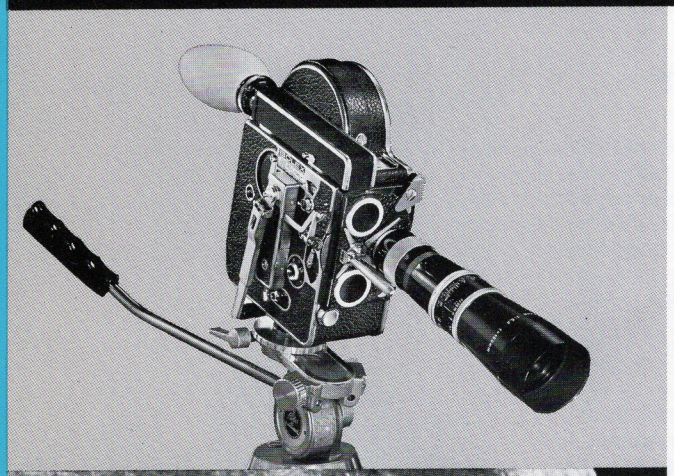
The Bolex H-8 Rex thus is the only 8mm camera specifically designed for industrial work simplification studies.

IN THE COMMERCIAL STUDIO

The number of families owning an 8mm home movie projector has increased tremendously over the last few years and as a result more and more families will want their weddings and other family functions recorded not only in still pictures but 8mm color movies as well. This opens to the commercial photographer a new and extremely profitable field. The Bolex H-8 Rex is the only camera designed for this purpose. In order to capture every important moment during the wedding, the camera must have a large film capacity, eliminating frequent film changes, and the Bolex H-8 is the only 8mm camera with a film capacity of more than 25′. It must be possible to operate the camera electrically, so that long sequences during the ceremony, outside the church, while cutting the cake, can be recorded without interruption which is likely to happen when a spring-motor runs down at the most inopportune moment. The Bolex H-8 Rex, equipped with Unimotor, driven by batteries, fills this requirement. The illustration shows the Unimotor mounted on the camera and connected to the transformer. Battery case is at right. The lenses must have large apertures, to be able to film in rooms with relatively little light and the 8mm color films, of course, must be of the highest quality, sharpness, color rendition, contrast, steadiness, to satisfy even the most critical customer. Furthermore, the 8mm film will impress and satisfy the customer more if it includes some professional touches, such as fades and dissolves, easily done with the variable shutter of the Bolex H-8 Rex.

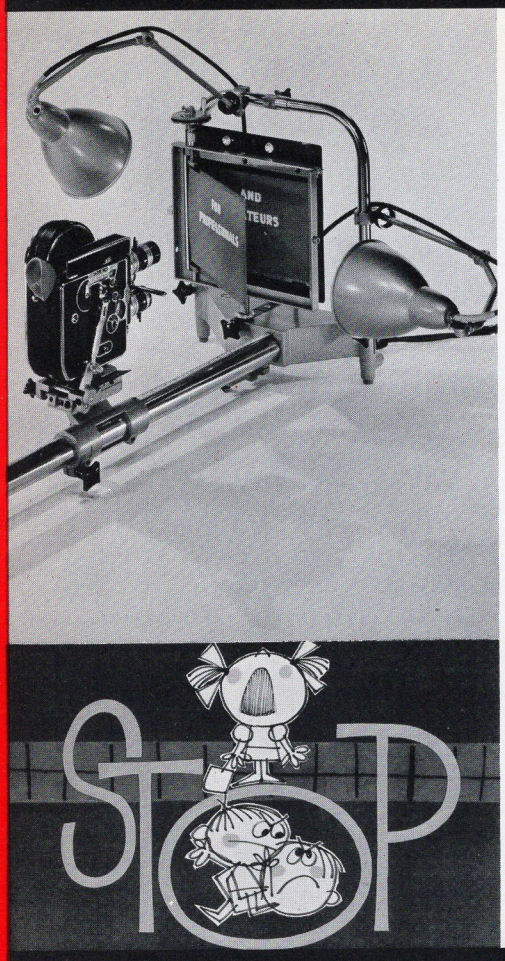






FOR WILDLIFE AND NATURE STUDIES

This type of motion picture work has some special requirements. Extreme long telephoto lenses of 75mm focal length or even more are a must, and since the H-8 Rex is available with lenses up to 150mm, close-up studies of far-away animals can easily be obtained. The Yvar 150mm (illustrated) magnifies subjects 12X compared with the standard 12.5 lens. Framing and focusing under these conditions is critical and only a camera like the H-8 Rex with ground-glass focusing while filming can be satisfactory. Another feature that makes the H-8 Rex the ideal wildlife camera is the possibility of remote-controlled operation. For this purpose, the camera is equipped with the Bolex Unimotor. Extension cords are mounted between motor and batteries, permitting starting and stopping the camera from distances up to about 200′. The 100′ film capacity eliminates frequent changes of film. Camera speeds up to 64 fps permit slow motion studies of birds in flight or other animals. The long spring run of 10½′ gives a running time of over 50 sec. at 16 fps. Together with the Bolex Unimotor, an uninterrupted 100′ film run is possible. The black finish makes the camera inconspicuous.



FOR ADVERTISING & PROMOTION FILMS

Most advertising and sales promotion films require large number of prints and therefore the original should be made in 16mm (with the Bolex H-16 Rex) even if the final prints will be in 8mm. There are, however, many cases where a sales and advertising department can use the H-8 to great advantage. A sales meeting, a board of directors or a small stockholder meeting can be made more effective by the presentation of a film which can be produced easily and at low cost in 8mm. Such films are usually made for this one specific purpose and, therefore, the original can be shown.

Films are ideal to demonstrate products (machines, moving toys) which are too large or too numerous to carry by the sales representative, 8mm offers tremendous possibilities in this field of visual presentation because the salesmen need to carry only a small and light 8mm projector and possibly a small screen. A small reel of 8mm film can show the complete operation of an entire machine or the workings of 50 different moving toys.

An advertising department can produce television commercials for experimental purposes. Such 8mm commercials could be used to determine their effectiveness on the screen and to audiences before going to the expense of having the final commercial produced.

Commercials, of course require "special effects" features and the Bolex H-8 Rex is the most complete 8mm "special effects" camera. Subjects can be animated and brought to life by single frame filming. Animated drawings can be produced by mounting the camera on the Bolex Super Titler and animation stand which also permits making any type of moving, scrolling, turning or spinning title (see example illustrated). Scenes can be made to dissolve into each other by rewinding the film between the fades. Two or more scenes can be superimposed each covering the entire, or only part of a frame, titles can be superimposed over actual subjects, moving subjects can be speeded up or slowed down by changing the running speed of the camera. The imagination of the filmmaker alone sets the limits.

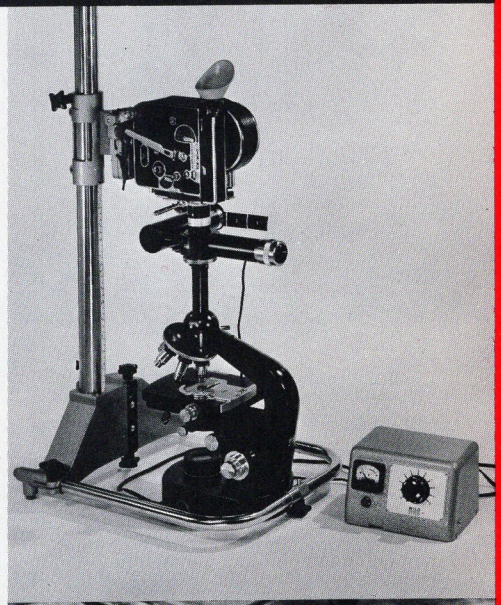
FOR FILMING THROUGH THE MICROSCOPE

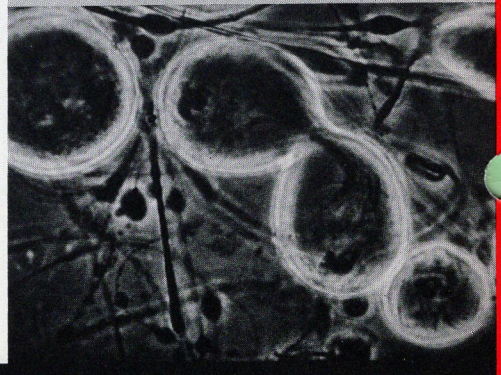
The microscope has long been one of the most important research instruments in the medical, industrial, and educational fields. As a rule, only one person can view an object at one time through the microscope which is a limitation of visual microscope observation. This can be eliminated by combining the microscope with a motion picture camera which films the specimen under the microscope. The specimen recorded on the film can be viewed on the screen which is more convenient and less tiring on the eyes than visual observation through the microscope itself, and the scientist, lecturer, or teacher can describe the object at the same time. 8mm is satisfactory for this purpose for audiences up to about 80 people.

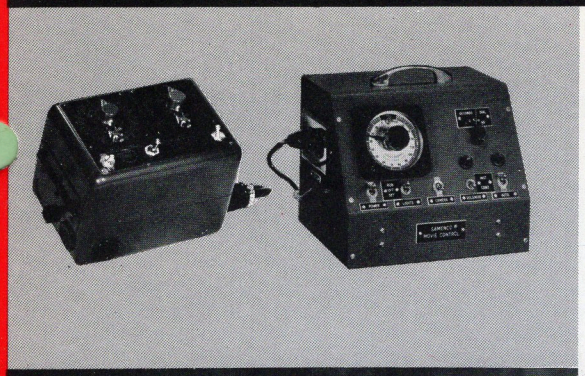
A motion picture camera, furthermore, presents a way of filming and studying microscopic specimens which is not possible in visual observation. A fast changing specimen can be slowed down so that its actions—3 or 4 times slower—can be studied more accurately. On the other hand, specimens which may take hours to change can be filmed so that the change takes place within seconds by time lapse cinematography.

The Bolex H-8 Rex with reflex viewing enabling the operator to frame and view the specimen while filming is the favorite 8mm camera for this purpose.

The camera permits single frame exposures and together with the built-in frame counter is ideal for time lapse sequences. The use of electronic flash is often desirable in cinephotomicrography and the Bolex H-8 Rex is ideal for this important application. This camera can be set for time single frame exposures and an electronic flash can, therefore, easily be synchronized so that it flashes while the shutter is open without the need for an internal camera synchronizing mechanism. The H-8 Rex, furthermore, has the extremely valuable variable shutter for shortening the exposure times. The running speeds of the Bolex H Models are from 12 fps to 64 fps and, therefore, accelerated and slow motion studies are possible.







FOR TIME LAPSE STUDIES

Time lapse photography has become one of the most valuable motion picture techniques developed. Actions which last hours or days can be filmed with this technique, and then shown within a period of seconds or minutes at a time and place that is convenient for study. Most important, time lapse photography permits studying movements which are too slow to be seen by the naked eye.

It is used for studying the growth of plants, trees and the germination of seeds, for microscopic examination of cell growth and behavior of microorganisms—for micromotion studies in industry to evaluate the movements of workers and machines, studying the flow of traffic outside or in plants, warehouses, or offices, for the study of natural phenomena, formation and movement of clouds, solar eclipses, tides, shadows, or just to enjoy seeing people or other objects move on the screen at an unnatural rapid pace.

The Bolex H-8 Rex with its built-in single frame device is designed for all the above applications. The camera can be equipped with a cable release which is operated by hand at regular intervals, exposing one frame each time, or the camera can be connected to a time lapse unit which automatically trips the shutter at intervals from seconds to hours, as set on the time lapse control box (illustrated).

The frame counter, built into the H-8 Rex lets one see at any time the number of frames exposed and the variable shutter can be closed down to give shorter shutter speeds for sharper images of moving subjects. The tremendous range of the H-8 Rex lenses permits covering any subject from a solar eclipse to a microscopically small subject.

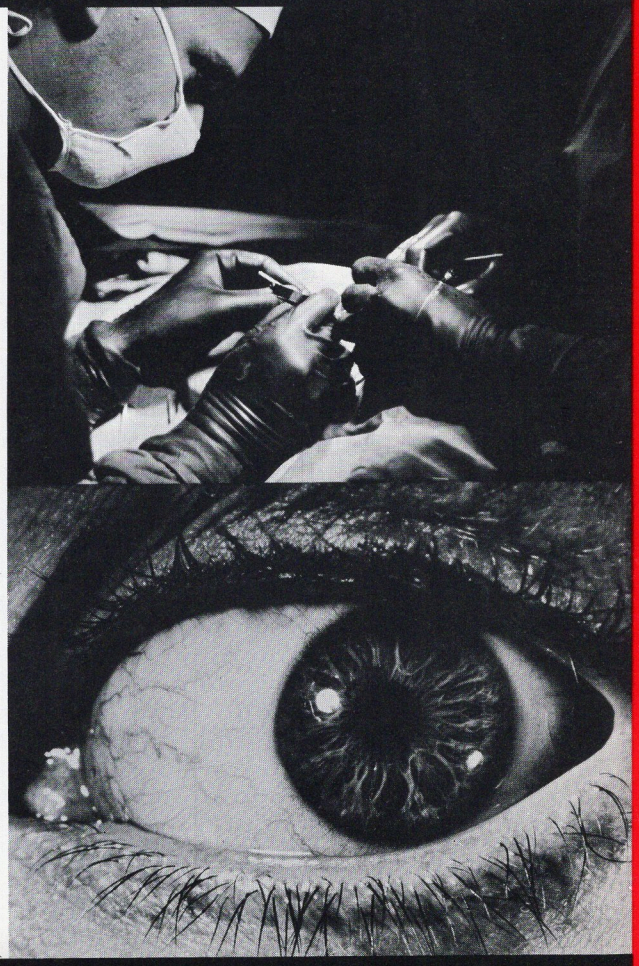
IN THE MEDICAL FIELD

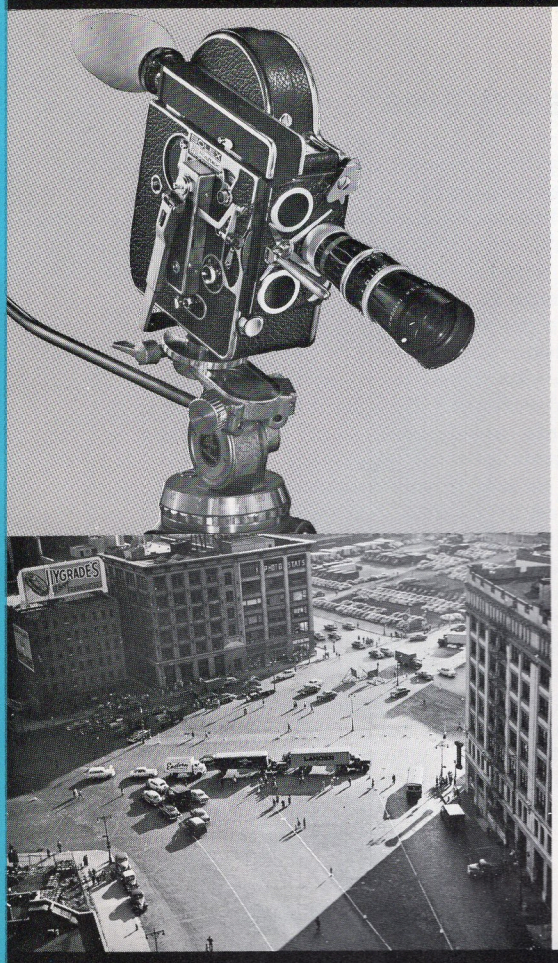
Medical photography is mostly close-up photography and 8mm lends itself well for this purpose. The three Switar lenses can be focused down to distances of but a few inches and closeups of an eye, a hand or a fingernail can be obtained without any additional accessories. The 36mm Switar telephoto lens permits close-up studies from relatively long distances. For instance, an area of 2" x 3", which is about the desired size for a dental film or an eye operation, is covered from a distance of 2' and the camera can therefore be set away from the working area of the dentist or surgeon. The Switar lenses have extremely large apertures between f/1.3 and f/1.6, making it possible to work in relatively low light. Zoom lenses such as the Vario Switar or Pan Cinor are ideal for surgical films since they permit going from long shot to close-up without changing the position of the camera or losing continuity in the surgical procedure.

Another most valuable feature for medical photography is the 100' film capacity of the Bolex H-8 Rex, eliminating frequent time-consuming and annoying film changes in the operating room. The Bolex H-8 Rex is spring-operated, and therefore, the danger of electrical charges in the operating room is eliminated.

For medical research work such as 8mm motion pictures through the microscope, the Bolex H-8 Rex, combined with a microscope adapter, offers unlimited possibilities and the greatest degree of accuracy. Microscopic specimens can be filmed at regular speeds, in slow motion, or single frames for time lapse studies.

Though the Bolex H-8 Rex is a "professional type" 8mm camera, its operation is simple, mainly because of the reflex viewing system, and does not require extensive photographic knowledge. A doctor or dentist can easily operate the camera and make his own medical films, and, of course, use the camera at the same time for pleasure purposes as well.





FOR MEMOMOTION AND TRAFFIC STUDIES

Memomotion studies are made for the purpose of finding smoother or more economic ways of traffic or product movement. Some typical examples are the study of pedestrian and vehicle traffic at an intersection or entrance to a firm, the movement of trucks at a loading platform, the flow of goods in a warehouse, the movement of parts on an assembly line, the movement of workers in a factory, or even the study of dials. Since such studies must usually be done over relatively long periods, one full working day, several days or even weeks, and are therefore time consuming and costly if done with pen and paper, large industrial firms have long ago recognized the advantages of a motion picture camera for this type of work. A motion picture camera makes these studies automatically and the developed films can be evaluated by an entire group of industrial engineers or traffic experts in the convenience of a projection room. Furthermore the films can be seen as many times as it is necessary to find a solution to the problem. The economic and easy to use Bolex H-8 camera permits such studies also in smaller firms or communities not equipped with a special photographic department.

The most frequently used camera speed for memomotion studies is one or two frames per second. For this purpose the Bolex H-8 camera is connected to a time lapse or memomotion unit which automatically trips the camera shutter at the predetermined speed. The 100' film capacity of the H-8 Rex is extremely important and valuable for this type of work since it permits shooting 8000 frames before it is necessary to turn the film to the other side for the second 8000 frames. A wide variety of lenses is another requirement. Frequently inside a plant the camera cannot be placed far away and an extreme wide angle lens such as the Switar 5.5mm is necessary to cover the desired area. In other cases the camera may have to be placed on a far away building and a long telephoto lens such as the Yvar 100mm illustrated, is necessary to see the necessary details.

FOR AMATEUR FILMING

Although the Bolex H-8 Rex has been described here for all types of professional applications it remains the "dream-camera" of the 8mm amateur. Not only is it the most economical 8mm camera to operate because of its 100' film capacity, but the only 8mm camera capable of producing the many special effects up to now limited to 16mm amateurs and professionals. Fades of professional quality are now produced right in the camera with the variable shutter. For lap dissolves, the variable shutter can be opened and closed completely automatically with the Rexofader, an accessory illustrated. The film rewind with the built-in frame counter makes double exposures, split frame shots, superimposed titles easy and as accurate as those in the laboratory. Tricks like these are bound to fascinate any audience. Other special effect features are the single frame device and the variable speeds. The Bolex H-8 Rex eliminates once and for all such other "amateur grievances" as off-centered titles and close-ups, chopped off heads, out of focus scenes, filming "through" a lenscap, or forgetting to re-set footage counters. The camera's audible scene length signal even counts for you. The film transport mechanism and the H-8 Rex lenses are made to the highest degree of perfection and capable of producing 8mm films with a quality never before possible. The critical sharpness from corner to corner at any f opening, the excellent contrast, the wonderful color rendition in your pictures will amaze any audience, and make a valuable contribution in any amateur film competition.