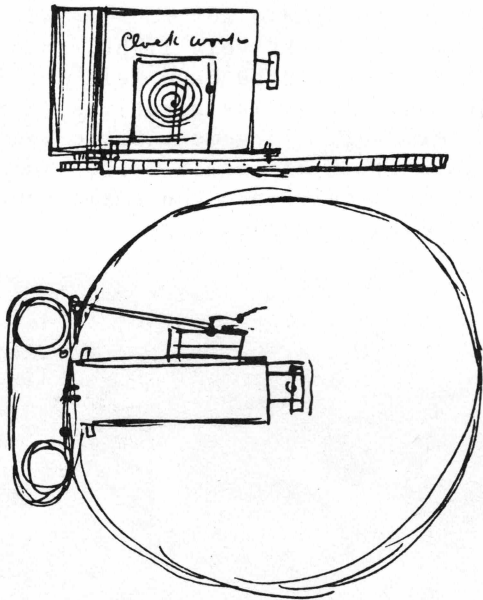


# Widelux 1500 Field Tested

WILLIAM H. JACKSON PANORAMIC CAMERA



by David A. Gibson, Photo Equipment Museum,  
Eastman Kodak Company, Rochester, NY

In a February 24, 1885 letter from William H. Jackson to George Eastman, he describes a panoramic camera that he built or had built (not sure which is correct). He was responding to Mr. Eastman's inquiry about Jackson's use of roll holders. The following is an extract from this letter.

To George Eastman,

At the time I was experimenting with Collodion Bromide films on paper, I (purchased? prepared? (writing hard to read)) a panoramic camera ... that seems to me to possess the gems of a very useful machine.

It consisted of a circular brass table with its outer periphery cogged, on this I sat a narrow camera, with the lens centered properly on the revolving point in the center of the disk. The roll-holder, which was detachable from the camera had two spools with focusing rollers (i.e., rollers to hold the film in the focal plane) exactly the same as

CONTINUED ON PAGE 16

ORLANDO, FL - Our IAPP March news letter scooped all the other photographic publications with our story and photographs of the new Widelux 1500 camera. I received several calls from other publications wanting to know where and how I had obtained the information and especially the pictures. The estimated price as published was erroneous, the Yen and the Dollar are still doing battle. The cameras are priced in the USA at about \$2200.

In this issue we have three of our IAPP members responding and telling how they like the new camera, they are: Rainer K. Lampinen, Helsinki, Finland (the first member to own one); Ken Duncan, Australia and Joseph Meehan, USA, whose story and photographs has just been received for our publication.

## THE WIDELUX 1500 FIELD TESTS

by Joseph Meehan, RD Box 39, Salisbury, CT  
06068

I have just completed two weeks of panoramic photography with the new Widelux 1500 medium format camera. The following information is based on my experiences using about 30 rolls of black and white film and color transparency materials under a variety of indoor/outdoor conditions.

The size and general shape of the new Widelux body is reminiscent of other eye level 120 cameras such as the Pentax 6 x 7 or Norita except it is lighter. The designation "1500" undoubtedly stands for the 150° angle of view which yields 6 negatives on 120 film measuring 50mm by 122mm (approximately 2" x 4 7/8"). The large, bright (although slightly blurred) view finder shows about 90 percent of the horizontal and 95 percent of the vertical picture image.

Mounted inside of the revolving panoramic barrel, is a 50mm f2.8 - f22 adjustable focus lens that will take, a not yet available, 34mm filter. But I have found that Canon makes a set of 34mm filters for one of their long focus lenses that fit the Widelux 1500 lens perfectly. To set the aperture you reach in and use your finger tip to turn a

small control wheel. The same procedure is used to set the distance for focusing with a range of 1 meter to infinity. This may sound a little awkward but in practice it is quite easy.

The 1500 takes only 120 roll film and moves this film through the camera via a manual advance method. That is, after each shot, you turn a film advance knob on the top of the camera which automatically stops at the next frame number. The camera is then cocked by moving a large lever at the rear of the camera just below the prism finder. Manual film advance means you have the opportunity for multiexposures by design (or mistake). One minor problem encountered early on was that the film never wound completely after the last exposure, leaving between 4 to 5 inches of leader. This was easily dealt with by popping the back which released the locked up film allowing you to completely wind the film. Another minor quirk was the shutter release button, it takes a standard thread

cable release but would not fire when the plunger on the cable was pressed. The shutter release itself requires a hefty push to activate the panoramic barrel. Mike Hansen of the Pro Shop in NYC, found a cable release with a penetration long enough to trigger the 1500 camera, it is the Kaiser Fototechnik, catalog #6184.

The bottom line for any camera is always the quality of the image it produces. In my opinion, the Widelux 1500 delivers excellent images. Sharpness is maintained from corner to corner with good levels of contrast. The full range of f stops and the slow-medium-fast shutter speeds (1/8, 1/60 and 1/250 second) combine to handle any routine situation.

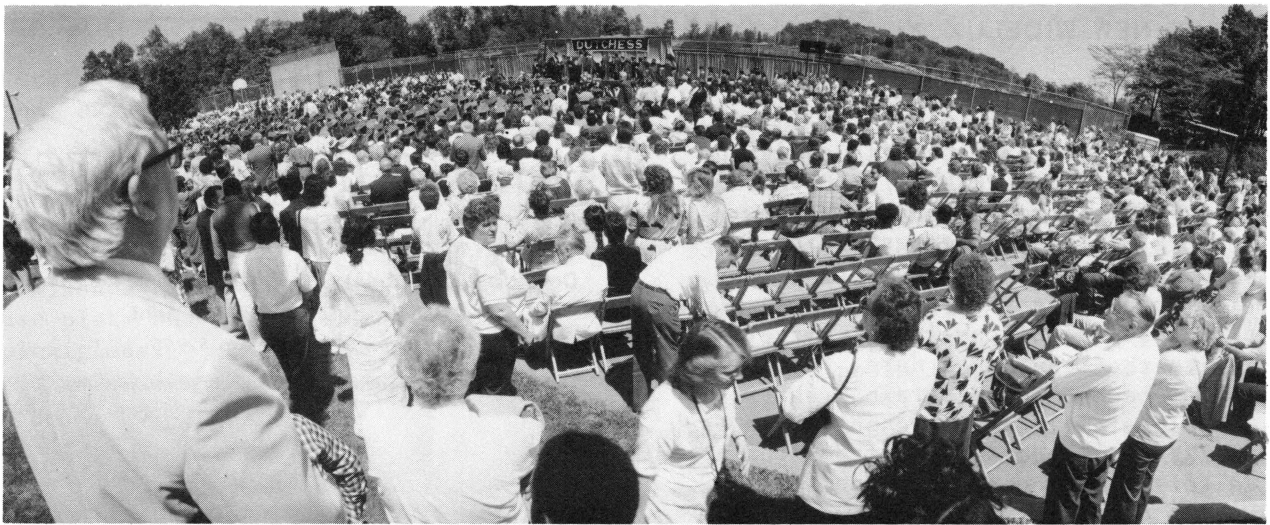
The camera is relatively light, sets up very quickly and can be hand held for limited applications. It yields negatives 2" x 5" size in terms of enlargement ratio and gives a very impressive panoramic view. The camera also fits perfectly into the small Lowe Pro Trim Tech Odyssey padded bag.



*The 50mm lens can focus as close as 18". While taking this photo at a local gas station, the sign began to swing in the wind, I reached out from behind the camera and held it still. The building is about 80' from the camera. VP D76 1:1 1/60 f22*







A typical "semi-fisheye" effect caused by a unlevel high angle. T Max 100 1/60 f22



The Widelux 1500 is very easy to work with. An event such as a graduation can be shot quickly from many perspectives making limited or full use of it's 150° angle of view. T Max 100, T Max Developer, 1/60 f22.



How good is the 50mm lens? This photo was printed as a 4"x10", down the sidewalk you will notice a brick building and a white sign. This area has been enlarged to the equivalent of about 4'x10'. Verichrome Pan, D76 1:1, 1/250 f11

## TESTING THE NEW WIDELUX 120

by Ken Duncan, PO Box 15, Wameral NSW 2260 Australia.

The Australian Agent has recently assigned me to test the new 120 SUPERWIDE WIDELUX 120. Here are some of my comments about the new baby. In short, it's the greatest thing to panoramic photography since the introduction of roll film to photography!

I am still testing the camera but am very impressed with the results to date. As yet I have still not been able to obtain 6 shots from a 120 roll of film and have only been getting 5 1/2 (same report heard from other users - Editor). As you can imagine, the 1/2 frame is a bit of a worry, but I'm working on it.

The focus is a great asset, but because of the 50mm lens you have nowhere the depth of field of the F7 Widelux and this takes a bit of getting use to. The camera focuses down to just below 1 metre, which is great for those interested in closeup work. The optics seem pretty sharp if focused properly.

The 250th speed has a recoil and if one isn't holding the camera properly, it could jerk out of your hand. I suggest using a pistol grip as standard equipment as the cameras large size makes it hard to hold unless you have hands the size of pizza pans!

In the IAPP introductory article it was mentioned that the camera had 3 built in filters. This set me to almost dismantling the camera in search of the filters as the Japanese can be tricky sometimes. However, I have since been told by the Australian Distributors that the filters are extra and screw onto the front of the lens. The filters are some obscure size, typically Widelux, and I am still waiting for their delivery. (Information first received from Panon about the camera described 3 built in filters and the high shutter speed of 1/125 which also was wrong - Editor).

Aperture and focus setting controls are a bit fiddly but quite acceptable. The aperture and speeds are very accurate, more so than the F7 Widelux. Focus also seems pretty accurate but am still testing this area.

The viewfinder is much more accurate than the F7, which makes for easier composition. It is great having the larger format as it make for much easier viewing of trannies on the light box and better quality in larger printing.

All in all I am very impressed with this new Widelux and am happy with the results. In fact I am so impressed I have ordered 2!

More data on Kens new book, "AUSTRALIA WIDE -

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DISCOVER

THE LAST FRONTIER", which will be released in September 1987 and will be 100% panoramas. It will later be released internationally.

We mentioned Kens new book in our last newsletter and several IAPP members have contacted either me or Ken about how to purchase copies of the book.

Anyone wishing to secure a signed copy of the first print run should contact Ken at the above address. The book price will be \$A45 and S.A.L. postage to the US will be \$A25. (That is a total of \$70 dollars Australian which is considerably less in US funds) All orders must include payment with postage and specify the name of purchaser and postal address. All orders will be acknowledged, delivery will be in September 1987. Over half of the first print run has been presold so orders should be received here by July 31st, 1987 to avoid disappointment. Limited Edition Prints of all photographs in the book will be available through the photographer.

### ADDITIONAL WIDELUX 1500 DATA

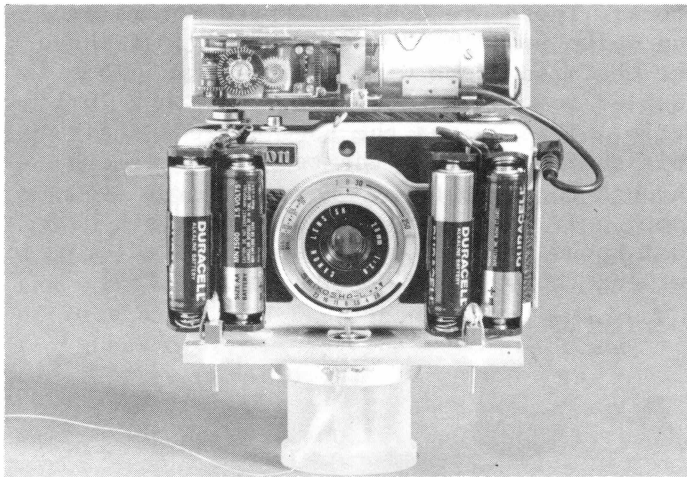
I received from Rainer K. Lampinen, ARPS, Helsinki, Finland some corrective data about what was published in our March issue. The data that I had received from Panon must have been the specifications of a prototype camera. Rainer sent me many beautiful transparencies which unfortunately I cannot use in this publication.

The correct specifications are, minimum aperture f22 (not f16), highest shutter speed 1/250 (not 125), 34mm filters not built in.

## CONVERTING A HALF-FRAME 35 TO A 360° PANORAMIC CAMERA

Peter Steinkamp, 4114 S.E. Salmon Street,  
Portland, OR 97214

The camera shown here is a continuous strip type panoramic. The body and lens are from an older 35mm Canon half-frame camera with a 28mm lens. The motor on top was taken from a broken Nikon winder. Other parts, such as the base plate and large pulley, were made from plexiglass.



The original camera was disassembled and a number of changes were made. The bottom and rear views of the camera show that a shaft was installed which extends from the inside sprocket wheel to a point below the camera. Fixed on the end of the shaft is a small aluminum pulley. The original film advance lever and gear system were removed so that a direct connection could be made between the motor and the take-up spool. The flash PC socket was moved to the side of the camera and a new shutter cocking lever was installed.

The camera operates in this way: When the shutter is tripped (by pulling a line which extends up through the central pivot point) the motor switches on and begins to pull the film through the camera past the aperture slit. Consequently the film turns the sprocket wheel and the small pulley below.

The movement of the small pulley is transferred to a belt which encircles both the small pulley and a larger fixed position pulley (see bottom view). The camera then rotates over the fixed pulley in synchronization with the film movement.

The proportions of the pulleys were initially determined by using the formula for panoramic photo length. The by manually transporting film through the camera it was possible to double check the exact length of film used during one camera rotation and to adjust the small pulley diameter accordingly.

The results obtained with the camera have been fairly successful. It has taken several experimental rolls of film to determine the optimum aperture slit width and transport speed. The smaller the slit was made, the sharper the photographs were but the density striations become more apparent. There was a compromise width that was related to the smoothness of the motor. In its present form, the camera is still slightly temperamental. It is easy to understand how hydraulic drive systems (as in the Globuscope) can give good results.

I began this project by researching panoramic camera designs in the U.S. Patent Gazette. Some of the earlier designs such as C. P. Stirns "Wonder Panoramic" of 1890 provided inspiration. The Canon half-frame camera was attractive for conversion because of its compact size and short focal length lens. It also allowed the batteries to be mounted directly on the camera.

After several winter evenings spent constructing this camera in the basement, I looked forward to picture taking this summer. I would appreciate hearing from anyone who has made a similar 35mm conversion and also from anyone who knows of a source for high quality D.C. gear motors.

EDITORS NOTE: I put Peter in touch with Ben King whose cameras you shall next read about.

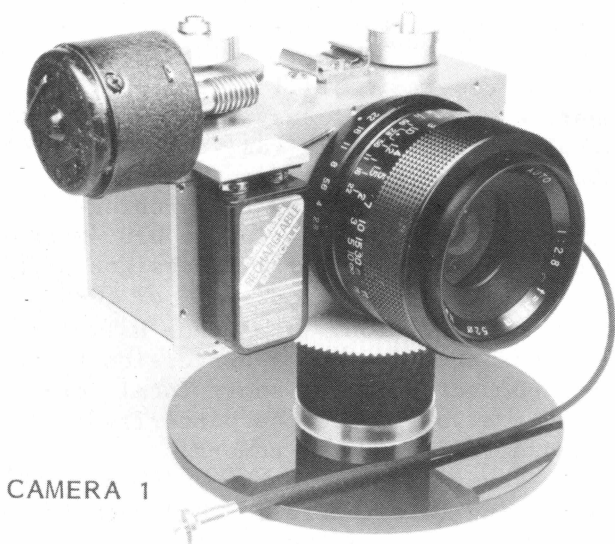




## THE KING 360 SPECIAL

by Ben King, 707 Martin Street, Greenville, Ohio 45331

I became interested in building a panoramic camera through a noted local photographer and good friend, Jim Oliver. He came to my office with a panoramic picture he had made with a 2 1/4 camera. He also had with him an old Kodak #6 Cirkut camera with a jammed spring motor. He wanted to know if I could repair it. I looked it over and knew it would be quite a job and besides I had no knowledge about motor powered panoramic cameras - this was the first one I had ever seen. Jim asked me if I could build him a smaller version panoramic camera? I responded that I would have to think about that but Jim was persistent. The more I thought about it, I could not get the idea out of my head.

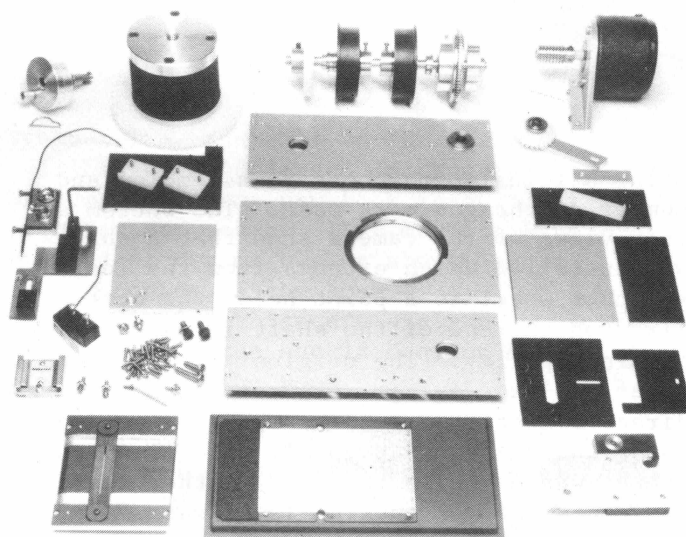


In the weeks that followed, I studied the possibility of building such a camera, that is, after I figured out how such a camera worked. The challenge was there and I figured I could do it. I have a small machine shop and I have built small cameras and attachments in the past, but this would be my first 360° panoramic camera.

I did most of the design work on paper and decided to use 35mm film and a 35mm medium focal length wide angle lens. I drew a camera using these features and it looked good. I called Jim and he looked over my plans. At first he thought it should be of a larger format film either 120 or 220. After discussing the print problems of such a large negative size (length), he approved the 35mm plans. The film would be only 8.6" long for a full 360°. A 250° image could be printed in one piece in a 4x5 enlarger and a full 360° in an 8x10.

I built the camera from gray finish radio rack panels. This is 1/8 aluminum stock. I cut it out with a hand saw and milled the edges square and bolted it together with stainless steel 0-80 machine screws. This makes for a very ridged camera body and when I was finished it had a paint job already in place.

I operate a radio repair shop and I had a number of Delco car tape player motors in stock. These are constant speed motors and run quite well on a 9 volt battery. I chose one that ran clock wise at 2100 rpm. This is coupled to a worm and worm gear with a 70:1 ratio. This drives the take up reel shaft. This shaft runs from the top of the camera through to the bottom. Here it turns a 40 tooth gear that couples to the 80 tooth gear that turns the camera. There is an idler gear between the 40 and 80 tooth gears. This



permits the camera to rotate in the opposite direction to the film. These gears can be disengaged by lifting up on the camera body. The camera can then be set to the start position with out the need to change or reset the tripod. A complete 360° picture takes just 4 seconds. The effective shutter speeds can be set for either 1/30, 1/60 or 1/120 second.

Jim had a Pentax screw mount 35mm f2.8 lens which I adopted to this camera by machining the front of the camera with Pentax threads. There is an exposure slot at the film plain with a shutter just in front of it. A cable release hooks to the shutter and also to a micro switch in the bottom of the camera body. This switch turns on the motor at the same time the shutter opens for the exposure. The motor is powered from a 9 volt battery on the front of the camera next to the lens. On top of the worm gear there is a clutch that will

release the film take up reel for rewinding the film back into the cartridge after the film has been exposed.

After completing the construction of the camera, I ran several dummy rolls of film through it and it seems to work very well. I called Jim and he was there moments after we hung up the phone. Jim took the camera out for a test and was back in a couple hours with the first 360° negatives and black and white prints. It really did work! I knew right then that I had to build one of these cameras for myself. So I started work on camera number two.

I made some changes in the second version by trying some new ideas. I fitted a bubble level to the top of the camera body. I also used a Nikon mount on the camera so that I could use the 35mm Nikon PC (perspective control) lens. I used a counter clock wise 2400 rpm motor and mounted it on the opposite side as in the first camera. I also changed the worm and worm gear ratio to 80:1 instead of 70:1 as in the first camera. I machined a fly wheel of brass for the worm shaft and coupled the motor to this with a brass universal. I then gold plated these parts which made for a beautiful 360° and it really works.

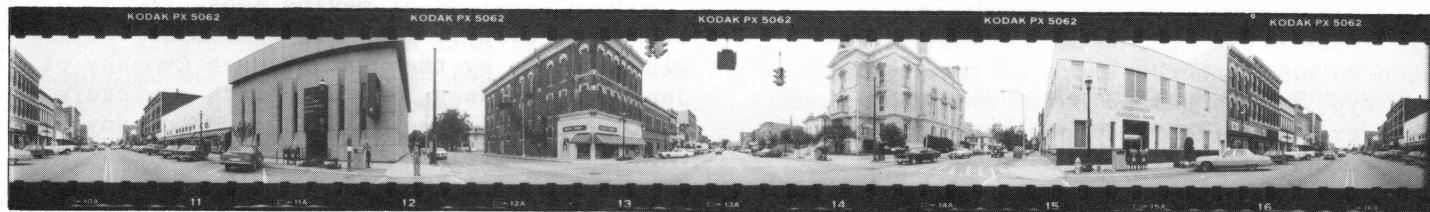
It is also possible to use other focal length lenses on the camera by changing the spur gear on the take up reel shaft on the bottom of the camera. Lenses from 28mm to 80mm will track since the idler gear is adjustable, 18 tooth to 48 tooth gears will mate with the 80 tooth camera gear. Combinations are; 28mm 48 tooth, 35mm 40 tooth, 50mm 28 tooth and an 80mm 18 tooth. These gears are all available.

Camera specifications are: Lens 35mm focal length; Film 35mm 20/36 exposure; 20



exposure = 3 1/2 360° pictures, 36 exposure = 6 360° pictures; 360° film length 8.6" (219mm); Effective shutter speeds 1/30, 1/60, 1/120; Slot width for 1/30 .072" (1.8mm); 360° turn = 4 seconds; Motor speed 2100 rpm; Motor power 9 volt; Camera body size 4 5/8, 2 7/8 x 2 1/16 deep; All gears and shafts run on sealed ball bearings; worm - stainless steel; Worm gear - brass; 40-80 tooth and idler gears are of nylon.

Build your own King 360°, a set of detailed drawings, additional photos, all part numbers and addresses can be had by sending me your request and a check for \$25.



## DESIGN OF A PANORAMIC CAMERA

by David W. Paskin, EPC Company, 11304  
Taffrail Court, Reston, VA 22091

### A Brief History of the Panoramic Camera:

Panoramic cameras can be divided into two groups:

1. Cameras in which the lens moves through a horizontal arc, pivoted about its optical center. In these cameras the film is held in an arc. The radius of the arc is equal to that of the focal length of the lens. This type of camera had its limitations since it cannot produce a panorama of 360 degrees and generally has an acceptance angle of only 140 degrees.

2. In the second type, the complete camera rotates on a turntable so that a moving image is formed on a slit in the focal plane of the lens. The film (or plate on some early models) is made to traverse past the slit at such a rate that there is no relative movement between the image and the sensitized surface.

Generally, the camera and film movements are kept in the correct relationship by means of interconnecting gears attached to the camera turntable and the film drive.

One of the earliest patents on panoramic photography was filed by C. Silvy in 1867 (B.P. 2170). Silvy suggested placing sensitized paper in a camera obscura. The "camera" consisted of a camera obscura with a semi-circular image plane. Sensitized "paper", as the specification puts it, is held in the required position and an exposure made. The camera is then turned through 90 degrees and the paper wound on the appropriate length, and another exposure made. After four frames, the whole 360 degree horizontal was exposed on one continuous web of paper. Another interesting feature of this patent is that Silvy claims that the unexposed paper is wound on a spool in a light-tight tube. A slot in the tube allows that paper to be pulled from it and rewound after the complete exposure has been made. Perhaps this was the earliest example of a cassette for photographic material.

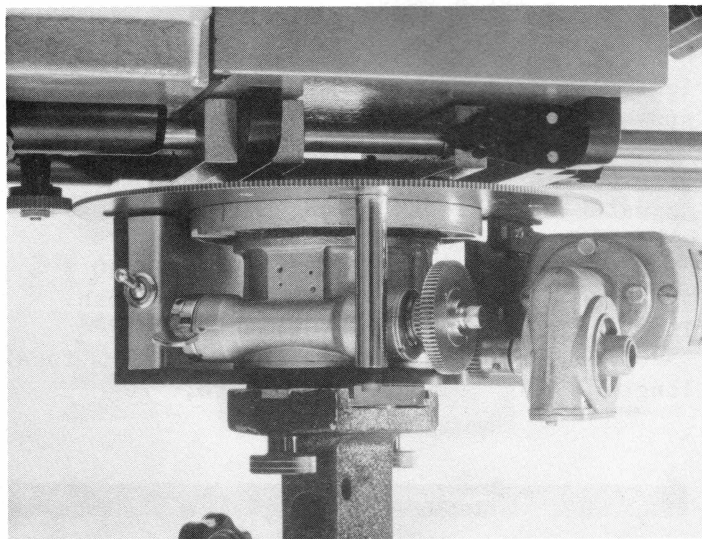
An early moving lens camera was patented by A.M. Clark in 1884 (B.P. 9461). This camera, apart from being constructed from wood and leather, was very similar to cameras available today.

In 1900, Kodak Ltd. (F.A. Brownell) patented an advanced camera of the moving lens type. This camera had a removable back to insert the film, and spools of film were used rather than cut sheets as in previous models.

A number of cameras of the moving film type were patented before 1899. In this year W.B. Thompson patented a clockwork camera with a

friction drive connecting the film movement and the camera traverse mechanism. (A similar type of camera had been patented twelve years earlier by A. J. Boulton except that it was turned by hand).

In 1903, H. J. Haddon constructed a panoramic camera which could be converted to a view camera for normal work (B.P. 10,938), and a few months later William J. Johnson of Rock Springs, Wyoming, filed patents almost simultaneously in both America and Great Britain (B.P. 21,527, U.S.P. 776,403) for a camera which became the basis for the "Cirkut" camera. These cameras were first manufactured by the Rochester Panoramic Camera Company, then the Century Camera Company owned by the Eastman Kodak Company. From 1915 on all manufacturing was done by another Eastman division, Folmer & Schwing. The Cirkut cameras were probably the best known of all panoramic cameras, and a large number of them have survived to the present day (Fig. 1). However, they are much the worse for wear and the author has overhauled nearly one hundred Cirkut cameras in past twenty two years.



A more modern version of the Cirkut camera appeared in 1953. This camera, which was manufactured by Milbo Photographic Ltd., was of all-metal construction and powered by four U2 batteries. However, none of these cameras appears to have survived.

Modern versions of moving lens cameras are available today. The most common is the F7 Widelux made by the Panon Camera Company of Japan, which uses 35mm film with a picture angle of 140 degrees. This same company also made a 120 version called the Panon and the Panox which are available on the used camera market. Another sought after used camera is the Russian FT-2 Horizont which also takes 35mm film and has a picture angle of 140



degrees. A new camera is now being introduced by the California Connection, the Electropan which uses 120 film and has a picture angle of 128 degrees.

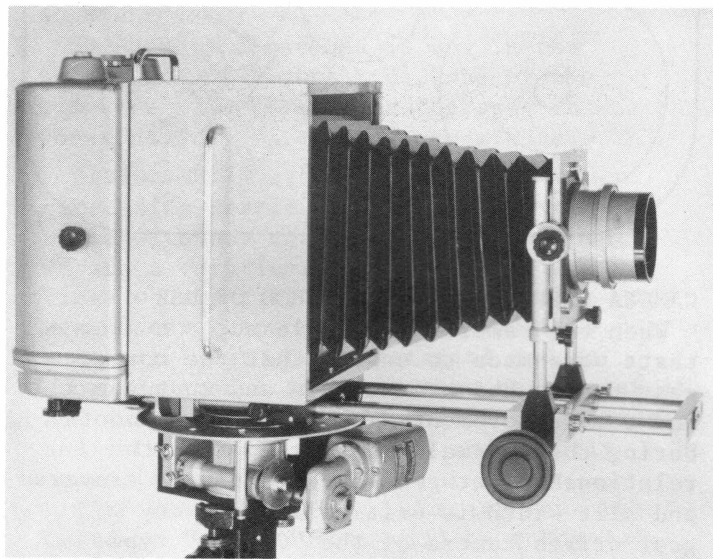
Several other interesting cameras are now available on today's market, the Linhof Technorama and the Fujica 617.

There are several new Cirkut type cameras being manufactured, the Hulcherama (120), the Alpha Roto 70 (120 & 70mm) and the Globuscope (35mm).

Back in 1966 when this article was first written, there were no other Cirkut type cameras being built so I decided at that time to study the principles involved and then construct a modern version incorporating improved design and more precise construction.

#### PRINCIPLE OF "MOVING FILM" CAMERAS

As previously explained, "moving film" cameras rotate on turntable so that an image formed by the lens falls on a slit in its focal plane. Film is drawn past the slit at such a rate that an image falling on the film will be stationary, and thus produce a sharp record.



To find the relationship between the length of film which must move past the exposing slit for one 360 degree camera traverse, the following equation is used:  $2\pi f = L$ .

$L$  = length of film to move past the slit for a 360 degree traverse.

$f$  = effective focal length of lens.

Having determined how much film is needed, the appropriate length can be fed through the camera by one of three methods:

1. By choosing the correct ratio of gears between the gear on the rim of the turntable and the film drive mechanism.

2. By choosing the correct ratio of pulley wheels and linking them with a friction drive.

3. By varying the diameter of the film drive roller.

The author also made a number of experiments on a prototype camera with a sprocket drive mechanism, but had great difficulty in obtaining a smooth drive. A number of other trials were made, using intermediate gears between the turntable gear and the film drive roller, but these were also unsuccessful.

It will be noticed from the formula that the camera traverse/film ratio will only hold true if the lens is focused at infinity.

If the subject distance changes and the lens is focused accordingly, then the effective focal length of the lens has changed. The new conditions will require that a different gear ratio be used, depending on the distance of the camera from the subject. It would be impracticable, of course, to have a correct gear ratio for every possible subject distance, and in practice, cameras are generally supplied with a small number of gears for each lens (a convertible lens giving three focal lengths was supplied with "Cirkut" cameras, and three gears for each lens, thus nine gears in all). These gears were correct at 25, 50 and 100 ft. To give some idea of how much film is required for each shot when using a 14 in. lens, the lengths are:

Distance from Subject - 360 Film Length	
25 ft.	92.3 in.
50 ft.	90.05 in.
100 ft.	88 in.

To enable the photographer to alter the gear ratio easily, the camera drive gear is made readily interchangeable.

The clockwork drive mechanism on the "Cirkut" camera is fitted into the base of the film magazine. This mechanism serves two functions: to move the film past the exposing slit and to drive the camera on its turntable.

Effective exposure can be adjusted, either by altering the lens aperture, or by applying a brake to the clockwork mechanism so that the whole movement is slowed down.

#### CONSTRUCTION OF A MODERN PANORAMIC CAMERA

Although the principles of the "Cirkut" camera were sound, the only cameras in existence are now very old and generally reveal the following shortcomings:

1. Vibrations are often transmitted from the clockwork motor to the film because the drive to the camera is via the film magazine.

2. The clockwork motor cannot always be relied on to provide a uniform rate of film traverse.

3. The pressure plate provided in the magazine is liable to scratch the film.

In an attempt to eliminate these faults,

the writer has designed and constructed a camera using slightly different principles, more modern materials, and an electrically powered drive.

To reduce vibration, the drive unit is placed in the base of the camera directly above the tripod, rather than in the film magazine. The turntable mechanism is located above the drive unit, and rotates in phosphor bronze bearings. It is driven via a worm and gear reduction unit powered by a small electric motor (Fig. 2).

In order to change the speed of traverse and thus exposure time, the voltage across the motor can be adjusted to 24, 18 or 12 volts D.C.

A quick-release mechanism is provided on the wormdrive so that the camera can be turned rapidly by hand for purposes of setting up.

The camera body, film magazine and focusing unit are fitted to two 1/2 inch diameter stainless steel rods spaced 4 in. apart. These rods are rigidly attached to the turntable (Fig. 3). The body and magazine can be removed for easy storage.

In order to minimize the weight of the camera, the body is constructed from hardwood strengthened with a covering of fiber glass and is designed so that the bellows and lens mount can be pushed inside it for protection.

As a camera of this type will almost always be used to photograph large groups of people, a rise and tilt front is incorporated.

The camera magazine is adapted from an F.8 aerial camera magazine. This magazine is particularly suitable as it takes 9 1/2" film and is cast in aluminum.

In order to minimize the scratching sometimes encountered with the Folmer & Schwing cameras, no pressure plate is used, and instead a large diameter roller supports the film in the focal plane. The roller runs on ball races, and is rotated by contact with the back of the film. This arrangement means that the film is not held flat behind the exposing slit, but takes the form of a very small arc of a relatively large circle (Fig. 4).

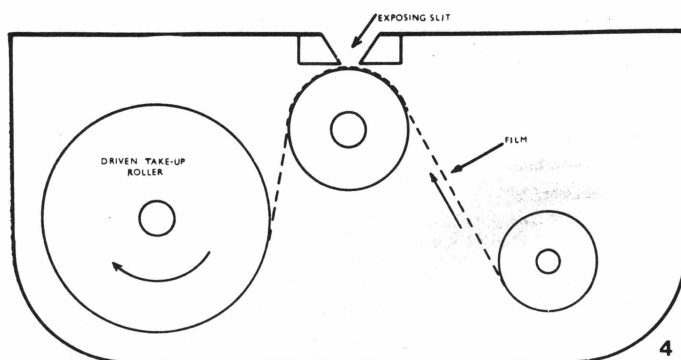
To insure a perfectly smooth drive, all the shafts in the magazine run on ball races.

The film take-up roller is 4 1/2" in diameter and draws the film through the magazine. This roller is connected by a spindle to a small gear which projects below the base of the magazine. By changing this gear it is possible to alter the length of film drawn past the exposing slit.

It will be appreciated that as the film is wound on to the take-up roller, its diameter will increase with each convolution. As the amount of film drawn through the magazine is dependent on the roller diameter, for optimum

results the roller should be as large as possible so the very few thicknesses of film are built up.

To load the magazine with film, a fresh spool is fitted into the right side of the magazine and passed round the pressure roller and finally fitted into a slot on the take-up roller. Incidentally, film for "Cirkut" cameras is supplied in various widths and lengths, the most common size being about 8" x 8". It is interesting to know that although these cameras have not been manufactured for fifty years, Eastman Kodak still undertake to supply the film both in B&W and color. The film has a leader and trailer of black paper, with the film taped between the two. When the film has been exposed, it is wound back on its spool. Of course, a cover is placed over the exposing slit before the film is rewound.



#### CAMERA PERFORMANCE AND METHOD OF USE

When the camera was completed, a number of tests were made to ensure that the correct gear ratios had been chosen and that the film and camera movements were perfectly smooth. During these trials it emerged that the relationship between speed of camera traverse and slit width is critical. With any gear-driven camera of the "Cirkut" type, if the slit width is narrow or the speed of traverse high, there is a considerable risk of uneven exposure along the length of the negative. The reason for this is that although a gear-driven camera can be constructed to fine mechanical limits, it is in fact moving a series of very small jerks. Only by using a relatively wide slit (1/4 inch) and a slow traverse can the jerks be averaged out to produce an acceptable negative.

To take a picture with the camera, a suitable site has to be chosen, preferably flat and in the shade. A cloudy day is ideal as, if part of the exposure is in sunlight and part in shadow, the resultant negative is extremely difficult to print. Incidentally, the size of negative for an average traverse of 150 degrees is about 3' 8"; this is printed by contact in a giant print frame.

With the camera set up in the required position, the group of people to be photographed are generally positioned in three or four rows in a semi-circle with the camera at the center. The camera must be levelled and focused, and quite often, in order to get both the front and back rows in sharp focus, the camera lens may have to be titled.

With this particular camera, the traverse is from right to left, so it is lined up by means of a ground glass focusing screen a little outside the right-hand end of the group. The screen is then removed, and the magazine, complete with loaded film, fitted into position.

The battery power supply is connected to the camera and the start switch depressed. The camera then traverses the group, usually in about one-half to three-quarters of a minute. This stage is critical as a strong gust of wind during a traverse can ruin a successful picture. When the camera reaches the other end of the group, the power is switched off, and the film rewound back on its spool.

#### ACKNOWLEDGEMENT

The camera described is now in the possession of Panora Ltd., one of the pioneers of panoramic photography in England, whose help I gratefully acknowledge.

DAVID PASKIN is our new IAPP President succeeding Harold Lewis. Please contact David with any constructive ideas about IAPP. We are a very loose organization but sometimes we might be a little too loose. Our newsletter keeps us in touch which is printed whenever I get enough material and an enormous amount of spare time to typeset it and put it all together. Your suggestions and interest are requested and greatly appreciated.

IAPP CONFERENCE - no positive news about where and when another will be scheduled. David Paskin and I have been communicating about planning one. We have 3 locations where people have suggested and hopefully we have help and cooperation coordinating a meeting. California has 2 locations that two people have suggested. Austin, Texas, home of the Goldbeck collection would have great interest to our group. An IAPP member in Tampa will coordinate a meeting for IAPP in Tampa - Orlando area. Don't know if people want to come back to this area again so soon. Choosing an area and time of year is the easy part, getting a person to coordinate and plan the Conference is the responsibility that not too many people want to assume - everyone is always too busy. We need input from you members, please write David Paskin, 11304 Taffrail Court, Reston, VA 22091. Let him know what you think is best for IAPP.

ASSIGNMENT - #10 Color Group 135 People  
Poolside 1:30 PM SHARP!

by Richard G. Fowler

Palm Coast. Fl. Monday, May 11, 1987, 1:00 PM - pouring rain little chance of clearing. 1:15 PM rain continues photo assignment postponed until later in the day or next day which will throw tight meeting times way off schedule. 1:25 PM - still pouring rain. 1:28 PM - rain letting up. 1:29 PM - rain almost stopped, manager and I making decision about photo. 1:30 PM rain stopped, picture now a "go" - but how fast can I set up the number 10 and be ready? 1:31 PM camera cases rolled into position, tripod case opened, runner goes inside to inform group picture to be taken on schedule. 1:32 PM tripod set up and leveled, runner returns to inform us that the group is still at lunch and the speaker is going overtime (bless him). 1:33 PM camera taken out of case, attached to tripod, front and rear bellows extended. 1:34 PM lens switched to 19", box of film opened, film magazine opened. 1:35 PM start loading film in magazine when the group starts out to get in position around pool. 1:36 PM giving instruction to group while finishing loading film, install number 36 gear. 1:37 all people in place, quick focus of the camera on left end, check center, then right end, tighten bed lock, collapse rear bellows, install film magazine, engage gears. 1:38 PM connect wire to control/battery box, quick check with exposure meter, stop lens down to f45, speed 1/3 second, adjust a few bodies. 1:39 PM few rain drops start again, last minute instructions to hold still as camera will be moving very slow, camera started, picture completed. 1:40 PM raining again, assignment completed, my number 10 got a little wet but we did the photograph in record time (for me anyway).

I always preload the film in the magazine and have it all ready prior to setting up a group but did not on this occasion due to the rain and humidity and the decision to postpone the photo to another day. I have taken many pictures under great pressure before but that was a first for me and my number 10.

P.S. - Except for the overcast sky, the 62" photo was a perfect number 10 Cirkut.

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## BRITISH CIRKUT PHOTOGRAPHY

by Michael Westmoreland, Panoramic Photography, 358 Victoria Park Road, Leicester LE2 1XF (UK)

For many years I seem to have been the principle user of Cirkut cameras in Britain (possibly in Europe too), there were two old established companies here which did group work but both have now changed hands and seem to be concentrating on other things. My principal interest lies in landscape and environmental photography and my use of large format cameras and long-time penchant for the panoramic format always pointed me naturally in the direction of the Cirkut. At that time (around 1968), it was exceedingly difficult to clue yourself into the subject, the available literature seemed to ignore them, no dealers had ever seen one, no collectors seemed to collect them, none were ever advertised for sale. It was several years before I found one which I could own.

From the early beginnings of my interest I had one consuming idea, colour photography with Cirkuts using modern lenses and that no-one else had such an idea or had done anything about it. Then a huge stroke of luck occurred, it came to my notice that Agfa-Gevaert were about to junk a large quantity of aerofilm colour transparency material in 200 foot by 9 1/2 inch rolls. It was available at the unbelievable price of \$15 dollars per roll. I was so hard up at the time that even so I could only afford a few rolls and when I went back shortly after to buy some more it disappeared. Nothing like this material has since been made and now that Agfa have been forced into E6 compatibility it never will be.

My stock has now dwindled to the last two rolls but kept in the deep freeze, it remains a beautiful film despite its use-up date of 1973. The type 41 process involved is marvelous, at 68f it is a 5 bath system, 3 of which can be carried out in light. This made it possible to process by hand in large polypropylene troughs, the only really feasible method.

Already I hear the inevitable question, why on earth go to all that trouble? Part of the answer lies in the sheet thrill of lifting out of the bath an 8 foot by 9 1/2 inch colour transparency (are they the largest ever?). On a lightbox they can be gazed over for hours. The other consideration is that only a tranny can be translated onto Cibachrome. Apart from the fantastic visual qualities of Ciba, the fabled longevity of the material make it tops for exhibition and

photo-decor work. It is in this field that the main potential for pictorial Cirkut work seems to lie. The only other comparable film is Kodak Aerochrome but you would have to be a millionaire to consider using and processing it.

The technology I devised for myself over the years has probably been echoed by a number of Society members, the giant contact printer traversed by a motorised colourhead, the old wallpaper cutting machine converted to a film-roll slit, the wooden film spools turned on a lathe. Perhaps less of you went down the path of making a scanning enlarger working like the camera in reverse but I'm surely not the first nor of using the Cirkut as a peripheral camera on human subjects?

I now own 6 Cirkuts, all sizes except the 16, including a Paskin conversion number 10. The small ones are a delight to use and so handy in the field. I would be most interested to hear if anyone has electrified a number 5 or 6. That ought to put the Alpa Rotocamera in its expensive perspective. The number 8 is the most flexible of all taking everything from a 4 1/2 inch lens to a 25 inch and in its wide angle mode must surely compete with the Hulcher.

My feelings on discovering the IAPP a couple of years ago were somewhat mixed, chastened to find that someone like E.O. Goldbeck had been at it all those years, saddened to think that many of my original ideas were not so original after all and elated to find there were so many of you to pool ideas with. Not having been to one of the Conferences yet I would really like to know what interesting and successful usages members have managed to find for their pictures.

I have had occasional commissions and sometimes pictures get used for oddball purposes like a jigsaw puzzles but apart from a modest turnover of fine-art Ciba prints, the overall impression lingers that panoramic photography is forever doomed to be a solution looking for problems (always excepting group photography of course).

Any correspondence will be most welcomed and society members visiting this part of the world likewise. I have a traveling exhibition of my Cibachromes going around this country at the moment and would like to hear of any opportunity to exhibit in the USA. Also I would like to swap ideas with people who have devised cheap, practical and eye-catching ways of mounting and framing.

## PANORAMIC CAMERAS I'VE MADE

By Andrew Davidhazy, Imaging and Photographic Technology, Rochester Institute of Technology

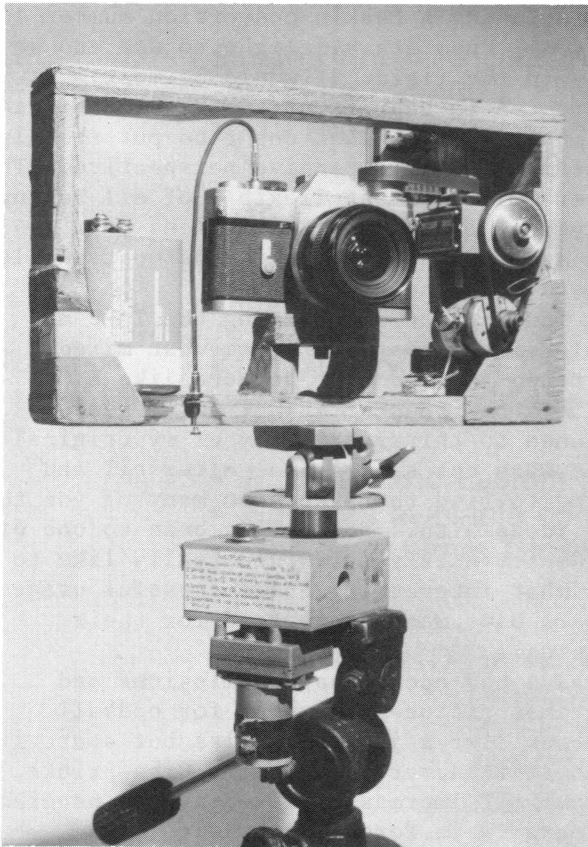
My experiences with panoramic camera construction started in the late 1960's while still an undergraduate student at R.I.T. and while involved with exploring the photographic possibilities of moving film type cameras generically known as "strip" cameras. I first learned of the pictorial applications of these cameras from the work of Life Magazine's George Silk and his coverage of the 1960 Olympics with a camera modified for him by Marty Forsher.

The first panoramic camera I built consisted of a mechanism for rewinding the film in a standard 35mm camera while the camera was manually panned at a rate controlled by the focal length used on the camera. The longer

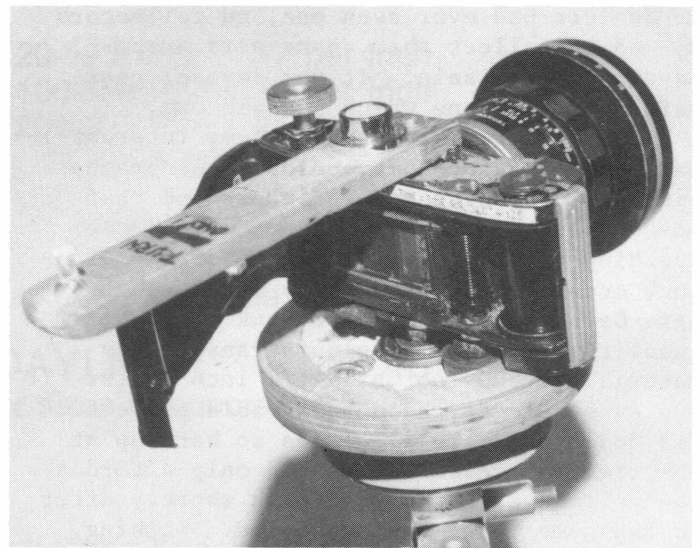
advantages of the previous method became evident.

At the same time that my interest in panoramic photography increased I started to experiment with enlargements. In 1970 I made a 360° 32 foot long print from a panoramic photography made with a 35mm focal length lens on the above camera turned by a battery driven rotating tripod head made for it. The print was made in two 16 foot sections projected by a masked down carrier in a 4x5 enlarger. It was 40 inches wide and when displayed it hung from a wooden hoop 10 feet in diameter under whose edge the audience had to "duck" in order to enter the city scene which was augmented by city sounds from a continuously repeating cassette recorder. My first experiments were published in the September 1969 issue of Popular Photography magazine.

Subsequently I designed and built a "strip"



the lens the slower the pan for a given rewind speed. I took an approach to determining the length of film required for a full 360° shot which was, and remains, rather unorthodox. Instead of using the traditional formula of  $2 \times f \times \pi$ , I divide the vertical angle of view of the lens in use into 360 and multiply this figure by 24mm. While normal focal length lenses require similar lengths by each method it was not until I came in contact with Cirkut photographers that the



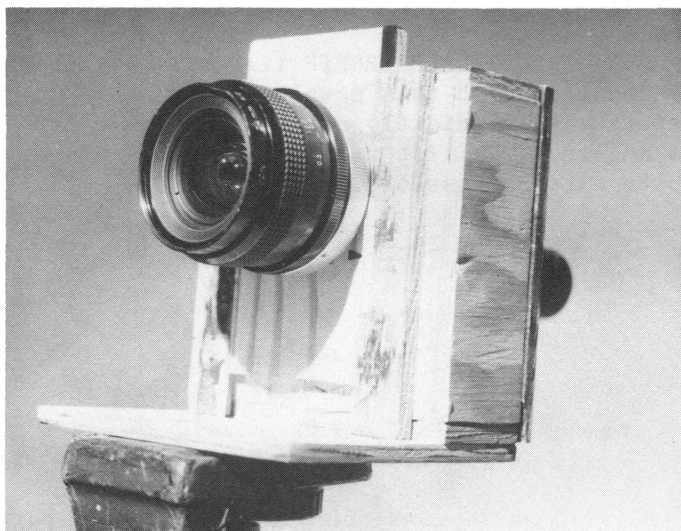
enlarger capable of moving the film at the enlarger head and the paper at the easel. I motorized the drive rollers from a Polaroid Pronto camera to move the film and slowed down an 18" Ektamatic processor to drive the paper. Both the film and paper were driven by DC motors and I matched the speed of the paper to that of the enlarged image by simply varying the voltage to the paper drive so that the paper would appear to move at the same rate as the film's grain pattern. To easily visualize paper speed, I placed ink marks on the paper just previous to its passage past the image of the exposing slit at the easel. Soon I was making enlargements on 10" wide paper which exceeded 50 feet in length.

I continued working in panoramic and other applications of "strip" type cameras and my activity was reported again in the June 1980 issue of Modern Photography. As a result of



this article I received a letter from Alan Zinn of Michigan who issued sort of a challenge by starting that he had designed a camera that used no motors or gears. The photographs he sent me were very good indeed! I decided to look into alternate designs as a result. The outcome was a camera that at least partially met the challenge.

I modified an Agfa Silette body by fitting it with a 19mm Canon lens adding a rubberized wheel to its film advance shaft. This external wheel contacted the inner surface of a circular depression out into a wooden base with a lathe. The diameters of the camera wheel and the cylindrical depression within which it rode were proportional to the circumference of the film advance sprocket and the amount of film which the 19mm lens required for a complete panoramic photograph. Given that the location of the tripod socket of the camera (the point about which the



camera rotated) and the shaft of the film advance sprocket were fixed, only one set of wheel/circle diameters would allow the two to continually remain in contact as the camera turned. Thus, turning the camera also advanced the film and during one 360° revolution exactly  $19 \times 2 \times \pi$  or 119mm of film passed through the camera. Since the slit was fixed at 1mm, the exposure time was always a function of how fast the camera rotated.

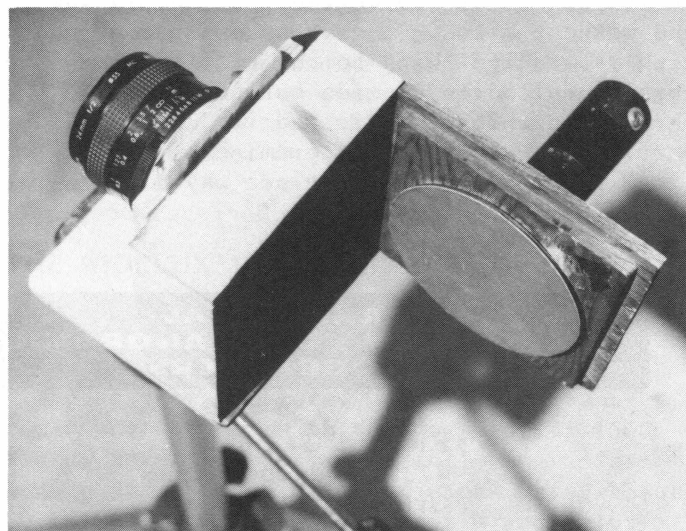
I have used this camera ever since and presently it is further modified with a rising and falling lens mount so that the horizon location can be placed as close as 2mm from either edge of the negative. That is, the lens can be raised or lowered 10mm off axis.

The camera has been a lot of fun to use and even though it is capable of being motor driven, it is most fun to use when I turn it

by hand and get myself included in each panoramic photograph.

A recent development, which was reported at the IAPP meeting in Las Vegas, is a novel panoramic camera in which the film traverses a circular path rather than moving in straight linear fashion as in standard panoramic cameras. The "conical" panoramic camera is able to deliver 360° photographs in which the top is slightly shorter than the bottom thus allowing a print to assume a conical, rather than cylindrical, shape. The images produced by the camera can be used directly as conical lampshades, novelty hats or any other conically shaped article on which it is desired to show a full undistorted panoramic view.

Throughout my work in the area of strip cameras it has always been my intention to develop systems which the amateur could experiment with without altering or ruining



expensive personal equipment. With this in mind, I finally designed a simplified rewinding bracket which can be built with simple hand tools at a minimum of expense. This bracket, to some extent resembling a \$400 Sugawara Film Streak V rewinding bracket available from Japan, will allow most any photographer to explore panoramic, peripheral, photofinish and a variety of other applications in the exciting field of "strip" photography.

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IAPP Member Tim Ryan has informed me that he has acquired the Ohio license plate - "CIRKUT", that makes about 6 IAPP members who have this distinctive plate in their states.

Need your news items and articles for this publication. Have something for sale or want to purchase a camera, call we might know who has what you need.

**JACKSON CONTINUED FROM PAGE 1**

the one I have been discussing - except that as in this case the paper always rolled one way, one of the rollers was supplied with a tension spring. On the side of the camera was an old clock spring with a fly wheel for regulating the motion. This power was supplied to a cogged wheel projecting through the bottom of the holder from one of two spools and this also engaged in the cog of the big disk, so that, when set going, the spring drove the camera with its holder around the disk.

It was so arranged that when the camera travelled say to the right, the paper or film on the spool traverses itself in the contrary direction. At the point of junction between camera and holder, was an adjustable slit for admitting the light from the lens to the film. With the speed at which I drove my machine, I found that at half an inch gave exposures enough. With this machine I succeeded in making a negative, taking in an entire circle or 360 degrees, perfectly sharp and without hitch. I gave up experimenting with my machine owing to the difficulties of working collodion bromide but now with the perfection which gelatin bromide has been carried with the further promise of a practical paper film, I do not see why a moving

camera should not be a very handy thing to have about - especially for the landscapist. It could be adjustable to take any number of degrees on the horizon desired -20-40-100 or the entire circle if desired. I am impatiently waiting for some such thing to become perfected.

(A later letter indicated that the format was 8"x45")

Jackson's camera, whether he built it or had it built, used the same basic idea of the later developed Johnson Cirkut Camera.

We thank Mr. Gibson for this interesting historical data, that's what makes our IAPP newsletter interesting to read.

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FOR SALE - there will be a #10 Cirkut Camera and a Hulcherama camera for sale but the details have not been received in time for publication. Anyone interested contact me. Anytime a member has something to sell or needs to buy, call me anytime at 305 293-8003 and I might know who has what you need.

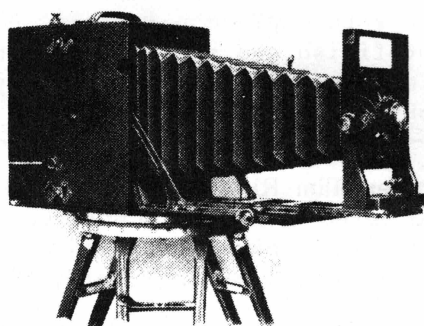
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