The making of a "new" multipurpose stereo camera

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As a relative newcomer to the field of stereo photography I have come across certain facts which have not been too encouraging in terms of a deeper involvement in this technique. Foremost among these facts was the realization that the selection of cameras available to stereographers is rather limited to say the least!

I presume I am correct in stating that at present there are no new stereo cameras readily available either at camera stores or through mail-order. The Stereo Realist is no longer in production and American stereographers are presently having to rely on the used market to procure equipment or purchase it from sources outside the States. The outcome of this is that since there is a shortage of good used equipment the prices of these cameras have remained quite high, if not higher than their original price.

After acquiring a stereo camera, however,( an old Sears) I did try my hand at this exciting form of photography but found that I had a tendency to wish to see the results of a shot much more quickly than if it had been a regular 2-D shot. A strange psychological factor must have been at work! So I wasted a lot of film just to see what the shots looked like by using the remaining film on less than useful subject matter. Eventually my interest in the stereo camera dwindled and to this day it remains simply an interesting addition to my camera collection.

However, a couple of years ago (many by now ... sometime in 1980?), I noticed an interesting item mentioned for sale in a surplus sale sheet sent to me by an electronics supply house. It was an assembly clearly intended to become a part of a stereo camera. It consisted of a lens/shutter board equipped with matched 35 mm focal length lenses with shutters which could be set on T, B, and from 1 second to 1/200 th of a second. And the advertised price was $ 6.00. I bought two sets just to see what they were figuring that at the price I could not go wrong. It turned out to be an interesting investment.
What came in the mail was a set of lenses apparently intended for the Revere/Wollensak stereo camera of many years ago. The lenses could not be focused but otherwise all the functions were in fair condition. With a little cleaning everything worked fine and I decided that someday I'd build my own stereo camera. I put the lens sets away for about 18 months when I became interested in aerial photography, particularly "multispectral" photography.

In this technique, various films are exposed to various wavelengths of light with the purpose of analyzing the resultant individual images or combinations of images in terms of their correlation to specific subjects on the ground. Usually these cameras expose four pictures simultaneously. They are also very expensive. I remembered the stereo lens boards at this time and decided to build a "multispectral" camera based on connecting the two boards together for simultaneous photography. While I toyed with the idea of a 35 mm format, it soon became apparent that the best thing to do would be to use 4x5 sheet film as the recording medium. I figured I could always make a special holder if I wanted a different kind of film behind each lens. As I brought the two boards together the shape of the camera which I was to eventually put together took shape almost without any effort.

The first step was to mount the lens/shutter boards onto a common board. This was done by outlining those parts that protruded from the rear of each board as they were laid with their tops in contact. That is, one board would be right side up while the other would be upside down on the finished camera. The reason for this was that in this way a common lever release pivoting about an axis located midway between the lenses could, in one downward move, sequentially trip each boards' shutter in turn.

After the lens/shutter boards were attached to the common board the next step was to place them at the correct distance from the surface of the film loaded in a 4x5 sheet film holder so that the images projected by each lens would be acceptably sharp for subjects located at about 7 feet away, the hyperfocal distance, when the lens set to f:5.6. This was accomplished by first building a substitute 4x5 sheet film holder fitted with a piece of groundglass. Then the spacing between the lens boards and the groundglass was adjusted until the above requirements were met. The space between the lens boards and the film holder was built up with 1/4 inch plywood so that the holder would be surrounded on three sides by wood and so that it would rest on a frame of plywood located at the correct distance from the lenses as determined by the
previously conducted focus tests.

The shutter release lever was attached next onto a metal crossbar running from the top to the bottom inside the camera's box. One end of the lever would activate one shutter while the other end activated the other as it was being pushed downwards on the end which protruded outside of the light tight box, through a black felt lined slot. The whole of the inside area, behind the shutter release lever was then also made light tight by installing an overall partition between the shutters and the film plane with circular holes cut into it to allow light only from the lenses to reach the film. To get an approximate view of the subject to be included in a photograph I removed a viewfinder from an old Polaroid camera and attached it to the top of the camera's box.

The only thing remaining to be done was to go out and use the camera for Multispectral photography. Well, I never did use it in this mode although in retrospect it could quite easily be used in this manner. Instead I began to use it as an "ordinary" stereo camera but with tremendous advantages, as far as I was concerned, over my previous experiences with standard 35 mm models. These advantages may merit a listing of their own to fully appreciate the opportunities now available.

This is a unique photograph of William Hyzer and Harold "Doc" Edgerton seen in 3D or stereo and made in early 1980's with this camera onto one half of one sheet of 4x5 film.

A summary of photo possibilities afforded by this camera follows:
1. Since the camera can be loaded with one sheet of film at a time I no longer need to waste roll ends to find out what the picture looked like.

2. The camera can be loaded with a great variety of films and thus easily allows the recording onto transparency or color negative film without having to carry two separate cameras to secure a stereo image on different emulsions.

3. It can even be loaded with Polaroid emulsions and either an exposure check can be run or stereo prints can be instantly made (although they are a bit on the small side). Note: If making Polaroid photographs they need to be transposed for proper viewing.

4. If you are unsure about proper exposure you can "bracket" by setting a different exposure on the two sets of shutters or apertures.

5. If you are in an economizing kind of mood and give up stereo you could place four different images on one piece of 4x5 sheet film by keeping three of the four lenses covered sequentially. Actually you only need one lens covered with a cover at any time because the other two can remain closed simply by not winding the shutter for one of the sets.

6. You could try your hand at multispectral photography or simultaneous three color photography by placing color separation and appropriate neutral density filters over the lenses so that with one shot you generate three or four negatives which when later combined in the darkroom (or by other means) become a full color print.

I am sure there are other applications for a stereo camera like this one in other situations. Unfortunately, in order to find them you will have to build your own. But that is one of the reasons that photography is your hobby, isn't it? The fact that you can experiment yourself and learn about new and diverse applications of the photographic process.

The lens/shutter boards described in this article could be obtained from Electronics Supermarket, PO Box 619, Lynnfield, MA 01940, stock number 4Q0002 @ $ 6.66 each or from Technical Electronics Corp., PO Box 2361, Woburn, MA 01888, stock number 1057 @ $ 6.00 each. Also, HiTek Sales carried this item under the same stock number as Electronics Supermarket!. Their address is 119 Foster Street, Peabody, MA 01961-3357, phone # (617) 532-2323, stock # 4Q0002 @ $6.66 each or 3 for $18. There may be quantity discounts.
Their availability is limited.

NOTE: Since this piece was written many years ago supplies of these lens boards is probably totally exhausted.

In February 2004 I received an email from a visitor to this site who informed me as follows: "I just read your article, The making of a "new" multipurpose stereo camera with great interest. I just thought you would like to know that those stereo lens assemblies are still available through the Surplus Shed optical surplus store [http://www.surplusshed.com/pages/item/l2084.html](http://www.surplusshed.com/pages/item/l2084.html). Twenty bucks now!"