The wide variety of subjects in stereographs arriving for the "Wheels" assignment was illustrated with a bit of irony in the previous issue. One selection showed the wheels supporting the tracks of a tank while the other view's wheels were part of a hand-cranked, three-wheeled vehicle decorated with a peace symbol and balloons. This issue's wheels involve equally wide differences in purpose—one set intended for serious speed and the other as an eye-catching experiment in 3-D art.

The Assignment "Wheels" has been extended, and the new deadline is March 7, 1995. This in effect makes "Wheels" a full-year project and should allow those with interesting ideas more time to do some shooting. Others may have images in their files that simply need to be dug out and mailed.

Current Assignment: "Wheels"

This isn't limited to rustic wagon wheels being used as fences or the chrome hubcaps of overly customized hot rods. Anything that moves on, under or by wheels is fair game here, including cars, trains, unicycles, pretzel carts, skateboards, etc. Things like large pulleys or tiny watch parts would also be eligible, as would spherical rolling devices like ball bearings or the ball on the underside of a computer mouse. The wheels themselves would not have to be the center of interest in views of things like vehicles, but a close-up of just a windshield wiper on a 1938 Plymouth probably wouldn't be in the spirit of things. Deadline for entries has been extended to March 7, 1995.

(Continued on page 28)
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ON THE COVER

Visible at the center of what looks like a mini submarine for very small 
    oceanographers are the twin lenses of an IMAX 3-D camera within its own 
    underwater housing for the filming of Into the Deep. The spectacular new 
    IMAX 3-D film is showing at the recently opened Sony Theaters Lincoln Square 
    complex in New York and is the subject of Don Marren’s article “Sony and IMAX 
    go Into the Deep” in this issue. Photo by Mark Conlin, IMAX Systems Corp.
Comments and Observations
by John Dennis

Editor’s View

Coming Soon . . .

Among the reasons for returning your NSA membership renewal notice as soon as it arrives are the following feature articles to appear in Stereo World over the next few months:

**VOYAGER STEREO PAIRS OF THE OUTER SOLAR SYSTEM** will present high quality reproductions of accidental stereo pairs assembled from the files of the Voyager II mission by Dr. Paul Schenk of the Lunar and Planetary Institute in Houston. Many of the images are in color, and the story of initial attempts to publish them in stereo appeared in the Sept./Oct. ’94 NewViews.

**MRS. ROBERTS’ BIG DAY** is the story behind an exquisite tinted stereo daguerreotype by Antoine Claudet showing a woman dressed in her finest clothing and jewels on a very special day in her life. A gem like this stereo portrait would enhance any collection, but researching its history, as SW contributor Peter H. Fowler has done, makes it far more interesting.

**STEREOSCOPIC ARCHITECTURAL SURFACES** is a look at the work of artist Roger Ferragallo, who has created entire walls of free viewed 3-D patterns for permanent installation as Architectural building elements. (The above three features will appear in a special color section.)

**BLONDIN THE HERO OF NIAGARA** traces the bizarre career of the famous tightrope walker as illustrated in several classic stereoviews capturing him high above the Niagara River.

**THE MACRO REALIST CAMERA**, its design, prototype and history are examined in detail through Realist blueprints and macrostereographs by the same team responsible for SW’s definitive feature on the Realist Custom camera in Vol. 19 No. 2.

**INSIDE THE GRAF ZEPPELIN** takes readers on a stereo tour of the famous airship from inside the framework to the radio room, the bridge, sleeping cabins, the galley, the dining room and the crew’s washroom. The unique set of views was packaged with a “Zeppelin” viewer for those who traveled on the Graf in the late 1920s and early ’30s.

**WHEN STEREO WENT FOR A SPIN** isn’t about cars, but spinning wheels—which were featured in a surprising number of vintage views from both Europe and the U.S.

**THE ATLANTA INTERNATIONAL 3-D FESTIVAL** will be covered as extensively as past NSA conventions and ISU congresses, but the first-ever combination of the two events in June, ’95 will merit even more detailed attention and 3-D coverage.

**A PRIZE WINNING HOME-MADE MACRO STEREO CAMERA** is one of the stereo project articles scheduled to appear, along with more news of the latest in stereo cameras, viewers, books, software and services.

**Keep the World Coming to Your Door at a Rate That’s Still a Bargain!**

1995 will bring more people and recognition to the NSA and more images and information in Stereo World. To keep it all happening, however, will require more money than present membership fees bring in. After holding the basic NSA membership at $22 for several years now, cost increases in preparation, printing and postage have suddenly caught up with us, consuming reserves and forcing an increase to $26 per year for bulk mail memberships. (Adding to the usual costs last year were those involved with the big color anniversary issue, which was expensive even with color separation work donated, and the biggest-ever NSA membership directory.)

Fees for first class and foreign memberships have in some cases actually edged below their production and mailing costs in recent years, forcing an increase in those also, to $38 for first class delivery in the U.S. and $56 for international air mail. International surface mail and Canadian memberships will be $38.

The NSA and Stereo World have always been independent of either government or private institutional funding, relying on membership fees for their operations and on voluntary donations from members for special research projects and improvements to the magazine. The intent here is to maintain that independence as a purely member-supported organization.

One phenomena for which 1994 will be known is the explosion in popularity of single-image stereogram books, being noted even in Discovery and Scientific American magazines. Over a dozen publishers in the U.S. alone sold millions of $8 books, cards and calendars that dominated entire sets of shelves in many bookstores. This astounding, worldwide commercial 3-D publishing boom started with the “Single Image Random Dot Stereograms” article in Stereo World’s May/June 1990 issue, and those who fail to renew their membership could miss out on our next stereo scoop! While we can’t promise articles with such international multi-million-dollar results in every issue, we’ll continue to present interesting and useful features and news about every aspect of stereo in order to at least enhance the depth of your world.

Correction:

In the article “Two Men of Vision and the 3-D Record of an Industry” in Vol. 21 No. 3, an error crept into the last line of the center column on page 17. It should read “miracle of hosiery—nylon stockings.”

If you have comments or questions for the editor regarding any stereo-related matter appearing (or missing) in the pages of Stereo World, please write to John Dennis, Stereo World Editorial Office, 5610 SE 71st Ave., Portland, OR 97266.
Letters

Misdirected?

In regard to the “stereo” view on the cover of the NSA 1995 Membership Directory: SHAME ON YOU!!!

Christopher R. Mohr
Romoland, CA

Assuming our shame was earned by the single-image stereogram on the Directory cover, the fact that the worldwide commercial explosion of such images was partly Stereo World’s fault could be seen as obliging us to wear those autostereographic scarlet letters as a form of graphic penance. The new Directory at least features one more vintage photographic stereoview on its cover than any directories of the past few years, which had none.

- Ed.

Kodachrome Blues

I refer to the article by Norman B. Patterson on page 22 (Vol. 21 No. 2) and the commentary by Joel Moskowitz on page 3 (Vol. 21 No. 3). The comments and observations in these articles certainly are topical as far as I’m concerned. I note that Kodak is the principle film referred to by both authors; wonder why they haven’t delved from Australia and suggests sending the film no longer available within Australia and suggests sending the film

Norm Peters
Bermagui NSW, Australia

Fujichrome is a serious competitor with Kodak’s Ektachrome E-6 films in the U.S., and the professional Fujichrome emulsions in all sizes are especially popular among many photographers and studios. It looks as if Kodachrome, however, will involve increasing expense and delay for people in most parts of the world.

- Ed.

Chasing UFOs With A Nimslo

Regarding my long standing wish to see a stereo UFO shot, I refer you to Ed and Francis Walters’ book Yourself to see the view Mr. Walters caught with his Nimslo, no less! For those who remember that trip, you’ll enjoy some extracts of the authors’ stereo camera experiences.

The suggestion by Dr. Maccabee that I mount two cameras parallel to each other just in case I might have a chance to catch another shot of the UFO was disturbing. My first impulse was to reject the idea, but I listened to Dr. Maccabee explain that with such a double camera (soon to be named a “self-Referencing Stereo Camera” or SRS camera) we could possibly obtain much more dimensional information than with a single shot.

With some hesitation I strapped my SUN 600 Polaroid to one end. As luck would have it, Duane Cook had an identical camera, which I borrowed and mounted parallel on the opposite end. My efforts to construct the SRS camera were time-consuming, but I realized how important an SRS photograph could be. Such a photo would offer proof of distance and size. Proof to anybody who challenged my word or the other photographs.

...Bob came by my house...with his son. He had been given a special “MUFON camera” [Mutual UFO Network] by Don Ware to bring to me. Their hope was that I could photograph the UFO with this new camera. And what a camera it was. It came with two pages of instructions and rules.

As Bob Reid explained to me from the instructions: the camera is specially designed that four frames are exposed at the same time, allowing for more than one almost identical negative. This allows us to preserve at least one negative intact, undisturbed, while the other negatives can be used for reproduction and analysis by different laboratories at the same time. In addition, the details provided by this camera will yield more information than can be gained from normal cameras. [Notice how everyone discounts processing to lenticular prints.]

The camera, a Nimslo 3D, was very official and very MUFON controlled. Not only was it sealed, but a picture had already been taken to serve as a control. In the event that somebody tried to remove the film, doctor it, and reload it, the sprockets would not line up.

The camera had four lenses, which I assumed were all set a certain way to better catch the UFO for verification and study of the negatives. The lenses were fixed, to eliminate the photographer having any control. All that was necessary was to aim and shoot.

I welcomed the camera as Bob Reid explained it to me. If I could catch a shot of the UFO with their camera and have them develop the film, that should resolve the questions—and we would have the proof many people had sought for years.

You’ll have to check out the book yourself to see the view Mr. Walters caught with his MUFON-Nimslo. It looks something like a plastic light fixture. Strange: how advanced alien technology still surrounds space ships with port holes. (But if not for the windows, how could we see them waving at us?)

Craig Daniels
Florence, OR

Not mentioned is a Nimslo’s greatest potential advantage for UFO hunters. If the aliens turn out to have four eye-stalks, pointing a Nimslo at them could promote a sense of empathy that might even get you invited aboard their space craft!!

- Ed.
Collecting G.W. Wilson’s

by Jonathan Ross

My early forays into collecting stereographs were fairly haphazard—buying images that took my fancy with no particular acquisition policy other than the desire to accumulate an amusing variety of subjects. Like anyone who enjoys riffling through the racks and boxes of stereographs at collectors fairs I handled quite a number of the yellow cards with blue labels marked with a number, a title and the legend: “G.W.WILSON, Photographer, Aberdeen” and over the first year or so acquired perhaps a dozen of his Scottish views. Then somewhere or other, I cannot remember where, I came across a reference to a biography of Wilson and obtained a copy through Shipley’s book shop in London’s Charing Cross Road.

This wonderful book (George Washington Wilson, Artist and Photographer 1823-93 ISBN 0-08-025760-7), written by Roger Taylor and published by Aberdeen University Press in 1981, opened my eyes to the phenomenon that was G.W.Wilson and provided the incentive to begin collecting in earnest. I am indebted to it for most of the information I possess on Wilson’s career and techniques and especially for the fact that one of the appendices is a copy of Wilson’s 1863 List of Stereoscopic and Album Views. This list, from 1 to 440A (with some of the intervening numbers omitted), gave me a target: “Let’s see how many of
those I can find” I thought, not realizing that it would not be so easy to stop at number 440A and that there were stereoscopic views by G.W.W. numbering into the thousands. Two and a half years later and over six hundred stereocards collected, I have nearly one hundred images from the 1863 list still to find (not to mention the later catalogs) and realize that it is a quest that could last a lifetime.

George Washington Wilson (1823-1893) was born the son of a crofter in Banffshire, Scotland and rose to become one of the foremost publishers of photographic images of his era and arguably the finest British practitioner of landscape stereographs.

As a young man he was an apprentice carpenter and house builder but in 1846 he moved to Edinburgh to pursue his vocation as an artist and developed a skill as a portrait miniaturist. Like many in this profession the move into photography must have seemed inevitable and it is perhaps their training as artists that distinguishes the work of these early photographers from those who subsequently came into the medium for solely commercial motives.

In 1848 Wilson moved to Aberdeen and initially set up as a teacher of drawing & painting in addition to his work in portraiture. He evidently recognized photography as an alternative method of making portraits but, while he may...
have read about Fox Talbot's calotype process, it was not until F. Scott Archer published details of the wet-collodion method in 1851 that he decided to adopt it as an adjunct to his own business. In 1852 he went into partnership with John Hay, who was already established as a calotypist, and having acquired a property in the fashionable Crown Street, set about making a name for himself. Queen Victoria and Prince Albert's decision to create a holiday retreat at Balmoral was a stroke of good luck for Wilson & Hay who were commissioned at an early stage to document the progress of building and soon thereafter to photograph a deer-stalking party. Their work found favor and the Royal patronage added immensely to their reputation.

Commissions for landscape views followed and Prince Albert, who was an early enthusiast of photography collecting, became a particular admirer of Wilson and himself compiled an album of G.W.W.'s work in 1860. (After Prince Albert's death it was Wilson who took the famous portrait of Queen Victoria, dressed in mourning, seated on horseback with her personal attendant John Brown holding the horse's head.) For aspirational Aberdonians a portrait by G.W.Wilson became a must and the business was soon well enough established for Wilson to be able to devote himself to the landscape work and to leave the portraiture to an assistant. While
his portraits are technically accomplished there is little to distinguish them from those of many others, but with his handling of the landscape Wilson’s genius is revealed.

In 1856 he published his first list of stereoscopic views, selling at 2/- each, mostly of the countryside around Aberdeen but including some views of Elgin Cathedral. I have found very few of these and they are certainly harder to identify than the later cards as there is no photographer’s credit on many. They can only be recognized from the title and from the fact that some of them are labeled with the names cut from the list itself (which is reproduced in facsimile in Taylor’s book). Some have an embossed stamp of Wilson’s name, others have small colored labels down one side of the back and, once you have seen one, the style of type becomes recognizable.

In 1858, influenced by Gustav Le Gray, whose atmospheric seascapes with distinctive cloudy skies had been enthusiastically reviewed, Wilson attempted some studies of the sea and sky while on a trip to Oban. While Le Gray’s images are thought to be the results of combination printing from two negatives, Wilson recognized the similar actinic properties of the sea and a clouded sky and, breaking all the rules, photographed his chosen subject aiming straight into the sun—achieving on one plate a properly exposed record of the scene. The following year, encouraged by his experiments, G.W.W. made an expedition to Loch of Park and attempted a series of views of his...

G.W. Wilson No. 316, “H.M.S. Cambridge in Hanoaze, Great-Gun Practice.”

family being rowed by Sandy the boatman. These carefully composed shots, in which the boat is positioned in the reflected light of the setting sun on the surface of the Loch, are among the first close range instantaneous photographs to be taken—the exposure being achieved by Wilson deftly flicking his Glengarry bonnet from in front of the lens for a fraction of a second as opposed to the several seconds exposure that were customary at that date. (The example illustrated is from a second expedition to Loch of Park made by Wilson in 1860.)

The Loch of Park series brought Wilson overnight fame which he consolidated the same year with a series of instantaneous views of Princes Street in Edinburgh. These were the first city views with people captured about their daily business as opposed to the “cities of ghosts” that were the common fare of the day. Edward Anthony of Broadway produced some similar views in New York at about the same time but this did nothing to detract from Wilson’s acclaim. (The example illustrated is from a second series taken by Wilson in 1860).

In 1861 Wilson traveled south to London and took some instantaneous views of Regent Street before moving on via Stonehenge and Salisbury Cathedral to Southampton where he photographed Brunel’s mighty ship “The Great Eastern”. He must have figured that this was a good commercial subject but it is too distant a view to cause much excitement to modern eyes. Later that year he produced some much more stimulating maritime pictures of the Channel Fleet in the Firth of Forth, but his best are probably those of H.M.S. Invincible, seen from the shore through a frame of oak leaves, and of HMS Cambridge practicing cannon fire at Hamoaze.

Up to this date Wilson had used a pair of six-inch view lenses with approximately 30 degrees angle of view but in 1861 J.H. Dallmeyer supplied him with a No.1 seven-inch Triplet lens with almost 70 degrees angle of view for taking single prints. His success with it led to it becoming known as the Wilsonian lens. Dallmeyer also made Wilson a camera which would take both stereo and single views by the removal of a central division.

In addition to his stereoscopic views, Wilson produced cartes de visite, cabinet sized images (6¾" x 4¼"), introduced album prints (4¾" x 3¾") which were differently cropped halves of stereo pairs, and later the Imperial view (10" x 7¼"). He also provided photographic illustrations for other publishers and produced a number of albums and folios of his landscape views.

In 1863 Wilson extended his territory as far as Cornwall, though his views of that county are on the whole nothing special. His series of English cathedrals however are fine works and perhaps only Bedford compares with him in this field. His sense of composition is superb, particularly his exterior views which establish the buildings in their surrounding landscapes. In what were without doubt often poorly lit interiors the amount of detail he achieves is remarkable. The sets of views of Durham, Exeter, Gloucester, Peterborough, Winchester and York are well worth collecting and provide a better record of these great buildings than most of us could manage today with the latest equipment. (See Stereo World Vol. 8 No. 2.)

On the subject of equipment, Taylor’s description of the paraphernalia required for the wet-collodion process—all of which had to be performed on location—increased my admiration for early photographers tenfold. The carefully prepared glass plates had to be coated with collodion and sensitized with silver salts before exposure, developed in a solution of pyrogallol and acetic acid and then fixed in hypo or potassium cyanide—all of this in a dark tent steeped in ether fumes possibly half-way up a mountain and in all likelihood pestered by mosquitoes.
if it was Scotland in the summer. Before printing, the plates had to be varnished, retouched and varnished a second time. The printing and mounting process itself was a ten-stage affair. When I visit the sites of Wilson's early photographic sorties, load a roll of Kodak Ektar 100 into my trusty Nimslo, point and shoot, I almost feel ashamed.

I have organized holidays around collections of stereographs on several occasions, with the idea of reconstructing the views as they are today. One of the most memorable was a trip to the Trossachs area of Scotland which provided the subject for some of Wilson's most celebrated landscape views. I had never heard of Loch Katrine before I started looking at 19th century stereographs (not having read until recently Sir Walter Scott's 'Lady of the Lake' which was set there), but early photographers were evidently keen to capture the beauties of the area and sell them to the many tourists attracted to the area by Scott's writings.

Before my visit I had gazed for hours at the many views of the area, taken by Wilson and other photographers, and felt I knew it intimately. Place names such as Ellen's Isle and The Silver Strand tripped off my tongue. I knew I could not expect to find an old thatched boathouse but had heard that a steam launch still operated on the Loch. Indeed it does, and coach loads are delivered to it in a constant flow throughout the year but, as in so many tourist traps, the majority do not venture far...
from the car park and the visitor center and once one strikes off the road and climbs into the surrounding hills the tranquil beauty of the place washes over one. At the shoreline, however, I found I could not make sense of the landscape. With my selection of G.W.W. views in hand I walked back and forth—there was the boathouse (modern version), there was Ellen’s Isle, but where was the Silver Strand and why did the skyline not quite match with Wilson’s pictures? It took a visit to the information center to discover that the local water authority had raised the water level by ten feet to create a greater reservoir for Glasgow’s water supply and submerged the Silver Strand and half of Ellen’s Isle in the process.

On the whole though, thanks very often to the National Trust, the great landscape views are little changed apart from the size of trees or degree of planting and, in the case of old buildings, the lack of ivy, which has been stripped away to prevent further deterioration of picturesque ruins.

Initially Wilson was responding with his landscape photography to a demand from tourists for views of the popular attractions but over the years, through his own endeavors in hunting out the lesser known beauty spots, he was responsible for stimulating the growth of tourism throughout Scotland. His images were printed in huge quantities. In 1864/5 for instance, 553,331 prints were made, with over 400 printing...
frames in daily use producing a turnover of £10,770 19s 9d for the whole business, of which £6145 2s 10d came from the landscape views. By 1876, when he established a new works at St. Swithin's Street in Aberdeen, the production capacity had expanded to 800 frames and drew on a library of 45,000 negatives. A single negative might provide 1500 prints per year—a rate of five per day was the best that could be achieved in daylight—and if the demand for a particular image exceeded this Wilson had to revisit the site and take fresh negatives.

The result of these return visits is that there are often many variants of a single numbered image. To my mind this adds to the pleasure of collecting as there are comparisons to be made between earlier and later versions. The variants are usually labeled in a slightly different way. Some early cards have a small white label on the right hand side of the back and no photographer's credit. The familiar large blue label can sometimes change color and become white, pink, pale yellow or lilac and titles can be subtly varied so that, for instance, No.16 appears as "The Mouth of the Clamshell Cave, Staffa" and "Clamshell Cave, Staffa" and "Mouth of the Clamshell Cave, Staffa". (Staffa definitely looks a place to visit, with incredible natural basalt structures at the sea's edge.)

Towards the end of his career Wilson came to depend on staff photographers to provide new...
images and copies of earlier scenes. While the introduction of the dry plate definitely made life easier on the road as the plates could be returned to Aberdeen for processing, this later work from Wilson & Co. lacks the master's flair.

G.W.W. knew how to compose a foreground like no one else and had an extraordinary ability to find a natural frame for his pictures in the form of a convenient pair of trees or architectural motif. He wrote that "I am never satisfied of what I see unless I can get the objects comprehended, even in a stereoscopic-sized plate, to compose in such a manner that the eye, in looking at it, shall be led insensibly round the picture, and at last find rest upon the most interesting spot, without having any desire to know what the neighboring scenery looks like". Some of his favored compositional devices include the use of reflections in water, which he handles quite beautifully, and the inclusion of a human figure strategically placed in the fore, middle or background (sometimes in two or all three of these zones) in order to lead the eye through the picture. Quite often the figure in the foreground is Wilson himself, a shaggy bearded figure—the epitome of a Victorian paterfamilias, just tinged with a hint of Bohemianism.

Since studying Wilson's work I know that my own photography has improved and I think even the way I observe nature has altered. In addition to the pleasure of collecting, the friendships and correspondence with other collectors and dealers, the holiday itineraries and the hours spent gazing into the stereoscope make me feel I have a lot to thank G.W.W. for.

In 1882 a fire destroyed the company's stock of prints but by good fortune the negatives were stored elsewhere and the business survived. However long years of exposure to ether fumes had taken its toll on Wilson's health and he had begun to have fits. He retired in 1888 and returned to painting for a while. In 1893 he died and although his sons continued to run the business its heyday was past and it went slowly into decline. In 1908 the entire plant and stock in trade, including 65,000 negatives, was auctioned off and fetched the depressingly low figure of £284 3s 9d.

Today the bulk of the negatives that survive are in the care of Aberdeen University Library who last year held a conference on the centenary of Wilson's death. They publish a range of postcards, calendars and booklets using Wilson's images but regrettably no stereoscopic material at present.

Barbara Ross-Hadley is currently engaged in cataloging their stereoscopic holdings and the library will make photocopies of the various original Wilson catalogs in their collection. My ambitions fall short of wanting to collect Wilson's entire stereoscopic output, which numbers far too many waterfalls and bridges amongst it to interest even someone as obsessed as myself, but there are many gems still to find and I am enjoying the search enormously.

The author welcomes correspondence with other collectors wishing to sell or exchange stereographs by G.W.Wilson and other 19th century photographers.

G.W. Wilson's U.S. Connection

Some of Wilson's views were published in a glass transparency format. They are exceedingly rare, and as with most glass views their visual quality and detail are stunning. A substantial number of Wilson images were issued by B.W. Kilburn of Littleton, NH as paper prints copied from the Wilson glass originals. The Kilburn copies can all be matched with known Wilson images, and the initials G.W.W. appear in the lower right-hand corner of all the views. Wilson used this system of identification on his glass views, and only on his glass views. Kilburn used a wide variety of images from European sources, issuing his views in blocks, and it can be assumed that all his numbers from 2337 to 2354 were by Wilson.

— Ed.
Ever since General Sherman and his supply trains rolled into town (figure 1.), Atlanta has become a city of unbelievable historical importance. Made mythic by Gone With the Wind, it continues to intrigue and draw people to this day. The irony in it all is that while people are fascinated with its past, Atlanta is hell-bent for the future.

Fig. 1. George N. Barnard/Anthony No. 3668, “View in the City of Atlanta, Ga. Whitehall Street.” Sherman’s supply wagons entering Atlanta, Sept./Oct. 1864. The building on the right corner is The Georgia Railroad Bank. Sherman would blow this building up before departing, though for what “military purposes” seems unclear. Mike Griffith collection.

There seems to be something inherent in Atlanta for change. A mere thirty years before Sherman attempted to eradicate it, Atlanta was literally a wilderness—an exclusive domain of the Creek Indians. Within three decades it became a large city and a major railroad center supplying the Confederate Army with a prodigious amount of material. Its growth is even more phenomenal when one realizes that Sherman did indeed destroy the city. At one point there was not a single business operating or a residence lived-in. (Sherman, before
he burned Atlanta, had ordered ALL citizens evacuated.)

Those who returned in 1865 found utter and complete desolation. In the Atlanta Treasury was $1.64. If ever a city grew from the ashes—it was Atlanta!

To do a “Then & Now” set of stereoviews is quite a challenge. There is virtually no “Then”, as there is not a single structure in Atlanta from the Civil War. In figure 1, showing Sherman’s wagons, you will notice the railroad tracks in the immediate foreground. Figure 2, showing the entrance to Underground, was taken in the same location. (The railroad tracks are in the tunnel on the left.) You will notice too, a different “level” to the street. By the turn of the century traffic in downtown Atlanta had become very difficult with the railroad tracks running through the streets. A number of viaducts were constructed over the railroad tracks to accommodate

Fig. 2. Entrance to Underground Atlanta. Taken from around the Zero Mile Post, a square stone post from 1850 set up by the Western & Atlantic Railroad, and still in place. Stereo by Larry Moor.

Fig. 3. Underwood & Underwood No. 9400, “Peach Tree St. from the east - a typical business district of a southern metropolis, Atlanta, Ga.” Peachtree Street in 1907. Bicycles, trollies, and horse-drawn wagons all mix with those “new motor cars”. Mike Griffith collection.
normal traffic. Businesses added new stories to their buildings so people could reach them easier. "Basement" levels became vacant or were used for storage. All of this was completed by 1929.

Forty years later the "bottom parts" and other small buildings had all been forgotten when someone came up with the idea of reopening the area as "Underground Atlanta." Some places were like time capsules. In one was found a magnificent old bar, just like the day it had closed. On one old corner was a huge, early Coca-Cola sign from 1919 (still there). View-Master issued a super three-reel pack of "Underground Atlanta" in 1973, one well-worth collecting.

Figure 3, taken in 1907, shows a very busy street scene on Peachtree. The building at the end of the block (on the right) is the Candler Building. It can be seen today in figure 5 at center right. (It's still just as hard to get across that street...) Figure 4 was taken about 1938 and is the same loca-

Fig. 5. Peachtree Street in 1994. Note that the Candler Building (center right) remains from the 1907 and 1938 views. Stereo by Larry Moor.
The oldest standing structure in Atlanta is the Catholic Church of the Immaculate Conception. Built in 1873, it is shown in figure 6, taken about 1875. One hundred and twenty years later, it looks virtually the same. (Figure 7.) Today, however, to its left across the street is another Atlanta "icon"—the Coca-Cola Museum!

Figure 8 shows President McKinley (just left of the bowler hat at the bottom) entering the Georgia Capitol Building in 1899. The church across the street is still there. (Figure 9.) The Capitol Building (not pictured) is still there also, and its gold dome is visible from the expressway.

It is interesting to note that the historical Atlanta is etched in the mind largely because of stereo-

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Fig. 6. Church of the Immaculate Conception in 1875. Stereo by J.H. & W.T. Kuhns, Atlanta photographers whose family remained in business for over 50 years, 1872-1924. Mike Griffith collection.

Fig. 7. Church of the Immaculate Conception Today. Across the street (left of the church) is the Coca-Cola Museum. Stereo by Larry Moor.
views. George Barnard’s coverage of Sherman’s occupation and destruction was very thorough. His views have been illustrated in history books for the last 130 years. No coverage of the Civil War doesn’t show at least some of his views. In 1938, in the building of sets for Gone With the Wind, to create historical accuracy, they used his stereocards.

When you come to Atlanta for the International 3-D Festival in June of 1995, be sure and bring your stereo camera to capture the city amidst another massive three of building and change as it gets ready for the 1996 Olympics. For this invasion we are much better prepared. We don’t plan to leave the city, and we’re hoping to end up with more than a dollar and sixty-four cents!

Fig. 8. Strohmeyer & Wyman, “President McKinley entering the State Capitol Building - Peace Jubilee - Atlanta, Georgia.” McKinley is at the bottom of the view, without a hat. The church in the background of this 1899 view is across from the capitol. Mike Griffith collection.

Fig. 9. The church across from the State Capitol today. Stereo by Larry Moor.
For a city that's used to seeing the biggest and best of everything first, it's amazing that it took New York so long to open an IMAX theater. And what an opening! A splashy, celebrity-attended premiere of Into the Deep and The Last Buffalo in November garnered massive media attention from national TV shows and from influential dailies and weeklies. This sudden attention sparked renewed interest in both 3-D and IMAX 3-D film making and exhibition.

IMAX 3-D may be old hat for visitors to world’s fairs since 1986, but many people, including some critics, are now just beginning to discover it for the first time. The big news here: IMAX 3-D is not being presented in a science center or a museum but in a commercial theater—the spectacular new Sony Theaters Lincoln Square. (New York is already home to a regular IMAX theater at the American Museum of Natural History.) The Sony IMAX theater in this multiplex is the first such theater in North America to be opened by a major exhibition circuit.

Adjectives like “stunning,” “astonishing,” and “breath-taking” were used freely by several critics to describe the amazingly lifelike IMAX 3-D images. New York Newsday hailed IMAX 3-D as “21st-Century 3-D.” The New York Times posed the question, “Is 3-D IMAX the future or another Cinerama?” In his article in the Times, writer William Grimes addressed the expense of opening an IMAX 3-D theater, the need for a 3-D image make-over since most people identify commercial 3-D with schlock, and the technical limitations of filming IMAX 3-D. He praised IMAX 3-D and concluded that “dollars and cents aside, success will depend on the artistic potential of the technology. 3-D will either advance the art of film, or remain a giddy special-effects machine.

The future is in the hands of the artists, not the scientists.” The attention on IMAX 3-D continued. Variety reported that although Sony doesn’t release grosses for the IMAX theater, the buzz had it that the theater grossed nearly $100,000 for the December 2nd weekend alone (tickets are $9 each). Extra showings had to be added to accommodate the crowds. Variety went on to report that after visits to the Sony IMAX theater, some of Hollywood’s most influential filmmakers were re-thinking their views on large-screen formats and 3-D possibilities.

IMAX 3-D is only part of the high-tech razzle-dazzle that New York is already home to. The spectacular new Sony Theaters Lincoln Square is not being presented in a science center or a museum but in a commercial theater—The Sonys.
The New Yorkers are talking about. The new Sony Theaters Lincoln Square complex is a star in itself. The showplace surely sets a standard on which all multiplex movie houses will be judged in the future. Located on Broadway at 68th Street, this new state-of-the-art wonder is a 12-screen, 3600-seat theatrical exhibition complex. The largest theater seats 900, but the crown jewel is the Sony IMAX theater. It seats 600 but only 480 seats will be used for IMAX 3-D presentations because of restricted sightlines. The eight-story-high screen measures 80 feet high by 100 feet wide (the largest theatrical screen venue in the U.S.). The theater is the largest IMAX theater in the U.S. and the largest one in the world to showcase the latest technology in both sight and sound—viewers with infrared sensors and IMAX Personal Sound Environment. The showcase is only one of the 10 (out of the 110 IMAX screens worldwide) to have 3-D capability. Only two others—in Japan and France—are equipped to handle the newest electronic viewer technology.

Concern had been expressed that a shortage of IMAX 3-D product might hinder the success of the

Nose-to-nose with the audience, a blue shark swims through a school of Spanish mackerel off the coast of California in the IMAX 3-D film Into the Deep. Film critics (even including Siskel & Ebert) have praised the production and the newest IMAX technology. © ANM (1991) III Limited Partnership.

Colorful garabaldis populate the kelp forest where Into the Deep was filmed. © ANM (1991) III Limited Partnership.
Sony IMAX 3-D theater investment. Not to worry. Scheduled for late winter or an early spring opening is Jean-Jacques Annaud's Wings of Courage, which was originally scheduled to open in November. This 42-minute film about 1930 aviation pioneers stars Craig Sheffer, Val Kilmer, Tom Hulce and Elizabeth McGovern, and is rumored to have cost over $14 million. In the summer, Stephen Low's Across the Sea of Time will open. Both are being distributed by Sony Pictures Classics. Included in the Sony IMAX 3-D future is a San Francisco theater. Several other sites are also being considered. Indeed, the future of IMAX 3-D has never looked brighter.

The Depths in Depth

Into the Deep (shooting title The Last Wilderness), the IMAX 3-D film that opened the Sony IMAX 3-D theater on November 18, 1994, actually had its world premiere a few weeks earlier (Nov. 3) at the new Suntory Museum in Osaka, Japan. The filming of Into the Deep was made possible by the development of the IMAX 3-D camera incorporating two camera movements in a single housing, making it compact enough for underwater work.

A View From Inside the Sony IMAX Theater

by Sheldon Aronowitz

History was made on November 18, 1994, with the opening of the Sony IMAX 3-D Theater in New York City.

The screen, which is referred to as "eight stories high and ten stories wide," or "80 x 100" is actually 76 feet by 101 feet, making it the largest screen in the world to showcase IMAX 3-D films. The screen itself is 7,676 square feet of seamless vinyl and weighs over 800 pounds. It took 50 gallons of paint and computer controlled spray guns to provide the silver finish.

The lenses in the new IMAX camera are spaced 2.85 inches apart and the film, which is ten times larger than conventional 35mm movie film, is projected horizontally. The projection equipment is unlike that seen in a regular movie theater projection room. Film sits on large platter-shaped turntables several yards from the projector, travels through open air, and is fed into the projector horizontally through an elaborate series of pulleys.

Theater patrons wear headsets that weigh about 12 ounces, and are outfitted with liquid crystal lenses that become transparent or opaque in response to an electrical charge touched off by infrared signals beamed from infrared transmitters placed along both walls of the theater. The headsets have receptors at the front and each side to ensure that the signal is not lost when audience members turn their heads—or
Earlier IMAX 3-D films had been filmed with the cumbersome IMAX dual-camera rig. Underwater life, with its vast space and floating in-your-face images, is a natural for 3-D. (Stereo took the plunge once before in a special venue film called Sea Dream. This 70mm SpaceVision film—an over/under single strip format—was produced for Marineland in Florida, and directed by Murray Lerner. The 1978 classic has to be one of the most-seen theme park films ever made, and is still recognized as a major technical accomplishment that continues to be shown all over the world.)

Based on initial critical acclaim and public response, Into the Deep also figures to be a hot "must-see" film when it goes into wide release at other IMAX 3-D venues around the world. Directed by renowned undersea filmmaker Howard Hall, the 35-minute adventure takes audiences down to a unique world where the interplay of colorful marine life is reminiscent of a carefully choreographed ballet. Hall describes Into the Deep as a series of short stories held together by the structure of a single location. The Mounted on a tripod, the IMAX 3-D camera in its underwater housing looks like some sort of weapon from a low-budget science fiction movie. The creatures of the kelp forest quickly learned to ignore it, making possible the astounding 3-D footage of Into the Deep. Photo by Mark Conlin, Imax Systems Corp.

try to avoid being "hit" by objects "coming out of the screen." Each eye of the headset opens and closes 48 times a second, staying open for one ninety-sixth of a second.

After every presentation the 480 pairs of glasses are put on racks and taken to a special room where each one is fitted with a fresh battery, mechanically cleaned in a special unit, hand inspected, and put back on the rack to be returned to the theater for the next showing. A technician examines individual headsets which may need more extensive work, insuring each patron a clean and perfectly functioning pair of glasses.

During my viewing of The Last Buffalo and Into the Deep, it was quite entertaining listening to all the 3-D "experts" in the audience explaining to their friends, spouses and children how the "3-D" is accomplished. Most thought the glasses were polarizing glasses and explained polarizing theory as it pertains to 3-D. Although educating their listeners, they misled them as to the current system. I overheard one man telling his son that he did not understand why the glasses "red and blue lenses." A few audience members brought their own polarizing glasses, and one gentleman near me insisted, despite my warning, that his own polarizing glasses would work "just fine" as they had in other 3-D movies he had seen. I guess he was in for quite a surprise when the movie started.

What was even more amusing than the well meaning but incorrect explanations was the audience reaction once the movie started. As is common with IMAX 3-D, most of the action takes place about a foot in front of you—with infinity at the screen. To see a mass of hands

IMAX E3D headsets being placed in the specially designed power washer between showings at the Sony IMAX 3-D theater. Along with their other electronic features, the $400 headsets will set off an alarm if 3-D souvenir hunters attempt to leave the theater with them! Stereo by Sheldon Aronowitz.
location is the kelp forest growing in the shallow waters along the coast of California, and the stories are the lives and behaviors of the marine animals who live there. A male garibaldi makes his nest and attracts a female; she lays eggs and he tenaciously fights off predators. A moray eel attacks an octopus and the octopus ejects into the eel's face. A graceful giant starfish eats everything in its path. Hordes of opalescent squid mate, attach their eggs to the ocean's floor, and die—to become a feast for bat rays. The mating scene was described by Janet Maslin of the New York Times as having the look of "an abstract canvas" and "truly out of this world."

"I do not make films that say this is an angel fish," says Hall. "In each sequence, I catch a series of behaviors and let you know the animal. Some of the animal behaviors in the film have never been seen before."

Hall points out that most of the work he does is beyond the visibility of the water's surface. "It's an entirely different environment, in many ways as alien as the moon." Most of the film was shot at between 30 and 70 feet below the surface. The crew used mixed-gas re-breathers, devices allowing them to work at a depth of 70 feet without encountering decompression problems, and to remain underwater much longer than the limited air supply provided by standard scuba gear. Says Hall, "You don't want to get into a situation where you have to go up because you're low on air, and you would never leave the camera, worth millions of dollars, down there." During the filming of Into the Deep, the IMAX 3-D camera was the only one in existence. Since it was also being used at the same time to shoot another film in the Canadian Rockies, shooting schedules became a juggling act for the two film crews.

The marine life of the California kelp forest took the business of filmmaking in stride. First, Hall and his crew concentrated on setting up the shot, then they stepped back to let the marine animals acclimate to the equipment. "They seemed to know we're not a predator," says Hall. "We don't move or act underwater the way a predator would; we're awkward and clumsy. They discount us."

The clumsiness is a result of the powerful resistance of water. It was a constant challenge for the crew.
“Nothing people do underwater happens quickly or smoothly,” says Hall. “When you set up here you’re going to miss what happens over there. You can’t swivel the camera quickly. When you unlock the tripod head, because the water is moving back and forth, the camera tends to pan unpredictably.” For most of the shots, the camera, which with its underwater housing weighs 1500 pounds, was either fixed firmly to the tripod or floating with the divers. Once the camera starts going in one direction, it can’t easily be stopped. “You can’t hold the camera still. You float and go with it.”

All of Into the Deep was shot “to scale”. Hall points out that there is no microscopic or telescopic work. “You can trust what you see. If it looks about six inches long, it is. There is no time lapse, everything’s at normal speed. And the colors are actual, although not the colors you would see underwater without light.”

The storyline of Into the Deep emerged with the footage, and was shaped by editor Barbara Kerr’s intuition for the requirements of mood, rhythm and pace.

Editing a 3-D film poses a special challenge for all filmmakers. If you cut from a wide shot to a close-up in a 3-D film, it can be hard for the eyes to converge quickly,” says the film’s producer Graeme Ferguson, who is also the co-founder and past president of Imax Corporation. “Although we do it all the time with our own eyes—and it’s not an issue in editing 2-D films—when the shift is done for us with a 3-D camera it can be disorienting. For some eyes, the transition is more difficult than for others.” Kerr’s editing takes this factor into account by shifting gradually from distance, to middle ground, to close up.

Director Hall, who holds a degree in zoology, is also a film producer specializing in maritime wildlife films, and the recipient of five cinematographer Emmys for shows, including Spirit of Adventure, Tim Carver’s World of Adventure, and CBS Winter Olympics. He was primary camera-

The IMAX 3-D theater is only part of this magnificent Sony Theaters Lincoln Square complex. There are twelve other theaters (nine of which are completed) showing first-run movies, and each bears the name and architectural design elements of movie palaces from Loews’ past. (Sony acquired the Loews chain a few years ago.) Imagine watching current movies in such historic theaters as the Kings (Brooklyn-1929), the State (New York City-1921), the Olympia (Miami-1924), the Palace (Washington D.C.-1918), and others just as grand.

The premiere theater in the complex is the Loews, a 900 seat theater with a classic balcony and many ornate appointments. It is designed and named after the “72nd Street Theater” in New York, which opened in 1932, and whose design was based on the temples of Thailand and the Mosque Adinah in Maldah.

From the ground floor lobby, a stunning, Hollywood oriented, hand painted mural extends 75 feet high and features renderings of the historic Loews movie palaces whose names grace each auditorium in the complex. The main lobby features floor to ceiling artificial palm trees and a 67 foot long concession stand.

Every patron is welcomed, greeted, and made to feel special by the courteous, knowledgeable and professional staff. A staff member is always nearby to answer questions and provide assistance. On leaving you are again appropriately greeted and thanked for your patronage. In all, a first class operation.

I’ll end not by asking you to visit the Sony IMAX complex on your next trip to New York City, but rather by asking you to make it the very reason for your next trip to New York.

Feed and take-up platters for the dual strips of IMAX 3-D footage can hold up to four hours of film, although the added capacity is probably for IMAX HD films. These are shot and projected at 48 fps, twice the normal frame rate, providing greater clarity of detail and and steadiness to the on-screen image. Stereo by Sheldon Anowitz.
From the hyperstereo canyon sequence in the IMAX 3-D film Imagine.

man for the National Geographic special Sharks, which remains the highest-rated PBS documentary ever aired, and director of underwater cinematography for the CBS special Dolphins, Whales and Us.

The director of photography for Into the Deep is Noel Archambault (Stereo World Vol. 19 No. 3). He was stereographer/camera operator for The Last Buffalo and Echoes of the Sun (the first IMAX SOLIDO film), stereographer for Shooting Star, and stereographer/director of photography for 3-D Safari.

Narrator of the film is Kate Nelligan, star of stage, screen and television.

The initiator and lead investor of Into the Deep is Suntory Limited, a Japanese corporation with an impressive track record of support for cultural endeavors. Two additional films, still in the planning stages, are intended to be shot in IMAX 3-D and to have their world premieres at the Suntory Museum. Suntory previously sponsored The Last Buffalo (Stereo World Vol. 16 No. 2 and Vol. 19 No. 3). This IMAX 3-D film, which is being shown separately at the Sony theater, premiered at Expo '90 in Osaka, Japan, and has already been shown at many IMAX 3-D theaters around the world.

IMAX 3-D Imagine in General Release

Another new IMAX 3-D film worth catching is Imagine, which is currently being distributed to IMAX 3-D theaters around the world (no New York date is set though). The 30-minute film, whose working title was Imagine 3-D, was retitled Breaking Through when it premiered at Expo '93 in Taejon, Korea. (Some changes have been made to the film since the exposition.)

Directed by John Weiley, Imagine whisks the audience on a journey to the ultimate frontier of science—the mystery of human consciousness. "It's only recently that we have begun to understand anything about the brain to be able to let people into it," Weiley explains. "The film takes the audience inside the mind. It deals with both objective and subjective reality—and has a lot of fun along the way."

Imagine is a celebration of human curiosity and creativity that is at the core of our humanity. The film's message is that if we are to understand the universe around us, we must first understand the universe within.

As the film unrolls before us, we are caught up in a universe of dreams, fantasies, and longings. The film's protagonist is Alice, a woman through whom we experience the wonder of imagination and the IMAX 3-D experience. We fall with Alice from a helicopter in a free-fall bungee jump experience, and plunge with her into what seems like another universe. We dive up and not down (one of the film's most magical visual pleasures) into a watery world that gravity does not rule. (A submerged upside down IMAX 3-D camera filmed this stunning and surreal sequence.) In the "mind lab" as a cylindrical machine runs its light sensors over Alice's head, images appear of her brain and what it is perceiving: a glimpse of the evolutionary process—from fish swimming along the coral of the Great Barrier reef to aborigines with painted bodies dancing in the light of a bonfire.

Virtual Reality goggles are placed over "Alice's" eyes and we follow her on an exhilarating jet boat ride. Just as we are about to lose our breath from barreling through a narrow canyon in the high-speed boat, the goggles are "lifted" from our eyes and a scientist gives us a visual explanation of how 3-D can fool our brains into thinking and feeling we are there.

The jet boat ride is probably the most memorable sequence in Imagine. To film this, a camera was placed on each side of the helicopter that followed the boat down a narrow canyon and under a bridge. "Because of the way the cameras were set, the audience will feel like they are practically touching the sides of the canyon," says Noel Archambault who shares director of photography credit with Andrew Kitzanuk. "The effect is achieved because changing the distance between the cameras tricks the eyes of the observers. Placing the cameras farther apart makes the images appear smaller. When the cameras are close together, the same images appear enormous." The effect is not only used in the film, it is explained as part of the film's exploration of sensation and imagination, making the process part of the production, and taking the film into a realm beyond the gimmick.

Imagine was produced by Roman Kroitor, senior vice president and co-founder of Imax Corporation, Wild World Films (Canada), a subsidiary of Imax Corporation, and Pan Com International Inc. (Korea), for Daewoo Group's Science and Human Beings Pavilion at Expo '93.
The organization I work for has recently been exhorting us all to BLOT—put the Bottom Line On Top in reports. So here goes: VIEW-MASTER VIEWERS An Illustrated History is superb, and if you have any interest in View-Master you should buy it immediately.

The idea for this project came from a conversation between Mary Ann and Wolfgang Sell and Harry zur Kleinsmiede at the View-Master convention in Dinklesbuhl, Germany in 1992. The original concept was a set of View-Master reels illustrating interesting and unusual View-Master viewers. This gradually grew as it became clear an accompanying text would be of additional interest. The final product is of the highest quality, with full color hard covers, top quality printing and presentation, and 42 superb color pictures on six View-Master reels.

The reels are the centerpiece of the production, and Wolfgang Sell has produced pictures of the highest technical quality. In this task he was helped by the generous support of local Cincinnati professional photographer Mel Mittermiller who gave his studio and his time to the project. The book depicts all known examples of viewers that were sold to the general public, as well as some rarities that were not. Also included are shots of the seldom seen dealer advertising globe, special sets, and commercial viewers. I particularly enjoyed the views of the rare Belgium Model E color variations, and few collectors could boast the run of brown, black, red gray and cream seen here. (At least one of these was previously in my possession until the ever persistent Mary Ann finally found something to tempt me into a trade.)

The book contains extended captions for each of the pictures, together with numerous black and white illustrations, mostly taken from View-Master advertising material. Even people such as myself who regard themselves as fairly knowledgeable in the field will find new information in here.

Are there any criticisms to be made of this book? My only wish was that the text could have been extended beyond the straightforward descriptions of the reels. Informative as they were, I was left wanting to read more and I know that the people responsible have an encyclopedic knowledge of their subject. I understand that the proposed next volume will cover the history of View-Master from the early Sawyers years through today. We should be close with the second volume to a definitive history of the company and its products and I will be at the front of the line to buy a copy. People like Mary Ann and Wolfgang Sell don’t expect to get rich with undertakings like this. They do it for love, not money. I for one am just grateful for their hard work, enthusiasm and generosity in sharing their knowledge.

The View-Masters in Depth

Review by John Bradley

The book depicts all known examples of viewers that were sold to the general public, as well as some rarities that were not.
It's A Boy! The New FED Camera

The latest in the Ukrainian FED stereo line is the new FED BOY European format (7 perf) camera. Preceded by the original FED Stereo and the Model M, the “BOY” name of the new model comes from the German distributor responsible for the bulk of FED sales.

The camera is still a program mode fully automatic exposure camera with manual aperture control available at 1/60 second, intended for flash sync operation. The big news is that this camera is built to considerably tighter specifications than the earlier models. Exposure accuracy and consistency from left to right are much improved over previous FED Stereos as delivered from the factory. External changes are primarily targeted at making the FED BOY one of the easiest to use stereo cameras ever.

Convenience changes have been made to address earlier concerns expressed by FED owners. These include a “push to turn” film speed setting knob to avoid unintentional changes, and a knurled lens barrel grip and detents have replaced the focus lever for more positive focus setting.

Functional changes include a switch from a fixed f/2.8 to a fixed f/5.6 for “B” mode time exposures (to improve depth of field) and removal of the f/16 manual aperture setting. The tighter exposure specifications are difficult to reliably achieve at that smaller setting due to the nature of the shared shutter and aperture blades.

Also gone are the pictographs on the right lens barrel. The left lens barrel is scaled in meters only, befitting the camera’s German market, with a hyperfocal distance of 6.5 meters clearly marked. The BOY uses the same commonly available silver oxide #76 battery used by the Model M, as opposed to the obsolete mercury battery used by earlier FED Stereos.

The FED BOY is being imported to the U.S. by Hewes & Kagan Import & Export. The company has always preferred to do a “tune-up” on earlier models to bring them up to the specifications expected by the critical U.S. stereo market before selling them with a one year warranty. The initial shipment of the BOY model cameras has proven to be far more accurate so far, being within .1 stop of the Hewes & Kagan target settings right out of the box—something that never happened with earlier FED cameras.

The FED BOY Stereo is available from Hewes & Kagan for $450 with a two year warranty, while a Model M is $389 with a tune-up and warranty or $249 as-is from the factory. For details, contact Hewes & Kagan, 29W168 Lakeside Drive, Naperville, IL 60564, (708) 904-2431, Fax 904-2460.

Magic Carpet 3-D Fantasy

Have an IBM computer or clone? A CD-ROM? Enjoy video games? Like seeing things in 3-D? Then take a ride on Magic Carpet from Bullfrog Productions, Ltd. and Electronic Arts. This flight simulator stimulates the senses. You pilot the magic carpet, flying over island terrain and shooting at giant worms, genies, and a frightening assortment of other formidable foes. The interface is very simple and the graphics' amazing texture-mapped polygonal islands, buildings and undulating ocean waves with reflections leave your red and blue spinning. That's right—experience the wonder in anaglyph, SIS, or 2-D (for the 3-D impaired). Unfortunately, to run it you need at least a 486/33 CPU and 8 megs of ram. If you are lucky enough to have a Pentium 90, Magic Carpet enters the fantastic. Don't have the hardware? Find a magic lamp and...
3-D Software in the Classroom

Material from Stereo World and other sources of 3-D images and information is featured in a recent issue of the multimedia Discovery Toolkit® from Pierian Springs Software. Designed for use in computer-equipped grade and high school classrooms, Vol. 1 No. 5 of the Toolkit is devoted to “Special Effects and Experiments in Perception” and covers several techniques of creating and viewing 3-D images, including a section on stereo photography.

Sent to teachers all over the U.S. each month of the school year, the Toolkit contains up to ten megabytes of digital sounds, pictures, animations, and text fields on disk, focusing on a selected educational theme each issue. As well as a set of master disks, each issue comes with 25 copies of a newsletter filled with lesson plans, special projects, technology updates, additional related software sources, and a bibliography. In the “Special Effects” newsletter, material from the Stereo World article on 3-D Postage Stamps is included along with an extensive bibliography of material related to 3-D imaging—about half of which consists of articles from Stereo World. A list of organizations and suppliers includes addresses for the NSA and ISU. Included with the disks in the kit are glasses for viewing the on-screen anaglyphs which are part of the graphics program designed for student experimentation.

Discovery Toolkits are available for most Windows, DOS, or Macintosh software, and are intended for unlimited use by teachers and students both in the classroom and on their home computers. More information on this educational subscription software is available from Pierian Springs Software, 5200 SW Macadam Ave. Suite 250, Portland, OR 97201, (503) 222-2044, Fax 222-0771.

The Temple of Horus Through CrystalEyes

Visitors to the new “Big Future” interactive theme house/family entertainment center in St. Louis will be able to take an interactive tour of the long-gone Egyptian Temple of Horus in 3-D by wearing StereoGraphics CrystalEyes® polarizing glasses. Computer generated images of the temple, polarized for left and right, are projected on a 4 x 5 foot StereoGraphics ZScreen™ and respond to visitors’ movements of a joystick by turning corners and moving through the interior chambers of the site.

Sponsored by Intel Corporation, the Temple of Horus was developed at Carnegie-Mellon University and will be available to Big Future visitors through the spring of 1995. The 13,000 square-foot center is designed to stimulate the imagination of kids of all ages and their parents with more than 80 different experiences like diving into virtual adventures, embarking on surrogate travel expeditions, trying interactive movies, and conversing with large-screen multimedia computers.

The sort of sophisticated imaging technology usually found in research labs will be available to visitors. “Big Future brings technology from the minds of some of the world’s greatest computer wizards into the hands of our guests,” according to Big Future founder David Williams. “3-D makes it all very real—and that’s what we intended.” Visitors can also operate a giant lathe in 3-D. Developed and sponsored by Sun Microsystems, the attraction allows users wearing StereoGraphics’ CrystalEyes shuttering glasses to create intricate carvings by pointing a 3-D mouse at a stereo-ready monitor. The alternating left and right images on the screen are synchronized with the glasses, in this case via cable. Other StereoGraphics systems use the firm’s CrystalEyes VR™ technology for wireless synchronization and head tracking of the shuttering glasses.

For more information on Big Future exhibits, hours and admission prices, contact Big Future, 21 North Merrimac (2nd floor), St. Louis, MO 63105, (314) 725-8700.
Stereo at PSA Meet

An upcoming regional convention of the Photographic Society of America will feature an unusual number of stereo projection shows for a regional PSA meeting. Gathering on May 26 and 27 at the Hyatt Regency Hotel in Bellevue, WA, those attending can see three stereo slide shows on Saturday the 26th: "Talking to Myself—An Experience in the Third Dimension" by Marion Smith, "Minerals in Stereo" by Barrie Bieler, and "From A to Z in 3-D" by Warren Callahan. For more information contact Chairman Jerry Vaness, PO Box 66604, Seattle, WA 98166.

Stereoscopic Society Convention in April

Those who expect to be in England this April should arrange to attend the Stereoscopic Society's annual convention at the Moat House Hotel in Harrowgate, April 21-23. Along with stereo projection shows and workshops, a Sunday outing will include a visit to the National Photographic Museum (with its expanded 3-D exhibit area) in Bradford. Harrowgate is one of the first and most attractive Spa towns in England, with good road and rail links.

For details and registration forms contact Organizers Sue & Bernard Makinson, 36 Silverthorne Drive, Hemel Hempstead, Herts HP3 8BX England, Fax 01442 250266.

Software That Fights Back

A game called Depth Dwellers has been released by Trisoft (Box 83, Friendswood, TX 77546) at a suggested retail price of $39.95. One of the first "First Person" games in which the action happens to and with the player, Depth Dwellers involves various projectiles flying out of the screen at you.

Assignment 3-D

(Continued from inside front cover)

The Rules:

As space allows (and depending on the response) judges will select for publication in Stereo World each issue at least two of the best views submitted by press time. Rather than tag images as first, second or third place winners, the idea will be to present as many good stereographs as possible from among those submitted.

Prizes are limited to the worldwide fame and glory resulting from the publication of your work. Anyone and any image in any print or slide format is eligible. (Keep in mind that images will be reproduced in black and white.) Include all relevant caption material and technical data as well as your name and address. Each entrant may submit up to 6 images per assignment.

Any stereographer, amateur or professional, is eligible. Stereos which have won Stereoscopic Society or PSA competitions are equally eligible, but please try to send views which have not won other rights are retained by the photographer.

Send all entries directly to: ASSIGNMENT 3-D, 5610 SE 71st, Portland, OR 97206.

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This column depends on readers for information. (We don't know everything!)
Please send information or questions to David Storkman, NewViews Editor, P.O. Box 2368, Culver City, CA 90231. THANKS TO Warren Callahan, Jennifer Davis, Marty Hewes, Lincoln Kamm, and David Oren for sending material to NewViews.
Library Report

Latest Gifts

The following list includes gifts to the Oliver Wendell Holmes Stereoscopic Research Library generously donated by NSA members over the past several months. Such gifts help the Library continue to build a unique and comprehensive collection of material relating to all aspects of stereo imaging.


PHOTOGRAPHIC HISTORICAL SOCIETY OF CANADA: the stereo slide presentation Around the World With Hubert C. Dell, 4 Volumes of Clarke Leverette’s Cherry Pink Index.

The NSA has established the Oliver Wendell Holmes Stereoscopic Research Library, located at Eastern College, St. Davids, PA 19087. This library offers to researches a large body of information on the history, development, and continued applications of stereo imaging. It contains early catalogs and trade lists of stereo photographers and publishers, a collection of books and periodicals (both antique and current) on stereoscopy and related photographic techniques, and a large study collection of both antique and modern stereo images.

D. DAVISSON: Third Dimension Society Publication No. 82.


FREEMAN HEPBURN: two photography books and newspaper clippings.

DALE AND JANET ROSSI: Centennial Stereo Views.


BILL WALTON: contemporary stereo prints.


JIM CRAIN: an autographed copy of his book California in Depth.

HARRY B. RICHARDS: a box of 35mm slides donated by Mrs. Harold Brock of Milwaukee, WI.

We now have in our holdings the recently published Stereographers of the World in two volumes—Vol. 1 - foreign photographers and Vol. 2 - U.S. photographers. Compiled through the joint efforts of the late Wm. C. Darrah and T.K. Treadwell.

From Our Purchase Fund

Stereo Eyes by C.F. Brindel
Simplified Stereoscopic Photography by C.W. Wilman
Steroscopic Representations of Three-Dimensional Scenes by H.W. English
Art and Technique of Stereophotography by Peter Gowland
How to Make Your Own Stereo Pictures by Julius B. Kaiser
Principles of Holography by Howard M. Smith
Researches in Binocular vision by Kenneth N. Ogle
Jules Richard catalog
How to Make Polaroid Vectographs

The NS—What?

The non-profit National Stereoscopic Association was founded in 1974 to promote the study and preservation of the stereoscopic images and equipment of the past and to encourage the growth of all aspects of stereo imaging in the present. Besides publishing the bimonthly Stereo World, The NSA hosts regional and national meetings featuring collector’s trade fairs and 3-D projection programs.

If this issue of Stereo World is the first you’ve heard of the NSA, we invite you to write for more information. Send a SSAE to NSA, PO Box 14801, Columbus, OH 43214.
The 3-DVG Workshop:
How to use your fingers to turn any color magazine picture into 3-D

by Kenneth J. Dunkley © 1994

This article shares its name with a quarterly workshop I conduct at the Museum of Scientific Discovery in Harrisburg, Pennsylvania. The workshop exposes people to a novel 2-D to 3-D visual display process that creates a surprising three-dimensional stereoscopic-like display from ordinary two-dimensional color photographs printed in any magazine.

In 1985 I discovered the existence of two points located on the periphery of a person’s vision that, if obstructed, will cause an ordinary magazine picture to appear three-dimensional. The steps that optimized this visual process were patented (U.S. Patent 4,810,057) as were also the physical devices that implemented the process. The invention, called the Three-Dimensional Viewing Glasses (3-DVG), comes in three versions: an advanced model, an initiation or training model, and an individual’s fingers!

The 3-DVG forced me to totally re-evaluate my concept of a picture. I tried to incorporate what I’ve learned into a series of visual demonstrations. Workshop participants realize from these demonstrations that pictorial depth sensation is a real entity; it is not an illusion. Pictorial depth sensation can be increased, decreased, or maximized at will. But, more importantly, they learn that the familiar so called “illusion of depth” inherent in any 2-D picture can be transformed into “the actual appearance of depth,” i.e., stereopsis. This awareness can be quite profound depending upon a person’s interest in the study of pictorial perception. My hope is that you, the reader, will be successful in detecting the 3-DVG effect and will be inspired to explore and experience this new visual landscape.

Besides telling you about the workshop, this article will show you how to detect the 3-DVG effect and how to build and operate a 3-DVG training device. It will also provide you with the rules needed to build your own advanced 3-DVG instrument.

What is the 3-DVG?

The advanced 3-DVG consists of a pair of hinged binocular housings with matched optical frames and variable pinholes on opposing ends. There are no mirrors, lenses, prisms or optics of any kind involved. The observed three-dimensional effect is caused by the
alignment of this simple system relative to the eyes. The alignment process is required learning in order to successfully operate the device.

The 3-DVG's visual results appear genuinely stereoscopic in spite of limited actual stereopsis and a less than ideal viewing angle. This happens because reduced stereopsis is compensated for by increased depth sensation, increased sharpness and enhanced visual contrast imposed by the pinhole, illocal framing, and Ames effects. (Kenneth J. Dunkley, "A new 3-D from 2-D visual display process," SPIE, Vol. 1915, pp. 132-140, 1993.) A properly adjusted 3-DVG device can give a person the momentary but distinct impression that they are looking out of a window at the actual scene depicted in a magazine picture. However, it should be noted that roughly 20 percent of persons who try it cannot detect the effect at all.

Workshop Agenda

The objective of the 3-DVG workshop is to share, in an unbiased fashion, knowledge of the 3-DVG phenomenon in the context of other known 2-D to 3-D depth enhancing effects and also regular stereo utilizing stereo pairs. The workshop has averaged nine participants per session. Persons who attended had no prior knowledge of the subject matter. They had responded to a public address announcement made a few minutes prior to the start of the workshop. Ages varied from 8 to 65 years.

The workshop's visual demonstrations included: 2-D to 3-D via large viewing lenses, 2-D to 3-D via monocular depth sensation, "normal" View-Master stereo viewing versus the "superior" (63" wide angle) stereo viewing provided via a Carl Zeiss Jena Verant-Stereoskop stereoscopic viewer, TV showing moving scenic pictures, and the 3-DVG invention. Persons who don't see the 3-DVG effect on their first try are introduced to other known 2-D to 3-D visual effects. These include the image produced by a large viewing lens and a demonstration of monocular depth sensation. Characteristically, about half of the participants in this group will see the 3-DVG effect on their second try.

Persons successful at seeing the 3-DVG effect are shown how the stereo effect can be adjusted, inverted, improved with small (or variable) pinholes, and improved by adding the illocal frame (i.e., the advanced version). They also learn how to select and illuminate a good picture, how to make the best of TV, and how to improve a picture by increasing the viewing distance. Finally, participants are shown how to use their curled fingers to create the 3-DVG effect.

Comments

Of a total of eighteen participants at the last two sessions (on 3/13/94 & 4/10/94) fourteen experienced the 3-DVG effect and responded positively to a questionnaire addressing the relevance of the workshop. The following comments are representative; respondents' ages are in parenthesis.

Woman (31): "Fascinating. I had fun and will keep practicing." Man (65): "An interesting demonstration of an effect which obviously enhances the value of viewing a 2-D picture." Boy (10): "It was neat. I really liked it." Man (45): "Yes, very interesting. Some research or insight into the physiological/psychological mechanism would be worth while." Man (33): "Very worth while. I loved it! I take about 500 photos in a year and I plan on using these different methods on my photos. Thank you." Woman (37): "I found the workshop interesting and was able to identify with all but one picture." Young man (15): "I liked it, it was neat." Girl (9): "I liked it." Girl (9): "I like it."

Summary

Notwithstanding the comments of the workshop members, I knew they were thoroughly intrigued when virtually everyone stayed for over one and a half hours when they had the opportunity to leave the workshop after the first half hour. Emotionally, workshop participants feel as if they are seeing
Workshop Tools

The workshop's visual demonstrations are seen in Figure 1. Three 3-DVG advanced models are on the right, initiation and training versions are at the center. On the left is a large viewing lens and a set of monocular viewing tubes used to demonstrate early 3-D from 2-D visual effects. A Carl Zeiss stereoscopic viewer and a View-Master are also present. TV viewing was included but care was taken to point out that the 3-D effect from ordinary (low resolution) TV is much milder than the 3-D stereopsis observed from magazine pictures. Moving TV pictures however, do provide increased depth sensation. TV works best when small pinholes (1.0 to 0.8 mm) are used with only 10 to 20 percent pinhole overlap. Room lights should be turned off.

Requirements

Figure 2 is the prototype version of the three-dimensional viewing glasses (3-DVG). H is the distance from the variable aperture pinhole to the illocal frame. d is the variable distance between the pinholes. The optical axes must be constrained to move in a horizontal plane while providing independent movement of d and the distance between the illocal frames, d. There are many ways to achieve this mechanical requirement. I use 1/8 inch thick cardboard for housings and a differential "V" hinge design made of laminated 1/2 inch cardboard (Figure 3). Housings and optical (illocal) frames must be identical in size and housings should be darkened inside. Focusing the advanced model: The pinholes are not observable when looking through the advanced model. All that one sees are the frames. But the pinhole's "separate, look, and overlap" rule must still be adhered to, and the user must remember to "position the frames as far apart as possible" and to select the smallest pinhole allowable under the given lighting conditions. In the workshop these details are all but lost and users are instructed to keep adjusting until it feels like they are looking out of a window at the actual scene portrayed in the magazine picture. (Note: the 3-DVG does not work with theater-size motion picture screens, nor does it work well if contact lenses or an astigmatic condition are present.)

Finger Techniques

The finger techniques should be approached from the vantage of having experienced the initiation model or, at least the home made "test yourself" example of Figures 7-9. Having said that, I know many of you will most likely go right ahead and try it. Don't forget to light the picture with extra light and stand at a distance of 3 to 6 feet away. If you see it, you will know it. Good Luck!

(1) The easy way to do it: using your curled fingers. Figures 4 and 5 illustrate this technique. The triangular opening formed when the fingers are curled as in Figure 4, if operated in accordance with the "test yourself" example, can give excellent results. You will find that virtually any clean, non-fuzzy hole, no matter what its shape, will generate a surprisingly good stereoscopic display.

(2) The hard way to do it: using two straight fingers. Figure 6 illustrates this technique, which comes easily if you train for a few seconds using the training model with 1/2 inch diameter holes. Using the half-inch holes makes a person realize that the inner edge of a pinhole can be simulated by the edge of a finger (or any elongated object). Begin by positioning a finger directly in front of the pupil of each eye, directly blocking your main central vision. Then, move both fingers slowly towards each other (i.e., move them in a nasal direction) while keeping the fingers parallel. You will notice that the dark region directly blocking your vision is shrinking in size. Stop moving your fingers when the dark region has shrunk to zero. Look for the 3-D effect.

Test yourself

(1) Make a blackened clean (i.e., non-fuzzy) hole, 2.5 mm or less in diameter in the centers of two business cards (1.5 to 2 mm would be ideal). Or hold the card vertically and fold it from top to bottom and then from left to right. Cut the smallest diagonal possible off the uppermost left corner. (This corner should end up at the center of the three-dimensional viewing glasses (3-DVG)).
of the card). The resulting square hole should be about 1/16 of an inch on its side and must be darkened with a black marker out to a radius of 1/2 inch.

(2) Select a scenic picture from a magazine. Illuminate the picture with extra light. If glare is present, eliminate it by tilting the picture or changing the angle of the light source.

(3) With a card held vertically in each hand, look through the holes at the picture as in Figure 7.

(4) SEPARATE the cards just the tiniest amount so the view through the holes looks like Figure 8.

(5) LOOK for the 3-D effect.

(6) Once detected, slowly ease the holes half way back so as to OVERLAP each other by 50 percent as in Figure 9. The overall focusing process is easily remembered by the instruction to “separate, look, and overlap”.

How do you know you have detected the 3-DVG effect?

This criteria is valid when high quality optical holes are utilized. If your home-made holes are relatively clean this criteria will still apply although with diminished results. An individual has detected the 3-DVG effect when they can answer “yes” to all three of the following questions:

1. Is it giving you the clearest and sharpest picture you have ever seen bar none? (Switch back and forth between the device and your normal view of the picture to ascertain this.)

2. Can you look all the way into a good scenic picture—like, out to infinity? (If you have trouble here, increase your viewing distance by three feet and try again.)

3. Does the picture truly appear to be stereoscopic? If you examine a scenic picture containing trees, foliage, or flowers you should be able to distinguish the apparent difference in visual depths of small individual elements of the picture such as leaves on a tree or flowers in a garden.

Presuming you were successful, congratulations are in order. Prior to publication of this article only four hundred or so persons in the world had experienced the 3-DVG effect. If you liked what you saw you can demonstrably improve the results by:

(1) using optical quality pinholes set at typically 1.40 mm in diameter for viewing magazine pictures (at distances of 3 feet or greater).

(2) adding an illocal frame to increase depth sensation and make the picture appear life size.

(3) using high quality variable apertures (0.7 to 4.00 mm in diameter) to provide focusing ease.

For more information contact the author at 792 Brentwater Rd., Camp Hill, PA 17011, U.S.A. Phone & fax: (717) 731-9307.

Deep Screen Saver and Puzzling Stereograms

Nvision Grafix, publishers of Holusion" stereogram posters and the single-image stereogram book Holusion Art, has released a screen saver software package (also called Holusion Art) that presents 14 different stereograms on a computer screen when the keyboard is not in use. (Unlike “Sirds for Nirds” covered in the previous issue, this software is a screen saver only and won’t create new stereograms.)

System requirements are Microsoft Windows 3.0 or greater, 4MB RAM, hard drive, and VGA or better. The suggested retail price of Holusion Art 3D Screen Savers is $24.95. More information is available from NVision Grafix, 222 West Las Colinas Blvd. Suite 1840, Irving, TX 75039, (800) 759-2110, Fax (214) 432-8104.

If ordinary stereograms no longer seem challenging, you may want to try assembling one that has been fractured into 500 or 1,000 pieces. Hallmark Stores carries single-image stereogram jigsaw puzzles that give a whole new meaning to “random dot” and could intimidate the most skilled free viewer. Images on the Springbok puzzles were created by DigiRule, and also appear in some calendars sold by Hallmark.

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For Sale


3-D CHILDREN'S BOOKS: Under the Sea and Wild Safari. Twelve pictures each, easy to read text. Red/green glasses. $12 each. Send check to Summon & Summon Ltd., One Fox Road, Crotton, NY 10520.

600 VIEW Keystone View Co., set, in oak cabinet with door, lock & key, 6 drawers, each divided into 25s. First 300 views USA, Maine to Calif. Second 300 views mostly foreign. All in excellent condition. Best offer! Send offers to J.E. Stein, 829 Tice Pk., Westfield, NJ 07090.

ARTHUR GIRLING'S "Stereo Drawing - A Theory of 3-D Vision and its Application to Stereo Drawing", 100 pages hardbound 8½ x 12. Stereo photographers are finding that the book applies equally to stereo photography and is a mine of information on methods of making 3-D pictures and viewing them. Written in non-technical language and profusely illustrated with B&W drawings as well as 11 pages of superb anaglyphs, this book is a must for the serious stereoscopist. Now available from NSA Book Service, 4201 Nagle Rd., Bryan, TX 77801. Price (including postage) $19.00 USA, Canada. Overseas add $2.00 surface, $4.00 air.

BOOK. The Siege at Fort Arthur, hardback with 3-D viewer, greatly reduced at $10 incl. s&h. Add $4 for airmail. Ron Blum, 2 Hussey Ave., Oaklandls Park SA 5046, Australia. See reviews, SW, Nov. '87.

BRIGHTEN YOUR AC VIEWER with a bulb. Screw base halogen bulbs for DC viewers; $3.95 ea. Screw base halogen bulbs for DC operation, supports all 2.5 V bulbs and viewing them. Written in non-technical language and profusely illustrated with B&W drawings as well as 11 pages of superb anaglyphs, this book is a must for the serious stereoscopist. Now available from NSA Book Service, 4201 Nagle Rd., Bryan, TX 77801. Price (including postage) $19.00 USA, Canada. Overseas add $2.00 surface, $4.00 air.

KODASLIDE OWNERS: Supercharge your viewer with all-new repair & improvement kit. Includes sturdy & bright reflector, new friction pad, etc., plus 22pp. fully-illustrated text. Send $15 to G. Themelis, 10243 Echo Hill Dr., Brecksville, OH 44141. SASE for more information on other kits, products, services.

NEW BOOK! STEREOVIEWS ILLUSTRATED Volume 1: Fifty Early American, full stereo, full size, KILLER QUALITY duotones, 3-page price guide. See review, Stereo World V21 #2, page 17. $25 postpaid (worldwide) by Russell Norton, PQ Box 1070, New Haven, CT 06504-1070.

NISHIKA SALE! Like-new camera in slightly worn original box w/original packaging & booklets, w/unboxed like-new eveready case, $70; Like-new camera in torn & repaired original box w/booklets, w/unboxed Exc.+ eveready case, $60; Like-new camera, missing tiny red lens over battery indicator LED, operation not affected, $45; Twin-light flash unit, slight trace of corrosion inside battery cover, but looks & works like new, $15. Please add UPS. Mark Wilkie, 200 SW 89th Ave., Portland, OR 97225. (503) 297-7653.

REALISTS, f/2.8 and f/3.5, both 9+, excellent working c/w good cases. Wallenksak -10, mint c/w. Refer to case. Call Brent (203) 677-8422 (Connecticut).

STEREO REALIST ST-41 camera, Mint- in Exc.+, case, $145; ST-41 camera, Exc., $125; ST-41 camera & ST-61 viewer in original combo box, with room for slides after camera is removed. Camera is Exc.-Exc.+, viewer is Exc.+. Includes worn original camera instruction book, $175. Same outfit, camera is clean but has a few repaired cracks, no instructions, $145; ST-61 viewer, Exc.+, $75; ST-81 projector, Exc.+Mint- in Exc.+. (Case has none of the usual cracks in its base, but the handle has been repaired.) Includes one sequence file, $775; Virgin stereo camera, self-timer sticky, otherwise Exc./Exc.+ in eveready case, $100. Please add UPS. Mark Wilkie, 200 SW 89th Ave., Portland, OR 97225. (503) 297-7653.

A part of their membership, NSA members are offered free use of classified advertising. Members may use 100 words per year, divided into three ads with a maximum of 35 words per ad. Additional words and additional ads may be inserted at the rate of 20¢ per word. Please include payments with ads. We cannot provide billings. Deadline is the first day of the month preceding publication date. Send ads to the Notional Stereoscopic Association, P.O. Box 14501, Columbus, OH 43214, or call (419) 927, 2930. A rate sheet for display ads is available upon request. (Please send SASE.)

For Sale


VIEW-MASTER BOOK SET: 2 Vol. Stereoscopic Atlas of Silt-lamp Biomicroscopy, by Alson E. Braley, MD & others from Dept. of Ophthalmology, Univ. of Iowa, C.V. Mosby Co., St. Louis, 1970, incl. 30 V-M reels (210 stereoscopic views in full color), plus folding compact plastic viewer, all in pockets bound into hardcovers, in deluxe slipcase. Very detailed look at the eye incl. Cornea, Vitreous, Retina, etc. Like new mint condition. Will be sold to highest bidder. Sale closes 10:00 PM Eastern Time, April 25, 1995. Mail/Phone bids accepted. Mail bid to John Waldsmith, 302 Granger Rd., Medina, OH 44256 or phone (216) 239-1944, one minute rule used in this sale. Call if you need clarification or need further info.

WANTED

1964-65 NEW YORK World's Fair - Stereo or flat views. Also stereo views of Disneyland. Bill Cott, PQ Box 7001, Mission Hills, CA 91346-7001.

ALASKA-KLONDIKE-YUKON-ESKIMO-ARCTIC stereoviews wanted, also will trade these. Additionally want Washington State, Idaho, Oregon stereoviews. Please write. Thanks, Robert King, 3800 Coventry Dr., anchorage, AK 99507.
ANY 3-Ds OF THE DOORS; Jim Morrison are desperately wanted by their largest fan club. Please help! Top prices paid! Kerry, 27 S. Sage Dr., Orem, UT 84058 or (801) 224-224-7390.

BAJA 8-DRAWER stereo slide cabinet w/plastic drawers marked "Versatile". Mark Willis, 200 SW 89th Ave., Portland, OR 97225. (503) 297-7565.

BEAMPLIT FOR 35mm camera. Also stereo views of children, machinery, or Pacific Northwest, i.e. Alaska, British Columbia, Alberta, Washington, Oregon, Idaho, George Snowdon, RR 2, Site 45, Box 6, Winfield, B.C. VON 200, Canada.

BLACK HILLS VIEWS. I have moved to the beautiful Black Hills and will eagerly buy or trade for local photos of all types. Please help me build a great collection! Brian Bade, 13702 Mountain Beaver Way, Rapid City, SD 57702-5663, (605) 342-6078.

BUYING STEREO SLIDE VIEWERS. Any model, any condition. Paying top prices. Examples: Realist DC $85, Realist AC/Kodaslide II $120. Also: Revere/Wollensak, TDC, V-M, Brummerger, and more. Contact: G. Themelis, 10243 Echo Hill Dr., Brecksville, OH 44141, phone/fax (216) 838-4752.

C. GOODRICH, Plainfield, Vermont - Stereo views, any condition, for any research. Contact Richard Petter, RR 1, Box 1770, Plainfield, VT 05671, (802) 454-7897.


COLORADO and New Mexico stereo views, cabinet cards, mounted photos, etc. taken by D.B. Chase. Also xeroxes of the above needed for research. Mark Gardner, Box 879, Cascade, CO 80809.

COLORADO MINING TOWNS AND RAILROADS - All photographers - Stereos, cabinets, CDVs, large paper, glass negatives, albums, books, illustrated with real photographs. David S. Digges, 4983 Perry St., Denver, CO 80212-2630. (303) 455-3946. Specialties: Locomotives, street scenes, survey teams, expeditions, stagecoaches, freight wagons, and occupational.

FLAT MOUNT VIEWS of Russia, especially those by Russian photographers; will buy or trade. Also want to correspond with anyone interested in such material with a view to an article on it. T.K. Treadwell, 4201 Nagle Rd., Bryan, TX 77801.

FLORIDA STEREOS of historical value, especially Tallahassee, Tampa and Gaineville: Price and describe or send on approval; highest prices paid for pre-1980 views. No St. Augustine, Hendrickson, PO Box 21153, Kennedy Space Center, FL 32815.

HARD HAT DIVER wants stereo views, post cards and other memorabilia of deep sea divers. Paul Scheman, 3600 Bay Area Blvd., Houston, TX 77062, (713) 486-8312.

HELP! I have a working Nord Stereo Projector from the Nord Company in Minneapolis, Minnesota but no slide carrier. If you can help, please write: Pat Crofton, Box 401, Belleair, FL 77402.

I BUY ARIZONA PHOTOGRAPHS! Stereoviews, cabinet cards, mounted photographs, RP post cards, albums and photographs taken before 1950. Also interested in Xeroxes of Arizona stereographs and photos for research. Will pay postage and copy costs. Jeremy Rowe, 2331 E. Del Rio Dr., Tempe, AZ 85282.

I COLLECT VIEWS OF SAN DIEGO, California in Realist or View-Master format! Contact Dave Weiner, PO Box 12193, La Jolla, CA 92039.


LOUISIANA and New York City stereo views wanted. Also daguerreotypes of children with toys or other just plain lovely or interesting photos in any format. Also interesting cameras. Larry Berke, 28 Marksmen Lane, Levittown, NY 11756-5110, (516) 796-7280.

LYNN SKEELS, Ravenna, Ohio, views of Airships USS Akron & USS Macon. On mounts similar to Keystoneos. Also want photos (any format) or epheveria of Canton Bulldogs, Akron Pros or Cleveland Panthers professional football teams. John Waldsmith, 302 Granger Rd., Medina, OH 44256.

MUYBRIDGE VIEWS - Top prices paid. Also Michigan and Mining - the 3Ms. Many views available for trade. Leonard Walle, 47530 Edmon- borouh Lane, Novi, MI 48374.


TO MAKE VIEW-MASTER REELS of Realist and Nimslo slides and pictures. Any company who can, contact Anthony J. Longo, 126 Acton Road, Bridgeport, CT 06606-1601.

TOSHIBA 3-D Camcorders, also 35mm prints of 3-D movies. Michael Starks, 3DTV Corp., PO Box Q, San Rafael, CA 94913-4316, (415) 479-3516, fax 3316.

VIEW-MASTER REELS of Walt Disney World and Disneyland, especially Epcot-Futureworld. Anthony J. Longo, 126 Acton Road, Bridgeport, CT 06606-1601.

VIEWS OF GLASSMAKING INDUSTRY, Glass Exhibitions, Glass Blowing, etc. Send info and price to Jay Doros, 780 Chancellor Ave., Irvington, N.J. 07111.

WEST VIRGINIA stereo views, real photo post cards, CDVs, cabinet cards and other better photos. Tom Prall, PO Box 155, Weston, WV 26452.

WILD WEST WANTED! Buffalo Bill, Annie Oakley, Indians, Cowboys, outlaw, lawmen. Wild West Show performers. Western town views. Stereos, cabinets, CDVs, large photos. Please send xerox copy and price, serious buyer. Art Sowin, 8436 Samra Dr., West Hills, CA 91304, (818) 346-2171.

YELLOWSTONE N.P. by Stereo Travel Co., Numbers 1 through 9, 17 & 18, 28, 33 & 34, 38 & 39, 50 & 51, 57, 70 thru 75, 87 & 89. John Johaneck, 4750 Rolling Hills Drive, Bozeman, MT 59715.
March 4 (FL) Camera Exchange Show-Sale, Quality Inn, DeLand, FL. Contact Florida Camera Shows, (904) 738-0548.


March 5 (CA) Pasadena Camera Show and Sale, Pasadena Elks Lodge, 400 W. Colorado Blvd., Pasadena, CA. Contact Anton at Bargain Camera Shows, PO Box 5382, Santa Monica, CA 90409, (310) 578-7446.


March 11-12 (CA) San Francisco Bay Area Camera Show, Scottish Rite Auditorium, 1547 Lakeside Dr., Oakland, CA. Contact Carney & Co., 231 Market Place #379, San Ramon, CA 94583, (510) 828-1797.

March 11-12 (NE) Omaha Camera Show, Radial Social Hall, 1516 Northwest Radial Hwy. Contact Jim Tunzer, 1808 N. 59th St., Omaha, NE 68104, (402) 558-9473 (AM) or Jay Casebeer, (402) 496-1918 (PM).

March 12 (CA) Santa Monica Camera Show and Sale, Santa Monica Civic Auditorium, Santa Monica, CA. Call (310) 578-7446.


March 19 (TX) Photographic Collectors of Houston Show, Holiday Inn-Hobby Airport. Call (713) 943-7979.

March 19 (VA) DC Antique Photo Image Show, Rosslyn Westpark Hotel, 1900 N. F. Meyer Dr., Arlington, VA. NOTE: DATE IN DISPLAY AD IN PREVIOUS ISSUE WAS INCORRECT. Contact Russell Norton, PO Box 1070, New Haven, CT 06504, (203) 562-7800.

March 19 (CA) Buena Park Camera Expo, Sequoia Club, 7430 Orangeforhe Ave., Buena Park, CA. Call (714) 786-8183 or (714) 786-6644.

March 19 (GA) Atlanta Camera Show & Sale, Holiday Inn Northwest, 1-75 North & Delk Rd. Contact Atlanta Camera Shows, PO Box 260033, Decatur, GA 30036, (404) 987-2773.

March 19 (OR) Portland Photographer’s Forum Camera Swap Meet, Sam Jackson Armory, 6255 NE Cornfoot, Portland, OR. Contact PPF, PO Box 5643, Portland, OR 97228, (503) 557-9196.


March 26 (BC) Vancouver Annual Spring Camera Swap Meet, Kerrisdale Community Center, 5851 West Blvd., Vancouver, BC. Contact Siggi Rohde, (604) 941-0300.

March 26 (Ont.) Photographic Historical Society of Canada Annual Spring Photographica Fair, Queensway Lions Center, 3 Queensway Lions Court, Toronto, Ontario, Canada. Contact Mark Singer, 421 Horsham Ave., North York, Ont. M2R 1H3, Canada, (416) 221-8808.

April 21-23 (UK) Stereoscopic Society Annual Convention, Most House Hotel, Harrogate, North Yorkshire, England. See the item in NewViews or contact Sue & Bernard Makinson, 36 Silverthorn Dr., Hemel Hempstead, Herts HP3 8BX, England, 01442 258865, fax 01442 250266.

April 30 (TX) NSA SOUTH CENTRAL REGIONAL SPRING MEETING, 8:30 am to 2 pm, College Station Conference Center, College Station, TX. Contact Carroll Bell, 900 Harvey Rd. #13, College Station, TX 77840, (409) 693-7004.

ARCHIVAL SLEEVES: clear 2.5-mil Polypropylene

<table>
<thead>
<tr>
<th>Size</th>
<th>CDV</th>
<th>CDV POLYESTER (2-mil)</th>
<th>POSTCARD (3 3/4&quot; x 5 3/4&quot;)</th>
<th>POSTCARD PAGE 4-pocket top load</th>
<th>4&quot; x 5&quot;</th>
<th>STEREO / 4 3/4 COVER (3 3/4&quot; x 7&quot;)</th>
<th>STEREO POLYESTER</th>
<th>CABINET / CONTINENTAL (4 3/8&quot; x 7&quot;)</th>
<th>#1 COVER (4 3/8&quot; x 5 3/4&quot;)</th>
<th>5&quot; x 7&quot;</th>
<th>BODUER (5 1/2&quot; X 8 1/2&quot;)</th>
<th>8&quot; x 10&quot;</th>
<th>11&quot; x 14&quot;</th>
<th>16&quot; x 20&quot; (unsealed flap)</th>
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<td>Price</td>
<td>$0.71</td>
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Ruthless Norton, PO Box 1070, New Haven, CT 06504-1070


**PRECISION FOLDING STEREO VIEWER**

For all standard Realist 3D stereo slides.
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TAYLOR MERCHANT CORP. 212 West 35th Street • New York, NY 10001
THE 3-DVG* EFFECT: THE MOST EXCITING VISUAL PHENOMENON SINCE THE INVENTION OF HOLOGRAPHY AND IMAX THEATER

The 3-DVG invention* was highlighted in the March/April 1993 issue of Stereo World and again in the Nov./Dec. 1994 issue. The 3-DVG viewing device will take any color picture in a magazine and turn it into a 3-D stereo display. However, the utter simplicity in which this effect is accomplished creates a visual gateway to a totally new way of looking at pictures.

In 1992 a small marketing effort resulted in ten percent of the Initiation Model buyers writing unsolicited letters. These early buyers received the Initiation version without any explanatory literature. The very first letter I received kind of said it all. Mike Johnson of Wheaton, IL 60187, wrote: "...As a person who's interest in 3-D has been a life-long affair, I must say that I am absolutely flabbergasted that the effect of three dimensions can be achieved by such a simple device...I was able to achieve the desired 3-D effect on my very first try. Ever since, I have been pouring through old magazines, comic books, and sitting in front of the television, exploring an old territory in a totally new way...It is truly exciting to be among the first to experience this discovery."

A 3-DVG Workshop kit will lead to a complete revision of your visual perception regarding pictures. The device and the information provided in the kit will allow you to personally resolve the centuries old paradox surrounding the "illusion of depth" inherent in any 2-D picture. If you have an interest in pictorial perception...you must experience the 3-DVG.

The advanced 3-DVG (with variable pinholes) allows pictorial depth sensation to be continuously varied starting from the appearance of a normal picture and adjusted to a display possessing increased clarity, increased contrast, increased resolution, increased depth sensation and last but not least stereopsis, i.e., it appears 3-D! (The 3-DVG does not work with large screen motion pictures, nor does it work well if contact lenses or a strong astigmatic condition is present. Also, 20% of persons with normal vision do not experience the 3-DVG effect.)

3-DVG Workshop Kits are now available on a limited basis. They are made expressly for the stereo and visual enthusiast/experimenter who wish to explore this new and exhilarating visual phenomenon.

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<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>OPTICAL PROPERTIES</th>
<th>PRICE</th>
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<tbody>
<tr>
<td>3-DVG Training Model Kit</td>
<td>Four sets of optical quality unmounted pinholes and four precut cardboard blanks allow you to assemble four training models, each with a different pinhole size (1.40, 1.10, 0.90 &amp; 0.75 mm). 3-DVG resource information included, 18 pages. Five minute assembly time per unit. Does not look pretty. 30 day unconditional warranty.</td>
<td>Allows for normal and close-up viewing of pictures and almost optimum TV viewing.</td>
<td>24.95</td>
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<tr>
<td>3-DVG Initiation Model</td>
<td>Unit has 1.40 mm pinholes and instructions printed on the unit. 3-DVG resource information included, 18 pages. Looks pretty, serially numbered. No assembly required. 30 day unconditional warranty.</td>
<td>Allows for normal viewing of pictures and acceptable TV viewing.</td>
<td>19.95</td>
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<tr>
<td>3-DVG Advanced Model Kit</td>
<td>Precut cardboard unit comes with four sets of optical quality mounted pinholes and magnetic mounts for quick pinhole swaps. This unit is for the enthusiast or experimenter wishing to fully maximize the 3-DVG effect. One Training Model (1.40 mm) also included. Unit requires 1.5 hour assembly time with cyanoacrylate glue. Kit contains 18 prefit parts, instructions &amp; resource info. 30 day unconditional warranty.</td>
<td>This unit provides the optimum 3-D effect for pictures and TV</td>
<td>49.95</td>
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<tr>
<td>Variable Pinhole Kit</td>
<td>One pair of optical quality variable pinholes to upgrade the Advanced Model; 1/2 hour installation. Or, use them to create your own 3-DVG designs. 30 day unconditional warranty.</td>
<td>Will provide the optimal focusing ease with a range of 0.75 to 5.0 mm</td>
<td>95.00</td>
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</table>

Satisfaction is absolutely guaranteed. Send the specified amount in check or money order payable to: Holospace Laboratories, Inc. Mail it to: Holospace Laboratories, 792 Brentwater Rd., Camp Hill, PA 17011. Pennsylvania residents add 6% sales tax. Telephone/Fax Inquiries: (717) 731-9307. *U.S. Patent 4,810,057