Testing Transmissions, Cadillac Motor Car Company, Detroit, Mich., by the Corte-Scope Co., Cleveland, Ohio. This is #32 in a set of 65 views.

CADILLAC MOTOR CAR COMPANY, DETROIT, MICH.

The views illustrated here are selected from a set of 65 made for the Cadillac Motor Car Company by the Corte-Scope Co. of Cleveland, O. about 1915. This was the first year that Cadillac built their classic multi-cylinder V-8, 5.1 litre engine. The V-8 cylinder blocks are clearly visible in the Chassis Assembling view. Of particular interest is that this set provides a rare glimpse into a quality American auto factory of this period when the cars were still being essentially made with much hand work and attention to every detail of engineering. Also Cadillac offered an above average quality working place in their factory. Three types of Cadillacs are seen in various stages of construction within the set; the Type 51 sedan, Type 51 coupe and Type 53 touring car. The 1915 Cadillacs with the V-8 engines cost $2,700 and 13,000 were sold in that first year of production. Also the 1915 model year marked Cadillac's rise to leadership in the fine-car field. Cadillac historian Maurice D. Henry has noted: "The V-8 sounded death-knell of the highly specialized, high-priced, handmade car... V-8 production/sales figures hovered around ten times those of, say, Pierce-Arrow or Locomobile."

John Waldsmith exhibited eleven of the views at the NSA convention in Washington, D.C. under the category "Occupationals". When the voting of the judges was over, "Cadillac Motor Car Co." had earned the most votes and was awarded a plaque for BEST OF SHOW. John Waldsmith reports that he is currently researching the Corte-Scope Co. and their interesting industrial views and will report his findings in a future issue of STEREO WORLD.

Chassis Assembling, Cadillac Motor Car Company, Detroit, Mich., by the Corte-Scope Co., Cleveland, O. This is #42 in a set of 65 views.
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Cover: Figure 8. The footbridge supported by two of the first cables strung between the towers of the Brooklyn Bridge is seen here as it passes over the Brooklyn tower. One of several excellent views from the conclusion of A.F. Schear's two part article on the history of the Brooklyn Bridge - its forerunners, construction, and coverage in stereographs.
EDITOR'S VIEW

LATER

In keeping with established tradition, this issue following the annual NSA convention is noticeably later than most. The delay allows us to be involved with the convention and then to prepare timely coverage of it for the magazine. (Maybe some year the convention won't be scheduled during deadline week.)

BRIDGING THE DEPTH

One more magazine article about the Brooklyn Bridge this year may not exactly be what you thought the world needed, but I think most readers will agree that the conclusion of A. F. Scheir's two part article in this issue is one of the best of the lot. Many of the historical photos used in other publications are here finally seen in their original stereo format, and the text they illustrate is one of the most informative of any article of similar length.

—John Dennis

DEADLINE FOR NEXT ISSUE IS October 5th.

REVIEW—

JOURNEY IN 3 DIMENSION LAND

Journey in 3 Dimension Land, by Hans Knuchel, 1983, 91 pages, 39 stereo illustrations. Published by Tanner Staehelin Verlag, Zurich. German text. (Reise Ins Land Der 3 Dimension)

Journey is both a gem of a 3-D picture book and a basic text in stereo photography techniques. A folding viewer is incorporated into the cover and illustrated explanations of the methods used to produce each view appear on the backs of the pages as they lay in front of the views. From printing to binding to lenses, the paperback book/viewer is in tune with traditional Swiss precision and quality. The 2 1/4" x 3 3/4" images in the pairs are easily free viewed and include a wide variety of subjects, from picturesque dockyard scenes to abstract photo/sculpture constructions.

The basic concepts of stereo vision and stereo imaging are illustrated and explained, as well as stereography ranging from an SEM insect view through standard base examples to the wide-base hyper of the Matterhorn shown here. Besides a bit more attention to the window in some views, the book would have been better with a few more stereographs included simply for their own sake. The high quality of the views used to illustrate various stereo concepts leaves one looking for more of each type.

Journey in 3 Dimension Land is a serious and elegant effort to popularize stereography. Included at the back of the book are explanations of free viewing, stereo projection, stereo microscopes, and stereo print making. The final view in the book shows members of a Swiss stereo club standing in a field holding their various stereo cameras. The book hints at a fascinating potential for future stereo publications, with its sturdy, compact format that anyone could use with no problem of losing glasses or separate viewers.

Journey in 3 Dimension Land is available from Tanner Staehelin Verlag, Waserstrasse 16, CH-8029 Zurich, Switzerland. The listed price is sFr. 48.80 (about $23.00) with postage of sFr. 6.50.

—John Dennis


Comment

HARD WORK

I'd like to take this opportunity to express my appreciation for your work and the resulting first-class publication, STEREO WORLD. My only specific comments are: 1) I'm especially interested in techniques useful for shooting stereo (Realist format and slide bar). 2) I can't cross my eyes to see your covers. —Keep up the good work!

Tom Schreffler,
Chestnut Hill MA

THE ELLET BRIDGE

There is an error in A. F. Schear's article “Hung From Wires” in STEREO WORLD, July/Aug. 1983, on page 8.

Charles Ellet was commissioned by the Niagara Falls Bridge Commission to build, in 1848, a light suspension bridge across the Niagara River Gorge about two miles below the great falls. The bridge was completed and successfully in use when the commissioners decided to enlarge the structure. This is when John A. Roebling was brought to the scene. In no way, as Mr. Schear reports, did Mr. Roebling take over the project.

In 1851, Mr. Roebling did start to construct his design of a large two-decked bridge. It was opened on March 16, 1855, as the largest suspension bridge in the world. Mr. Roebling went on to other tasks following the completion of this mighty project.

The Ellet bridge was used as a construction platform to build the Roebling bridge. Mr. Ellet used a traveling basket to construct his bridge. While no part of either the Ellet or Roebling bridges are extant today, the basket is in the collection of the Niagara Falls, NY Public Library. To my knowledge, no stereographs of Mr. Ellet's bridge exist while there are literally hundreds of Mr. Roebling's bridge. This bridge lasted until 1897.

Donald E. Loker
Local History Specialist,
Earl Brydges Public Library
Niagara Falls, NY

FREE THE VIEW!

You may be interested in the enclosed stereo prints of me with my double Olympus 1 camera rig using 2 135mm lenses with a double cable release. I have pairs of 28, 50, and 85mm lenses along with the 135’s. You will note from these prints that they can be easily viewed in free vision without a viewer. Wouldn't it be well to limit the size of the stereograms in your publication to this size—or at least try a few this way? These shots were taken with a Realist with B&W film, mounted in Realist mounts, then enlarged to this size. I do enjoy your publication.

Fred T. Wiggins,
Sun City, AZ

Prints mounted without this much space between can be 2 1/4” wide and still be viewed with parallel free vision. For publication, remember that the smaller the image, the more noticeable the half-tone dots become.

—Ed.

TO PAUL WING

I was fascinated by your article on “French Theatrical Tissues” in the Nov./Dec. STEREO WORLD, which has only recently been brought to my attention. For several years, I have been collecting these cards, and your article cleared up a number of mysteries. The theatrical tissues are, I am convinced, of immense value to theatre historians; in an age when full-stage photography was impractical and unpracticed, these stereo cards preserve with remarkable accuracy the staging of some of the most popular productions of the time. Costumes, settings, blocking, actorial gesture, choreographic placement and stance, even the use of the gas lights can be documented by the theatrical tissues.

Laurence Senelick,
Drama Professor
Tufts University,
Medford, MA

BOTTONS UP?

I sent for the April issue of American History Illustrated after reading Editor John Dennis' review of the Richard C. Ryder article. I found “America Through The Stereoscope” highly interesting and was happy to find that it contained stereo views of dimensions that permit comfortable (free) viewing. At the bottom of page 13 I found a reproduction of an 1854 view that bothered me. It just didn't look right. After studying it for a while I decided that the right and left views had been transposed. In order to check this out I turned the page upside down. A very different picture emerged. One of the things that had bothered me in my first viewing was the dim, wiggly tops of the trees in the upper background. The upside down view straightened out that problem spectacularly. The wiggly trees turned out to be the reflections of trees on rippling water. The waterfall moves from the bottom foreground to the upper background. An entirely different and acceptable picture.

F. W. Ballantyne
Titusville, Fl.

Many people seem to think that inverting a stereo pair will have the same effect as transposing the images. Such is only the case if the two photos are separated and inverted in-plane without exchanging right for left. Inverting the whole card (or page) won't reveal or change a transposed view. I'm sure the "wiggly" trees are the result of movement during the long exposure required. I doubt that many Langenheim views were mounted upside down, but they could have a lot better job of trimming for the window!

—Ed.
On June 28, 1869, just three days after his plans for the East River Bridge had been endorsed, John Augustus Roebling and his eldest son, Washington, hurried down to the foot of the Fulton Street ferry slip to pick the site for the Brooklyn tower. It was one of those rare June days, clear and warm, as the two men spent the morning lining up the tower's location with the help of an associate on the other side of the river.

That afternoon, out of the clear blue, disaster struck! The elder Roebling ventured out to the far end of the ferry slip and clambered onto some pilings to get a better line-of-sight. Washington tried to get his father's attention as he saw a ferry approaching the slip from the New York side—but to no avail. The ferry rammed into the slip and crushed the toes of John's right foot. He was quickly rushed to a doctor's office where he submitted to amputation of the toes without an anesthetic.

From his early days, John had little use for doctors; he was a strong believer in hydropathy—the use of water to cure all ills. He dismissed his doctors, took charge of his own treatment and within days was stricken with tetanus. After much suffering, the "visioneer" of the East River Bridge died on July 22, at the age of sixty-three. It was ironic that the man whose bridge would eventually replace the ferries should have been felled by one.

Connecting the shores of Brooklyn and New York by a giant bridge did not originate with John A. Roebling. As early as 1811, a gentleman named Thomas Pope proposed a "Flying Pendent Lever Bridge" to be made entirely of wood which would soar 223 feet above high water. Pope's daring vision, technically impractical, never materialized. But the dream of joining the first and third largest U.S. cities persisted.

In developing a scenario for the growth of New York City, the 1856 edition of D. T. Valentine's Manual made the following statement, based on John Roebling's proposal of that year: "To approach the centre of commerce with the greatest rapidity and certainty will and must be the great object of all. Ferries are already found inadequate to transport the numbers living around and out of the city, and flocking hither daily, and when over four times their number seek this common centre of trade of the United States, in its insular position, bridges appear to be the only resource; that these may be built across the East River at several points, no doubt exists; starting from near the Brooklyn City Hall, and raising in grade toward the East River at Fulton Ferry, an altitude of 200 feet above the river could be obtained, and crossing the river at that level, with not exceeding two piers in the river, which would not impede navigation as much as one set of ferry boats does, and thence descending to near the Hospital on Broadway, by a continuous suspension bridge, traversed by railway cars, stopping only at the termini of the bridge, and moved by stationary power, many thousands could be transferred
Brooklyn Bridge by A. F. Schear
each way, hourly in addition to those who would cross on foot or in private conveyances." However, it wasn't until after the Civil War that John Roebling's prophecy was to be fulfilled.

Following his father's untimely death, Washington Augustus Roebling, then 32, was appointed Chief Engineer to carry out his father's dream of building the Brooklyn Bridge. Fortunately, Washington Roebling was ready to assume this awesome responsibility; not only had he helped his father complete the Cincinnati Bridge, he had also collaborated with his father in developing preliminary plans for the Brooklyn Bridge. Further, in 1867, John Roebling had had the foresight to send Washington to Europe to study the techniques of using pneumatic caissons to build the foundations on which the bridge towers would be constructed. The caissons were critical to the success of the entire enterprise. Up to that point, U.S. engineers had no prior experience in sinking caissons of the size proposed by Roebling—so every step of building and putting these underwater supports in place were first-time efforts.

In the fall of 1869, at the Webb & Bell Shipyards, several miles upstream of the Brooklyn tower site, caisson construction began. Essentially, the caisson was a huge box, approximately 100 feet wide and 170 feet long. Its rectangular top and V-shaped sides were made up of heavy timbers, all reinforced with iron. The bottom of this mammoth box was left open to knife its way down through the river bed. The timber roof, at the time of launching, was...
five feet thick, made up of five layers of foot-square timber. Unfortunately, no stereographs have been found which show the caissons; there are, however, several excellent photographs taken by Talfor of Greenpoint, Brooklyn (where the Webb & Bell Shipyards were located) that show the completed caisson, which weighed some 3,000 tons, ready for launching. The completed caisson was launched in March of 1870, filled with compressed air, towed downstream and warped into a three-sided basin which had been dredged in preparation for its arrival. After being positioned, ten additional layers of foot-square timber were added to the top of the caisson making the roof fifteen feet thick!

Since the caisson is key to the construction of the bridge, and since no stereographs have been found which show the inner workings of this huge diving bell, the reader is referred to David McCullough's definitive book, "The Great Bridge," to gain an insight as to what went on inside this mammoth, pressurized, inverted box. Only by understanding the complications of working in this unreal environment can one fully appreciate this engineering accomplishment.

The erection of the Brooklyn tower began in June of 1870 as the first blocks of limestone were laid on the caisson. After four courses of stone were in place, the caisson "bottomed" and the workmen inside the caisson began to dig away at the river bed. The earliest known construction
Figure 5

stereograph, Figure 1, was taken from New York by John S. Moulton of Salem, Mass. If you look closely at Figure 1, you will note the masts and booms of the derricks (just behind the ferryboat's superstructure) used to lift the heavy limestone blocks onto the caisson. More courses of limestone block were laid as the caisson for the Brooklyn tower inched its way down toward the riverbed. Imagine sinking an immense box and keeping it level at the same time! After many unanticipated occurrences such as a great blowout of the compressed air and an underwater fire, the caisson for the Brooklyn tower finally reached its resting place some forty-four feet below the high water mark.

The caisson for the New York tower was improved in design but similar in construction and somewhat larger than its Brooklyn counterpart, with an even thicker roof (22 feet). However, the sinking of this second caisson presented Roebling with a new set of problems since the riverbed on the New York side was of different composition and required the caisson to be sunk to a deeper depth. The air pressure inside the caisson had to be increased one pound for each additional two feet it was sunk. As the air pressure built up, the men began to experience severe pains in their joints and cramps in their legs. This condition was worsened as the men left the air locks. Not much was known about caisson disease at that time although Roebling was aware that a contemporary bridge builder, James Eads, who was building a 3-span steel arch bridge (see Figure 2) across the Mississippi at St. Louis was also using pneumatic caissons.
and had lost 13 men to that malady. Although Eads used smaller caissons, the deepest of his had to be sunk to 94 feet through the Mississippi sand and silt to reach bedrock.

Colonel Roebling took all precautions to avoid repeating Eads' experience; however, at that time no one recognized the need to keep the workers in the air locks for a longer time while leaving the caisson working chamber so that they could "decompress" slowly, thus allowing the nitrogen in their bloodstream to escape. At a depth of 71 feet, the first worker died. Not one to let others do what he wouldn't, Roebling went in and out of the caisson with the rest, working around the clock, six days a week. After a second man died at a depth of 78½ feet, Washington Roebling made the most critical decision of his engineering career—he decided not to dig the additional 20 feet to bedrock and let the New York caisson rest on the compact hardpan which made up the riverbed at that depth.

In late spring of 1872, Colonel Roebling collapsed and was taken to his home in Brooklyn Heights just as the New York caisson was being filled with concrete. With both caissons completed, work on both towers progressed until construction was halted for the winter in December 1872. At that point, the Brooklyn tower was at 145 feet above the water and its sister tower in New York was nearly 60 feet. The close of that year brought a not unexpected development. Colonel Roebling, who had been stricken with the "bends", was advised by his doctors to seek complete rest. He spent the rest of the winter detailing final
phases of construction—but never again was he able to return to the bridge site to supervise construction.

In the spring of ‘73, work on both towers was resumed. By 1874, the Brooklyn tower, see Figure 3, taken by an unknown photographer, had progressed to where its double Gothic arches were evident. In the meantime, work had started on the Brooklyn anchorage. As the word implies, the purpose of the anchorage is to hold the ends of the cables in place and, at the same time, serves as part of the bridge approach. To give you some idea as to size, the Brooklyn anchorage is made up of limestone and granite blocks weighing 60,000 tons piled as high as a nine-story building. Imbedded at the bottom of the anchorage are four 23-ton cast-iron "spiders", one for each main cable. Each "spider" was slotted to hold 18 wrought-iron anchor links. Figure 4, taken by Hall Brothers of Brooklyn, shows two of the "spiders" being put in place. The first set of anchor links is clearly shown in Figure 5, taken by an unidentified photographer. Through this phase of construction, Colonel Roebling, now recuperating in Trenton, sent detailed instructions by mail to his assistant engineers on site.

The Brooklyn tower was completed in June 1875; five month later the Brooklyn anchorage was finished. (Climbing to the top of the completed Brooklyn tower, Joshua H. Beal took a five-plate panoramic view of Manhattan that showed New Yorkers an aerial scene such as they had never
The New York tower and anchorage were completed in July of 1876. Now, after seven years of preparation, the cable spinning operation could begin. The free end from a large wire rope reel mounted on a river scow was hoisted to the top of the Brooklyn tower then pulled down to the Brooklyn anchorage where it was fastened. The scow was then towed toward New York, unwinding wire which sank to the river bottom in the process. The rope was then lifted by a hoist atop the New York tower until it cleared the river by some 200 feet. Another wire rope was strung from Brooklyn to New York in the same manner. Then the ends of both ropes were pulled down to the New York anchorage where they were spliced thereby forming a complete loop. At last the bridge had its first 'working rope'!

Now more and heavier cables could be hoisted in place until there were five working cables between the towers, see Figure 6, shot by an unknown photographer. Two of the cables were used to support a footbridge, see Figure 7, providing access for workers to five transverse cradles. Figure 8, (cover view) from this same series, shows the footbridge as it passed over the Brooklyn tower; also visible in this figure (taken by an unidentified cameraman) are the three center-span cradles. Figure 9 shows the steep gradient the footbridge took on its way up to the tower; another cradle can be seen on the way up. For a while, ordinary citizens were permitted to cross the river by way of this flimsy four-feet wide wooden bridge with only rope handrails to steady them!

At this point, Roebling had returned to his Brooklyn Heights residence. From the window of his room, he could observe bridge activities through high-power field glasses enabling him to direct the cable spinning operations off site. His wife, Emily Warren Roebling, was the liaison between Roebling and his assistants. Although John Roebling had designed the bridge, his company was underbid and consequently did not supply the wire for the bridge. Instead, the steel wire for the main cables was furnished by a Brooklyn manufacturer. Unfortunately, through chicanery, some sub-standard cable wire was delivered; despite this, Roebling's conservative design afforded an ample factor of safety. This was but one instance of the corruption which Roebling had to contend with. Earlier the Tweed Ring had attempted to gain control of the bridge through stock manipulation and was later involved in construction kickback schemes.

Spinning of the cables was accomplished by transporting a loop of wire from one anchorage to the other by means of a carrier wheel attached to the traveling rope. A good view of the carrier wheel can be seen in Figure 10. The group of men seen on the footbridge in this view are obviously not workmen, but some bridge officials inspecting the progress of work at the Brooklyn anchorage. Once again, the reader is referred to McCullough's book for a detailed discussion of the entire cable-spinning operation. It took almost 1½ years to complete the spinning of the four main cables, there being some 5,434 wires in each cable, totaling 3,515 miles per cable. When finished, each main cable reached a diameter of 15½ inches, after which it was wrapped with 243 miles of soft wrought-iron wire.

With the main cables in place, work could now begin on installing the suspenders. Note that the top of each suspender was attached to the main cable by a wrought-iron band. From the bottom of each suspender hung the floorbeams which would support the roadway. Figure 11, photographed by the Kilburn Brothers, shows the suspended floorbeams in place. Because of the fiasco surrounding the supplier of the main-cable wire, the Roebling company was awarded the contract for furnishing the suspenders. Unlike the main cable which is made up of straight wires laid up parallel to each other, the suspender wires were formed of stock wire rope (1¾ inches in diameter.) Also, Roebling elected to use Bessemer steel for the suspenders instead of the crucible-steel wire used in the main cables.

Figure 12
Now came the finishing touch, the installation of the diagonal stays, a Roebling hallmark. As on the Niagara River and Cincinnati bridges, these diagonal stays were incorporated to stiffen the bridge against wind loads. If you look closely at the upper left quadrant of Figure 12, a Roberts & Fellows view, you will see tiny specks hanging from the suspenders. These are workmen installing iron clamps between the diagonal stays and the suspenders. Also noticeable in this view is a spiral staircase up against the upstream side of the New York tower by which workers could reach the top. An excellent close-up view of the diagonal stays (note: stays had same twisted configuration as suspenders) can be seen in Figure 13, a cabinet view by Purviance.

With the structural elements for the bridge floor in place, work on the approaches was now moving ahead quickly. Figure 14, taken by an unidentified photographer in August 1881, shows the granite-faced approach on the New York side, punctuated by a series of arches to allow the cross streets to pass through. Earlier on, six longitudinal trusses had been erected which divided the bridge into five sections; this is clearly shown in Figure 15, a view taken from the World Building and published by M. H. Zahn of Niagara Falls. As the figure shows, the two outside sections were for carriage and wagon traffic, two lanes each side—although a few pedestrians can be seen in these lanes; the center section consisted of an elevated promenade, as J. A. Roebling said: "Its principal use will be to allow people of leisure, and old and young invalids, to promenade over the bridge on fine days in order to enjoy the beautiful views and the pure air," the sections adjacent to the promenade were for bridge trains.

The bridge trains were really cable cars pulled by an endless wire rope that was driven by two steam engines housed under the Brooklyn approach. Figure 16, by B. L. Singley of Meadville, Pa., the amateur photographer whose original work launched the Keystone View Company, shows the cable road. C. H. Graves of Philadelphia, see Figure 17, photographed a view showing the cables running over the guide sheaves. Steam locomotives, see Figure 18, were used to switch the cable cars at the terminals. Also, to save power, these locomotives were used to haul cars across the bridge during the late night and early morning hours ("owl") when traffic was light.

Now the bridge was ready for its crowning touch—the installation of electric arc lamps, the first bridge to have...
such amenities. Current for the 70 lights, which were set on ornamental posts alongside the promenade, was generated by dynamos driven by steam engines housed at the Brooklyn end. (Although Thomas Edison had lost the bid for installing lights to a competitor, he was enthralled by the bridge; some of his earliest kinescope efforts were pictures of the bridge.)

With the completion of the ornate terminal buildings, all was now in readiness for the grand opening of the bridge. Neither Brooklyn nor New York had ever witnessed the tremendous outpouring of people as had gathered to see the bridge inaugurated. From the President of the United States, Chester A. Arthur, to the man on the street, all came to pay homage to the engineering feat originally conceived by John A. Roebling and brought to fruition by his son, Washington A. Roebling, with the untiring support of his wife Emily Warren Roebling.

Fifteen years after the bridge opened, tracks were laid on the inner vehicular lane of each outside section so that trolleys could share these lanes with vehicles. In 1896, electrified elevated trains began service across the bridge using the same tracks as the cable cars. Then, in 1908, the
cable cars were withdrawn from service since the elevated trains continued on the elevated tracks into Brooklyn and eliminated the need to transfer. The elevated train service was discontinued after 1944.

Today the bridge no longer carries trains of any kind. Its two outer sections have been converted to serve three lanes of automobile traffic each way; only the central elevated promenade feature of the original bridge design remains. On a recent visit to the bridge, the writer came away with four impressions. First, although the bridge is as beautiful as ever, it no longer dominates the scene as it did one hundred years earlier; instead, its towers are dwarfed by the Manhattan skyline. Second, the automobiles emit a high-pitched whine as their tires run against the metal grid of the roadway, making casual conversation impossible.

Third, the promenade, the only remaining feature of the bridge, is no longer a place to take a leisurely stroll, as fast-pedaling bicyclists endanger pedestrians as they whiz by. Fourth, the commemorative tablets on the towers have been marred by graffiti. Despite this surface desecration, the memory of the pioneer builders of this remarkable bridge lives on in the hearts of all New Yorkers as demonstrated by the affection shown during the celebration of the 100th birthday of the bridge on May 24, 1983.
Charles Wheatstone, born in 1802, probably made the very first stereo drawings between 1830 and 1832. He viewed them with free viewing techniques, for which he designed simple aids. He also designed the mirror stereoscope in those years, having one made in 1832 by the Newman firm in Regent Street, London. This is clear from an 1856 letter by instrument maker R. Murray, in which he says that accounts of the firm show the stereoscope was made in the latter part of 1832.

The very first publication on Wheatstone's stereoscopic inventions was not done by himself. They were briefly mentioned in the third edition of the textbook "Outlines of Human Physiology" by Herbert Mayo, published in 1833. Historical articles on stereoscopy often refer to page 288 of that work, which is entirely reproduced here. As far as I know, this first document on stereoscopy has never been reproduced before. It is a photostat from the copy of the book in King's College Library in London. Mayo
as well as Wheatstone were professors at the college, and it is likely that one of them owned this copy of the work.

On the first half of the page Mayo quotes Wheatstone’s finding that accommodation and convergence of the eyes are not firmly coupled—the first mention of this fact. Uncoupling is of course a prerequisite for free viewing of stereo pictures. The passage on stereoscopic imaging then follows: “One of the most remarkable results...” etc. This passage was reprinted in the fourth edition (1837) of Mayo’s textbook. On June 21st, 1838, Wheatstone gave the announced paper in a reading for the Royal Society of London. He also showed the stereoscope on that occasion.

Only in 1839 was the discovery of photography published (Daguerre’s and Talbot’s processes). Soon after, Wheatstone got the idea of making stereo photographs. The mirror stereoscope, Brewster’s lenticular one, stereo projection and free viewing are all different ways of viewing stereo pictures. But most important is stereoscopic imaging itself. And it is clear that the principle of twinview stereoscopy is formulated on page 288 of Mayo’s 1833 book, five years before the announcement of the stereoscope and free viewing aids. It is a curious fact that major encyclopedias mention Wheatstone’s invention of the stereoscope without honoring his more basic invention of stereoscopic imaging techniques on a flat surface. Wheatstone’s stereo drawings were so simple that anyone could have made them—but nobody did, before him. And none of the readers of Mayo’s textbook tried to “copy two perspectives on paper” in the five years between 1833 and 1838. That makes this 150 year old basic text on stereoscopic curioser and curioser.

Wheatstone’s life, inventions, and writings are covered in detail by William Brey in his article in May/June 1977 STEREO WORLD, “Professor Wheatstone and His Inventions”.

ADDITIONAL LITERATURE:

One of the “Wheatstone drawings” often reproduced in books and articles. Arthur Girling pointed out in STEREOSCOPY magazine that Wheatstone did not draw the stereograms for his article himself, and that they were not done very well by current standards. He transposed and modified this one to allow for comfortable viewing and published it in the January 1982 STEREOSCOPY.

**Events**

**OCT. 2**
Tri-State Camera & Photographica Show, Meadowlands Hilton, Secaucus, NJ. Call 201-994-0294.

**OCT. 8-9**
Columbus 2nd Annual Photographic Jamboree and Flea, Columbus, OH. Call 614-261-1391.

**OCT. 9**

**OCT. 16**
NSA REGIONAL MEETING—MINI TRADE SHOW. 11:00 AM - 6:00 PM, Albany Temple, 533 San Pablo, Albany CA 94706. Contact Bill Eloe, 1850 Laguna #3D, Concord CA 94520. Call 415-682-4236.

**OCT. 16**

**OCT. 16**
Grand Rapids Photo Trade Show, Grand Rapids Airport, 4747 28th Street SE, Grand Rapids, MI. Contact Sam Vinegar, 20219 Mack Ave., Grosse Pointe Woods, MI 48236. Call 313-884-2242.

**OCT. 16**
Tri-State Camera & Photographica Show, Cherry Hill NJ, Holiday Inn. Contact Tri-State Exhibitions, PO Box 76, Livingston NJ 07039. 201-994-0294.

**OCT. 22**

(continued on page 37)
Basics of Preservation

Part I

Philosophy and Materials

by Christine Young

This article marks the beginning of a fairly lengthy series on the maintenance and care of stereoscopic views. My purpose in writing the articles is to acquaint the collector with the physical and chemical characteristics of the stereoviews themselves, the types of things which damage and "age" them and basic steps to preserve them. I have made every effort to keep the information factual, straightforward and non-technical.

Every stereoview will be unique in the specifics of its manufacture and its history of storage and handling. This makes it impossible for anyone, expert or not, to issue hard and fast rules as to how you should treat your views. The first articles are designed to give a background in the general features of mounted photographs and how they will change and behave in given situations; this information can then be used as a basis for making decisions as you work with your collections. In later articles I will give basic guidelines and recommendations for more specific problems of storage, repair and manufacture of new views. The general character of the early articles may prove frustrating for those who want quick fix recipes, but if you are patient and work toward understanding these basics you will find that most do's and don'ts will become self-evident.

You should also be aware that there is a professional organization of photographic conservators known as the Photographic Materials Group, a specialty group of the American Institute for Conservation, headquartered in Washington D.C. Members of this group are scattered throughout the United States and Canada and can be located by contacting the A.I.C. You might wish to find your closest conservator—he or she may be able to answer your questions, give specific advice, do your complicated restorations and assist in the event of a disaster.

Conservation by definition goes beyond restoration with an emphasis on increasing the longevity of the object. The profession of photographic conservation is in its infancy. Cause and effect is known for only a small percentage of the phenomena of aging and deterioration; the long term effects of even the simplest restorative treatments is unknown. For this reason, an extremely conservative approach is recommended, and whenever there is doubt it is best to do nothing whatsoever. The emphasis of these articles will be on minimizing those factors which are known to cause deterioration and on creating situations which are believed to promote the health and well being of mounted photographs. It will be seen that much can be achieved by "passive" means—proper handling, environmental conditions, storage—and indeed, such methods will prove the most valuable in the long run as they can benefit an entire collection and not merely the odd item.

Simple treatments designed to undo some of the damages of the past will be presented. When treatment is undertaken, it must be remembered that the value of the object lies in the inherent aesthetic and historic information which it provides and that maintenance of the piece's integrity is a prime consideration. It is not our place to improve upon the photographer's work or to alter his vision. In historical perspective any visual changes which we make will ultimately be seen as provincial adulterations, depreciating the artistic, historic and monetary value of the object.

The principal of reversibility, the cornerstone of conservation, is critical to preserving the object and its integrity. Simply stated, treatment procedures and materials must be able to be undone at the future date without damage to the piece. The importance of reversibility and materials consciousness can be easily demonstrated by example. At the time of its introduction, rubber cement, the twentieth century's first miracle adhesive, was used extensively by photographers for mounting photographs. We have learned that in time this adhesive loses its rubbery characteristics and causes both fading of photographic images and brown staining of the photo paper. With current technology, the adhesive can be removed only incompletely and the solvents required for this are physically damaging to photographic binders and emulsions. The balance between future damage from leaving the cement intact and immediate damage from reducing the cement creates an obvious no-win situation for the conservator encountering it decades after its application.

It is obvious that the understanding of basic physical and chemical properties is essential for sound judgements in decisions regarding the disposition or treatment of an object. Materials information given here is extremely abbreviated but will prove sufficient for those who wish to undertake simple projects.

SILVER: Nearly all black and white stereographic images consist of varying densities of metallic silver, held in an organic matrix of albumen or gelatin. The microscopic size of the silver particles causes them to absorb light rather than reflect light, creating the appearance of black. It is important to realize that a silver image does not fade by exposure to light any more than a silver teapot fades from light. Silver does, however, corrode, and this altered silver interacts differently with visible light: a teapot will show tarnishes
of a variety of hues. On a micro-scale the tarnished silver appears brown or yellow; the faded photographic image is chemically altered silver. While light does not fade silver images directly, it is capable of accelerating some of the chemical mechanisms of fading, and excessive exposure to light is not recommended.

ALBUMEN: Albumen, common egg white, was the predominant matrix for photographic silver prints in the period 1855 to 1890. Early albumen print papers were prepared entirely by the photographer: eggwhites were chemically "ripened" and combined with silver nitrate; a pure rag paper was coated by floating on the eggwhites and dried; the coated paper was then floated on a solution of potassium iodide and dried. In this manner silver iodide, a light sensitive compound, was formed within the albumen. Pre-manufactured albumen paper was coated with albumen and impregnated with silver nitrate; the photographer was still required to do the potassium iodide treatment in order to make the paper light sensitive.

Exposure of the paper to sunlight caused the silver iodide to break apart, resulting in metallic silver. After complete image formation, the print was fixed (usually with non-hardening hypo) and washed. The chemical idiosyncrasies of albumen-silver compounds create both increased sensitivity to light and inherent mechanisms of fading after image completion. This latter phenomenon was recognized in the early years. In an attempt to forestall fading, chemical toning of albumen prints became a standard step of processing. In essence, toning consists of plating the silver particles with a more stable metal. Gold toning was the most common method employed for albumen prints, although other metals have been used.

Characteristically albumen prints have a very slight surface gloss, appearing nearly matte. Glossy albumen papers were developed late in the era, but are rare for stereoviews. The extreme thinness of the albumen print, both the albumen layer and paper support, is also a good key to identification. Unfortunately, deterioration of albumen prints is so prevalent and severe that characteristic damages are generally the most useful keys to identification of the photographic process.

Even with gold toning, albumen images are extremely susceptible to tonal deterioration, typically manifested as warm brown tones on yellow ground. In part, this is due to the peculiar chemistry of silver-albumenate compounds formed within the image layer, and to the fact that albumen naturally contains sulfur, a substance which is extremely reactive with silver. Hypo-eliminators, necessary for complete removal of the sulfurous fixer, have been rarely utilized by photographers of any period; therefore standard print processing provided a second major source for internal deteriorants. In addition, the physical configuration of "printed out" silver is itself more susceptible to chemical alteration than other forms of silver.

The extreme hardness of the albumen film causes the other characteristic type of deterioration: cracking in the print surface. The albumen is quite brittle and consequently breaks with physical stress. Stress created by expansion and contraction (normally induced by fluctuations of temperature and humidity) is manifested by fine cracks in a tight and uniform configuration. Cracking may occur from a single moment of stress and appear years after the fact. For instance, an inscription on the back of a print may become perfectly legible on the face due to corresponding cracking of the albumen. Cracks at image corners may occur from slight stretching of the print during mounting. In terms of mounting it should also be recognized that moist albumen prints can be easily stretched and distorted, despite the most careful handling. Conservators have yet to develop a non-distorting method of remounting albumen prints; the strong possibility of inducing new cracks by remounting must also be carefully considered.

Nearly everyone who has seen a pristine albumen print will agree that it is the richest of all black and white print processes, conveying the widest range of tones and finest details. The homemade nature of the print's manufacture, the inherent quirks of its chemistry, and the impurities of our environment have formed an unfortunate conspiracy against the beauty of albumen print; its continued fragility requires exceptional care in its handling, treatment and storage.

GELATIN: Gelatin, a highly purified animal glue, came into common use as a matrix for photographic silver in the late nineteenth century and remains in almost exclusive use for contemporary photographic processes. Unlike albumen, gelatin materials were commercially available to photographers in ready to use form from the outset. With the passage of time, the chemistry of processing has become progressively more standardized. For these reasons, the behavior of gelatin prints is slightly more predictable than albumen prints.

The physical structure of a gelatin print differs significantly from albumen. The paper support is usually thicker and is made from highly purified wood pulp rather than rag. There is a white reflective coating of barium sulfate ("baryta") between the paper and the light sensitive layer. Before the gelatin emulsion is coated onto the baryta, it is completely sensitized to light. This structure is the simplest and most rudimentary; numerous additional coatings were added early and often to the structure to serve a wide variety of functions. All these steps of manufacture were done by machine. Another readily recognizable characteristic of gelatin prints comes from gelatin's ability to acquire a wide variety of surface textures, thereby permitting manufacture of matte, glossy, silk and other surfaces. Textures are introduced by placing moist gelatin against a material having the desired texture; upon drying, the gelatin retains that surface configuration. By the turn of the century several
surfaces are available for purchase.

Black and white gelatin print technology has undergone several significant changes in the past century. The earliest gelatin emulsions were extremely soft in nature, being unhardened in either manufacture or processing; typically, these prints have a very glossy surface. By the second decade of this century hardened gelatin coatings, called supers, were added on top of the photographic emulsion, and tanning or hardening agents were added to hypo. The most recent development in surface protection is resin coating.

Changes have also occurred in light sensitivities of gelatin emulsions and in processing. The earliest form of light sensitive silver found in gelatin emulsion was silver chloride; later, silver bromide, now standard, was introduced. The specific type of silver halide used is extremely significant. Like the silver iodide used for albumen, silver chloride is relatively slow to interact with light. Gelatin chloride papers were, therefore, contact printed to completion by exposure to light. Gelatin bromide paper is sufficiently light sensitive that enlargement of negatives is possible; bromide prints are routinely developed out after a brief exposure to light. Development entails the chemical splitting of the light sensitive silver halide into metallic silver. The small amount of metallic silver formed by the light serves as a catalyst causing more rapid chemical development in those areas of exposure.

The physical shapes of printed out silver and developed out silver are drastically different, and as a consequence they react very differently to heat, moisture, acidity/alkalinity, and atmospheric pollutants. Developed out silver is far more stable in adverse conditions and over a wider range of conditions than is printed out silver. In short, one must give particular attention to the environment, storage and display conditions, and handling of albumen prints and printed out gelatin prints in order to protect them from fading.

While developing out creates a more stable image silver, the addition of a developer to processing causes a multitude of potential problems. The most easily recognizable phenomenon is dichroic fog. Dichroic fog consists of a thin deposition of silver on the surface of the photograph, and is caused by the transfer of significant amounts of the developer into the fixer. As this surface silver deteriorates from atmospheric pollutants, a metallic sheen appears over high density image areas; severe dichroic fog may also cloud highlight areas. The presence of dichroic fog indicates poor processing practices, through overuse of fixer, either from ignorance or a false sense of economy. “Later” stereoviews which were commercially mass-produced frequently exhibit dichroic fog.

Unlike albumen, gelatin emulsion prints have few inherent sources of deterioration. The vast majority of fading, staining, etc. is caused by original poor processing or by poor handling and environmental conditions since manufacture. After fading, the most common deterioration of these prints occurs to the gelatin itself. Chemical attack, either by pollution or residual processing chemicals, breaks down the internal structure of gelatin, making it sensitive to water. In extreme cases, deteriorated emulsions may dissolve in water. Nor is it uncommon for portions of unhardened gelatin emulsion to pull loose from the print during immersion. Water also activates the adhesive characteristics of gelatin and may cause adjacent materials such as storage sleeves to stick to the photograph; high humidity as well as actual soaking may cause this to happen.

HANDCOLORING: Black and white images were frequently enhanced with handcoloring. This could be accomplished in any number of ways, but by far the most common method used for stereoviews was painting with watercolor or gouache. Some watercolors gradually lose their solubility in water, but for the most part handcoloring will be found to be readily soluble. Some colors are very fugitive, fading rapidly with exposure to light.

MOUNTING ADHESIVES: Stereoscopic photographs were traditionally attached to cards using starch paste. Pastes are plant derivatives, common types being wheat starch and rice starch. Generally these pastes are quite inert and pure and rarely interact with photographic images. They retain their water solubility over long periods of time—this is advantageous when separation is desired but can cause problems if there is accidental water damage. The extraordinary adhesion typical in manufactured stereoviews is due to the fact that they were pressed in rollers after assembly, creating a chemical bond between the papers themselves.

MOUNTS: Mounts are constructed from numerous thin layers of paper joined by mechanical compression with little or no adhesive. The paper pulp used for mounts is uniformly poor in quality and may include such things as straw, ground wood, crudely recycled newsprint, etc. A thin paper of better quality is placed on the outside surfaces of the laminated mount to create an attractive facade.

A variety of surface treatments can be found on mounts of all periods. Inexpensive cards were uncoated. Expensive cards were coated on both sides with a fine clay in a thin glue binder such as gum or gelatin; dry pigments were added to the coating to provide color to the mount. Many mounts were uncoated on the reverse and coated on the obverse.

In terms of visual characteristics, it is important to mention the variety of planar configurations common to stereoview mounts. The majority of nineteenth century mounts are absolutely flat. Curved mounts became popular in the twentieth century; these mounts vary in curvature from slight to very extreme. Maintenance of original planar configuration is critical to the historic integrity of the stereoview.

Damages to mounts are numerous and varied. The poor quality of the paper makes them prone to embrittlement, causing cracking, breaking and powdering of edges. Water causes staining, mold growth and delamination of cards; it may also leach the binder from surface coatings causing them to become powdery or to dissolve. Because of the variety of starches and gums used as adhesives, coating binders and paper sizes (stiffeners), cards are susceptible to attack from insects, rodents and other vermin.

The materials information which has been presented is fairly scant, and those who wish to engage in major projects may need to search photographic literature for specifics. The summary of characteristics is sufficient, however, for demonstrating the importance of distinguishing material types and how these distinctions will affect longevity. The causes of aging and deterioration of these materials will be covered in the upcoming article.
Hints to Collectors
by T.K. Treadwell

Knowing now the sources and elements of pricing for stereo views, you are ready to start acquiring some. At this point, a couple of basic reference works will pay off handsomely. You will learn a lot from the articles in Stereo World, but some reference materials at your elbow will hasten the process.

There is a wealth of books on photography—some general, many highly specialized. I have about two hundred on the purely visual aspects, many on stereo. But a general reference is top priority, and Dr. Darrah's World of Stereographs is surely the best one. Perhaps surprisingly, I'd recommend next a good general history of photography. From this you can understand the techniques, problems, and products of the various photographic methods you'll run into, and be able to put stereo and its practitioners into perspective. There is a wider choice here, but Taft's Photography and the American Scene is one of the best values. Although first published fifty years ago, the descriptions of the techniques used in vintage stereo are still valid. After these you can select specialized books of interest as your collection develops. For more recent stereo materials not covered by Darrah, Amazing 3-D by Morgan and Symmes is very useful. (Note: All the above books are available through NSA's book service.)

Now let's consider the various types of stereo views, their subject matter, availability, cost ranges, etc. Every important photographic process was used to produce stereo, since the principles of depth viewing were already known even as photography was being invented. Going roughly in chronological order, we find the following groups:

Daguerreotypes: These of course were the earliest, but were still produced up into the 1860s. A fine, but delicate image is produced on the surface of a silvered copper plate. This is subject to tarnishing, which can be removed with some effort. The back of the image itself is vulnerable to even the touch of a finger.

In general, stereo subjects follow the pattern found in the much more common single images. Portraits are usually stiff, and due to the long exposures needed, there is a high proportion of non-moving subjects such as still-lifes and statues. Other subjects are relatively hard to find. In spite of their age, stereo daguerreotypes are not extremely rare, if in good condition and of interesting subjects. Prices run from a hundred dollars on up, which puts them out of reach of most collectors. Luckily, the limited range of subject matter also limits their interest to the average student, except for novelty and scarcity.

Ambrotypes: It was noticed very early that the negative image on a glass plate would appear positive when viewed against a dark background. In practice, the back of the glass negative would be painted black, or backed with black paper, and mounted in a glass sandwich. Since the exposure time for plate emulsions was much shorter than for daguerreotypes, there was a potentially wider range of subjects. But ambrotypes had the shortest period of usage of any of the photographic techniques; the vast majority can be identified with the 1850s. Because of their limited life span, few were produced, and they are, in my experience, even rarer than daguerreotypes in stereo format. I have only seen a dozen or so all told, including one fascinating series of the employees of a Viennese bordello! Because of their scarcity, ambrotypes fetch as much as daguerreotypes, in the hundreds of dollars.

Paper prints: Positive prints on paper from a negative image on paper, glass or film are by far the commonest of the stereo types. This technique permitted the first mass production, and led directly to the popularization of photography. Pasted on cardboard mounts, they will make up the bulk of any collection. Costs range from a few cents to hundreds of dollars, depending on age, subject matter, photographer, condition, and so forth. As you'd expect, the oldest are generally the rarest, but regrettably many of them are also faded due to inadequate washing after processing. Since there is no good method of intensifying faded stereo, they are not a good investment unless of very special historical or subject interest.

Glass prints: It was obvious in viewing paper prints that a good bit of detail visible in the negative was lost in the surface texture of the paper, and the idea of printing the positive on glass was hit upon early. Commonly, the glass positive was mounted as a sandwich, with a frosted glass backing to diffuse the light. Viewing by transmitted light displayed better detail overall, and especially in the shadow areas, which tended to "block up" on a paper print. When well made, these are superb, the very best of stereo views. On the bad side, glass views are heavy and fragile, and often found cracked. If the image or its glass is damaged, little can be done, but a cracked ground glass can be replaced. Glass views were made primarily by French and American photographers; Langenheim and others made them in this country very early. Unfortunately, many of the American products are not as good, technically, as their French counterparts, being quite faded. The process went out of style here by the end of the 1860s, but French-made views (which covered Europe primarily, and some of North (continued on page 36)
Lots of good feedback on previous unknowns came in this time. To start with, Eric Stott identified the Mackey-Legg Block (p. 27, JAN/FEB '83) as having been built in the early 1880's in Minneapolis, Minnesota.

Fred Rodriguez and Michael Ayre wrote in about the tropical scene at the bottom of page 26 in the MAY/JUN '83 issue. Michael has a very similar unidentified view of the same scene, sold by New York photographer "A.S. Taylor, Jr. (late Taylor & Lamson)", and says the location is definitely the West Indies. Fred suggests that it might be Charlotte Amelie, St. Thomas in the Virgin Islands.

Both Eric Stott and Steven Schwartzman had a flash of inspiration and suggested that the word we interpreted as "sumanops" in the murderer's cabin view (p. 27, MAY/JUNE '83 issue) is actually "swamps". That is, the marshes in New Jersey just across from New York City,
Staten Island included. After taking another look at the view we're inclined to think they could be right ... whoever wrote it really scrawled.

We didn't have much hope that the propeller (p. 26, MAY/JUN '83) would be identified, but it turned out to be well known to Civil War buffs. Don Baird, Fred Rodriguez, Roger Sturcke, and Karl Zipf all recognized it as belonging to the Monitor or warship U.S.S. Dictator, designed by John Ericsson for the Union navy. This member of the mine vessel Canonicus class was launched at Delmater Iron Works, N.Y. in December, 1863 and our unknown was probably taken there. Ericsson was a pioneer in the use of the marine propeller, probably the reason for this view. The Dictator was a typical "cheesebox on a plank" monitor with a single turret armed with two 15-inch smoothbore guns. Because of faulty design of her main shaft bearings she was often laid up for repair at League Island Navy Yard and New York Navy Yard. She was decommissioned in June, 1877 and sold in September of 1883. Fred has two stereo views of the Dictator taken at the Brooklyn Navy Yard by C.W. Pach and by the Union View Co.

Our first unknown this issue was sent in by Rusty Norton and reflects his interest in early English "group" or (Continued on page 28)
Current information on stereo TODAY: new equipment, developments, magazine and newspaper articles, or 3-D events. This column depends on readers for information. (We don’t know everything.) Send information or questions to David Starkman, PO Box 35, Duarte, CA 91010.

POLAROID TESTS NEW MATERIAL

For the first time since the early 1940’s (when the “V” standard for linear polarized materials was established) Polaroid is introducing a “new” type of material for use in 3-D projection.

Under the brand name “Polaroid II”, this is a “circular” polarizing system, which allows the head to be tilted without the immediate increase in ghost image that we are familiar with in conventional polarizers.

In an actual test in a large movie theater I found the system to be quite effective, with the ghosting increase occurring only when the glasses are tilted 90 degrees to the vertical position. The cancellation efficiency was not quite as effective, but a Polaroid spokesman said that this could be corrected.

Why the sudden change? Apparently, with the new wave of 3-D films, there is a big jump in the sales of polarization materials, and Polaroid is competing with a few other manufacturers in this market. If this new system is perceived by movie theaters to be a significant enough improvement, it could give Polaroid quite a competitive edge.

Although the circular polarizer technology has apparently been around for many years, Polaroid has only recently developed the capability to manufacture it at a price that brings it within a few cents of conventional polarized materials.

Is the change really worth it? If Polaroid can make the extinction of Polaroid II material equal to conventional ones I will have to admit that the movie-going public may find this system less annoying. On the other hand, the current system has been highly effective, and uses a standard that has lasted more than 40 years. Literally millions of 3-D glasses and thousands of projection devices are already in the marketplace. Only time will tell.

VIEW-MASTER GOES PUBLIC

According to a story in the July 28th Portland, OREGONIAN, View-Master International will become a publicly held company soon with an $8.5 million stock sale. Unit sales for the first six months of 1983 were reported to be up 90% from the same period in 1982. About 850,000 shares at between $11 and $13 per share will be offered.

There was no indication of whether the stocks would be illustrated with 3-D images.

MORE ON STEREO SLIDE MOUNTING SERVICES

In the May/June issue I gave details on how to use Kodak mailers to get 3-D mounting of Stereo Realist-format slides. Thanks to NSA member Ted Baker I have received additional information that Kodak mailers may be used for stereo mounting in the following manner:

When mailing in a 20 exposure roll (PK-20 mailer/16 stereos) include a check or money order to Kodak for $2.25. For a 36 exposure roll (PK-36/29 stereos) include a check or money order for $4.10. Do not send Cash! These costs are in addition to the normal mailer costs, and should only be used in the proper mailers. Be sure to specify STEREO MOUNTING in the Special Instructions box of the mailer.

ATOMS IN STEREO?

The August POPULAR MECHANICS reports that IBM researchers in Switzerland have developed a “Scanning Tunneling Microscope” that can produce 3-D images of objects nearly the size of an atom. It uses a phenomenon called “vacuum tunneling in which electrons tend to dive between two semiconductors separated by just thousandths of an inch in a vacuum.” An illustrated article on similar stereo imaging in microchip research appeared in the Dec. 1982 issue of OMNI Magazine.

NIMSLO PRICE DROPS AGAIN

In the July/August issue I reported that the Nimslo list price had dropped to $199.00. By the time that report was printed the price had dropped again to $139.00, with discounted selling prices dropping as low as $89.00 advertised in some photo magazines.

The prices of reprints have dropped from the staggering $2.70 each, mentioned in my previous article, to a still high $1.92. For the first time multiple reprint prices have dropped (there was no discount before) to $1.52 each for 2 or more prints from the same negative group. No larger discount is currently offered, and there is a $1.00 postage and handling charge for each reprint order (so save money by having several reprints done at one time). Indications are that reprint prices should continue to drop as the number of cameras and processing facilities increases. As of this moment there is still only one processing facility in Atlanta, Georgia.

Although the future is still uncertain, these new lower prices put the camera in the price range of a much larger market, and add greatly to its appeal as a second camera for special use (similar to Polaroid).

(continued on page 29)
It is with great personal sadness that I write of the passing of James F. Butterfield, the father of the 3-D TV industry. My wife, Susan Pinsky, and I were personal friends with Jim, and were lucky enough to work with him on various 3-D projects for about a year. So, for those of you who didn't know Jim, here is some background on his 3-D accomplishments:

James F. Butterfield was a pioneer in the area of three dimensional television. Although he didn't invent the idea, his early interests in both 3-D and television led him to 3-D television experiments on Mexican broadcast television in the early 1950's. For 2 years, from 1954 to 1955, he was responsible for a daily experimental 3-D program. The system was quite simple, utilizing a beam-splitter attachment in front of the TV camera lens and producing side-by-side images on the TV screen. The viewing device was a beam-splitter in reverse which channeled the two separate images to each eye.

In subsequent years Jim refined this system into one which was practical for military and industrial use; in remote materials handling, for example. This culminated in the development of a stereo video microscope which has been effectively used in eye surgery for many years.

Butterfield's inventions culminated in over 50 U.S. and foreign patents on subjects as varied as 3-D radar, 3-D TV X-rays, video picture discs, color television, stereoscopic motion pictures and, of course, three dimensional television. He held the position of U.S. delegate & chairman of a study group on Stereoscopic Home Television at the 1980 C.C.I.R. International Conference in Geneva, Switzerland.

He wrote and presented many papers on the subjects of stereoscopic television and autostereoscopic film and TV displays at technical symposiums and conferences. He never stopped writing or inventing, his mind was always whirling with ideas, improvements and imaginative perceptions.

In 1979 Jim became one of the founders of 3-D VIDEO CORPORATION. Taking advantage of some new developments in electronics, color TV, and the old anaglyph system, Butterfield and his associates developed a practical anaglyph TV system which received FCC approval for standard broadcast television. While the anaglyph method left something to be desired, 3-D on broadcast TV came to the eyes of millions of viewers, probably more than any other 3-D method in history.

Jim left 3-D Video in February, 1983 and started a new company, 3-D Pictures Corporation. He was one of the few individuals that had seriously made a career out of the 3-D process, and will be missed by all who have worked with him.

With Susan Pinsky's permission I end with the following thoughts which she wrote the day she learned of Jim's passing:

"I feel fortunate to have known Jim Butterfield. He was an unusual man who generated excitement and interest all around him. He was a man of dreams and visions. "Jim's dreams produced inventions and ideas that left the world with something special that had not been there before he arrived. He gave the world of medicine a great tool with his Stereo Video Microscope. Through his many decades of work in 3D TV he brought the excitement of depth into millions of living rooms around the world. But he was much more than these. To me he was a remarkable man.

"Jim was a trusting soul with a childlike naivety. If he had an idea to do something he just tackled it, sometimes succeeding, other times just learning valuable lessons. In my year at 3D Cosmic Publications I learned many lessons. The greatest one was in appreciating an opportunity while it existed. Jim gave me one of the finest opportunities in my life, and I will always be grateful for the confidence and support that I received from him. It was an experience that was thrilling and exciting every minute. Even through the ups and downs we all endured during that busy period in this current 3D resurgence, that year will always remain a highlight in my life. And it will be Jim Butterfield that I thank every time I look back.

"Knowing Jim before 3D Video was also a marvelous experience. He was there as a supporting factor while David & I published "Reel 3-D News". We were honored and flattered to be included when Allen Lo and Mr. Okoshi visited Jim's offices. The evenings spent in Jim's own home watching 3D TV were both fun and educational. Jim Butterfield has been a determining factor in the turning points of both David's and my 3-D careers and interests. We owed much to him and will never forget the multitude of contributions he has made to this marvelous field and to our own personal lives.

"Our personal sadness at his passing on will be felt for a long time."

-David Starkman
PHIL TYLER REVISITED

It is a risky business to attempt to show in Stereo World an adequate sampling of the stereo work of the late Phil Tyler, a member of the Alpha transparency circuit who passed away in May of this year. One must realize that Phil worked exclusively with color films and much of the impact of his views is tied to the interplay of color and mood. I do not wish to present his work poorly and yet if I show it at all, it must be in black and white. But, I decided it is worth a try. I do think the black & white versions I have prepared from selected transparencies show the choice and treatment of subject matter that appealed to Phil when he went strolling with his stereo camera.

After finishing art school in the late 30's, he had been photographing and painting (mostly watercolors of western scenes) ever since. His occupation for a good part of his life was architect and builder of homes and other small buildings in the Hood River Valley, Oregon. But a few years ago he gradually turned the business over to his sons and devoted full time (8 hours a day) to painting. He was doing very well with galleries in Oregon (Portland and others), Scottsdale, Arizona, and Jackson, Wyoming. He has many watercolors in the Georgia-Pacific buildings in Portland. Two large murals for a packing company in Portland were hung just a few days before he passed on.

He had accumulated an extensive library of western art in particular and photography as well as western fiction.
He also had a collection of many thousands of slides (mostly 2 x 2) of western scenes, many of which were photographed on working cattle ranches showing all of their activities.

**IS FREEVIEWING HAZARDOUS TO YOUR HEALTH?**

A copy of the following letter has been circulating in some of the Society folios and I repeat it here for whatever it is worth:

"Santa Ana-Tustin Community Hospital
Santa Ana, California January 10, 1980
Dear Fellow Photographer:

I would like to report the possibility of a hazard in reading stereoscopic prints without the aid of a viewer.

Almost 16 years ago, I worked diligently to learn stereopsis using this technique, and was especially happy that I was able to diverge and see stereopsis in its true form, rather than to converge and see the images in reverse (note: often called cross-eyed viewing). I was proud of the fact that I could diverge far enough to hold two 5 x 7 prints at arms length and fuse them beautifully.

Well, "them days are gone forever". For the past year and a half, I have developed an irritating, possibly chronic exotropia. My eyes wander without provocation at any time. Driving on a two-lane highway is especially frightening, with an oncoming vehicle appearing to be two, one coming at me from the left and the other from the right.

Fortunately, I am recovering from this nuisance. Several months ago, Dr. Michael Lappin prescribed that I employ the therapy of holding an object (pencil, finger, etc.) in front of my vision and converge on it, bringing the object slow
ly nearer until a double image appeared. At that point, I was to stop moving the object and hold my gaze steadily for 30 seconds, repeating the procedure four times daily. In my case, that was not enough. I now practice the therapy every time I detect a divergence. Control now seems to be improving daily.

Needless to say, I no longer stereo my prints without the aid of a viewer.

Sincerely, Ogden Frazier, F.O.P.S."

This is rather disturbing news from Dr. Frazier for we have a large percentage of freeviewers in the Society and certainly among the print circuit people and those who collect antique views extensively. In my case, at some time in excess of twenty years ago I was able to diverge my eyes and fuse the images on a standard viewcard. I have been doing it ever since without a hint of trouble. It became so easy that it seems entirely natural and were it not for the magnification obtained in the viewer I doubt if I would ever reach for the device. However, this is a very serious matter and we would be remiss in not heeding the warning which Dr. Frazier has given us. I would encourage anyone able to document similar cases to report the details to STERO world.

Along related lines, this calls to mind a 1978 correspondence I had with J.C. Speakman, Senior Honorary Research Fellow and formerly Reader in Physical Chemistry, University of Glasgow. Professor Speakman was interested in illustrating models of chemical molecules in 3D in books and technical papers. Viewing was to be done by NES(S) which stands for naked-eye stereopsis with S being the average distance between a normal pair of eyes. It was Speakman's contention that S should be reduced to below 6.0 cm to aid the reader as much as possible in fusing the images without the added aid of a viewing device. This all sounds very reasonable, especially when one considers that the readers are without freeviewing experience, for the most part. What originally was puzzling to me was the following statement from The Key to Unlock NES(S), (Chem. Brit, 1978, 14, 107) by Dr. Speakman: "My experience is that most adequite like it to be less than 6.0 cm. Around 6.0 cm NES becomes uncomfortable; beyond rapidly impossible." He further considers NES beyond 6.0 cm to be stereoscopic athleticism.

Now, NSA members who freeview know that few viewcards have homologous point separation less than 7.0 cm and that Underwood cards were about 8.0 cm, and that classic latter day Keystones were 7.8 cm for infinity points. This means that freeviewing viewcards requires not only relaxing the eyes but toeing-out, an exercise not experienced in normal binocular seeing. And yet those of us who have trained for it know it works. I posed these concerns to Dr. Speakman and noted that I could reach 10.0 cm at normal reading distance and that I did not consider this unusual among NSA members. Further, as an athlete, this would be my only sport.

I received a fine reply from this gracious and lively senior scientist including the following two paragraphs,

'I am impressed by your athleticism (for that is what it surely is) in attaining NES at 10.0 cm. I think that capability must be uncommon, despite your recipe that it 'only needs a little practice ...' For I dare not mention 10 cm to the ordinary chemists I work with. With some of them I'm having some difficulty in persuading them that they can do NES at 5.0 cm. Even at that, some of the more resistant cases suggest that I am maltreating their eyes: 'all the rest of the day after trying I was seeing double'; I hardly dared drive my car’ . . .

What I have found is that I can achieve a wider span, without a machine, if I cross my eyes. For instance, I can achieve stereopsis this way up to S = 7.0 cm; whereas, with NES, things become uncomfortable beyond 6.0 cm and virtually impossible beyond 6.5 cm."

As a former chemist (I do have a B.S. in Chemistry) I can commiserate over the difficulty of getting these beloved people to go along with a physical exercise without more complaints than one wished to hear. But I cannot explain the apparent difference in ability to freeview which emerges from this exchange. Perhaps some Stereo World readers could cast some light on a puzzling phenomena.

The cross-eyed viewing referred to involves placing the right chip on the left and vice versa. The right eye then sees the left image and the left eye sees the right which is correct since their positions have been permuted. The advantage is that the eyes can now toe-in, a familiar exercise, rather than toe-out. However . . . ! It is my experience that if identical size pictures are prepared for both freeviewing and cross-eye viewing and the identical viewing distance is used, invariably the cross-eyed view appears smaller. Since it is not, it must mean that visual perception, regarding object size, is tied in to the angle of toe-in of the eyes. This raises many questions, particularly affecting the making of stereo close-ups and our interpretation of them in the brain. Test it yourself. It only takes a little practice to learn cross-eye viewing.

SOCIETY MEMBERSHIP

Stereographers in both print and transparency format may find kindred souls in the Stereoscopic Society. Inquiries should be directed to the Corresponding Secretary, William Shepard, 425 N. Morada Avenue, West Covina, CA, 91790.

THE UNSPOOKS (Cont. from page 23)"comical" views. He feels that it dates from around 1858 and may possibly be from the series "Stereographs of London Street Characters". Any information about its origin will be appreciated.

Francis Rizzari sent the unlabelled orange mount view of a private home with the family gathered for the photo. It was found in the collection of a couple who travelled around the world in 1867-69. From Wes Cowan comes a yellow mount view of a snow-covered city. He wonders if it might be Iowa City, Iowa because the building on the horizon looks somewhat like the Iowa State Capitol. Can any of our Iowa members comment on this one?

The large view is also from Wes and shows a monolithic downtown building. It was found along with several midwestern and western views. Chicago perhaps? Note fenced roof and structure that could be a weather station or signal tower.

Send information on these or past unknowns to Neal Bullington, 137 Carman St., Patchogue, N.Y. 11772. We welcome views from members who have not previously submitted any. Please include return postage.
KEYSTONE GEOGRAPHY UNITS

More and more I am impressed with the significance of stereophotography and the way in which it was used in our public schools many years ago.

We have a small quantity of the "Keystone" teachers' manuals for the study of Geography and Science with the use of stereographs and slides. After the slide presentation by the teacher, duplicate stereographs were distributed to the students for individual intensive viewing. A student's guide required written responses and assignments such as "describe the reclaiming of the ZuiderZee in detail and explain how the people of the Netherlands increased the area of the land." This exercise was far more than entertainment. It was serious study by use of three-dimensional pictures that gave an "on the site" feeling.

These 1938 Geography Units include many countries of the world. The booklets are approximately 25-35 pages in length. The Keystone Elementary Science Units have a 1942 copyright date and strangely enough were simply mimeographed and stapled to a printed cover sheet. Topics included Domestic Animals, Transportation-Boats, Insects, Wild Flowers, Wild Animals and still others.

A college student majoring in Education today could write an interesting thesis-paper on the usage of stereophotography in the History of Education. One also wonders if our fast-paced electronic inventions of the television and motion picture have adequately replaced the stereographs or should be considered supplementary inventions to an invaluable phenomenon. We may be the losers in having retired the classroom stereograph.

STEREOGRAPHS RECEIVED

We are still seeking donations of stereographs to our very limited Library collection. We hope that each member will contribute 5 or more. They need not be unusual. Just send us some of your duplicates. We have received 224 toward our goal of 1000. Donations since our last report have been sent by:

Paul Fisher  Bill Shepherd  H. Lee Pratt
Jack Boucher  David Margolis

NIAGARA FALLS

The great Falls of Niagara is one of the most photographed wonders of the World. It is one of the most popular tourist attractions of America.

Ever since the beginning of photography, the scenic glory of the Falls has been captured on film. All stereograph collectors have some interesting cards but no one person has as many cards and different views as the Niagara Falls Public Library. My wife and I visited the Library in July and were graciously welcomed by Mr. Donald Loker who is in charge of the Local History Department. He is also a member of N.S.A. Under his enthusiastic guidance the City Library has acquired an extensive collection of books, pamphlets, articles and photographs that delight the soul of a researcher. His broad knowledge of Niagara Falls is equally matched by his delightful personality. On your next visit to the Falls, be sure to visit the Library as well.

ACQUISITIONS

ILLUSTRATED GUIDE TO THE YOSEMITE VALLEY, Virginia and Ansel Adams, H.S. Crocker Co., Inc., 1940. San Francisco, Calif. Gift of Paul Dickson. Mr. Dickson has also given us a large quantity of papers and pamphlets related to photographic history.

HAVE A PART IN PRESERVING THE PAST

The N.S.A. Stereoscopic Library is the only Library we know devoted solely to preserving the history of three-dimensional photography. It has come about by the contributions of friends. Its significance cannot be measured in present terms but only in the future.

The present holdings are very limited, but some parts are unique. In the next issue of Stereo-World we will provide a comprehensive inventory report on the holdings of the Library. In this way, members will be able to see what we need and how we may be able to assist serious-minded inquirers.

NEW VIEWS (Continued from page 24)

NEW MOUNTING GAUGES FOR 3-D SLIDES

Reel 3-D Enterprises announces a new set of mounting gauges for precision alignment of 3-D slides mounted in Realist-format, European-format, or twin 2" x 2" stereo pairs.

These gauges are similar to ones that have been offered in the past, but instead of depending on the accuracy of lines scribed onto a piece of plastic, these consist of both the vertical and horizontal reference lines photographically reproduced on litho film. The gauges may be taped to a light box for final use.

Complete instructions, including basic 3-D slide mounting theory, are included with each set. The complete set—3 gauges with instructions—is $5.00 (Calif. Residents add .33 Sales Tax). Order from: REEL 3-D ENTERPRISES, P.O. Box 35, Duarte, CA 91010 U.S.A.
Hot, humid weather that even some area residents described as "equatorial" greeted those attending the 1983 NSA Convention Seminar-Trade Fair at the Washington D.C. Marriott Twin Bridges Hotel August 5th, 6th, and 7th. Conditions inside, however, were generally cool and comfortable with only the sound of jets from Washington's National Airport penetrating some areas every few minutes.

**THE PROGRAM OF SEMINARS**

Organized by Melvin Lawson, this year's seminars were all held during the day Friday, August 5th before the Trade Fair opened. This avoided competition for people's time and attention between the two functions and made for a generally calmer atmosphere. A six projector, sound projection system supplied by the Potomac Society of Stereo Photographers and operated by Mel Lawson and Bill Duggan helped make the presentations a pleasure to view and hear—for both flat and 3-D slides.

Wall to wall people, views, cameras, viewers, and gadgets filled the ballroom of the Marriott Saturday and Sunday for one of the biggest and best sales of stereo and photo items ever. Gordon Hoffman (in the NSA shirt, foreground) here checks through some of the views at Russell Norton's table.

**THE NSA AND HOLMES LIBRARY, A 3-D HISTORY** by John Waldsmith led off the day with a number of stereo slides from previous NSA meetings and from the Holmes Library at Eastern College, PA. This in-depth look at ourselves was next on its way to the 4th Congress of the International Stereoscopic Union in Buxton England in September.

**THE FRENCH "TISSUE" VIEWS** by Paul Wing covered the pre-photographic background of "tissues" and included examples of images that were designed to change when viewed by backlighting. Colors, highlights, and whole new elements in the scenes appeared in the projected copies, all
Melvin Lawson with the TDC stereo projectors supplied by the Potomac Society of Stereo Photographers for the seminars. In the background are the four 2x2 projectors operated by Bill Duggan with automatic fade and sound system.

done with Paul’s high standards of copying, mounting, and presentation. Stereo copies of series like the “Devils” and the theatrical dioramas were also shown and their history discussed.

WORKERS AND WORKING PLACES, THE AMERICAN LABOR MOVEMENT by John Waldsmith and Richard Oestreicher used rare stereoviews of work places, workers, demonstrations, and strikes to tell the story of the rise of the labor movement in the late 19th and early 20th century. The narration discusses the lack of stereo coverage of most common elements of working class life vs. the thousands of views of the vacation spots of the upper classes. (Many of the views that were made in mills, mines, etc. were for their owners and were never published or distributed. Many in the program were being shown for the first time.) Between segments of the text, portions of old union songs were played from recordings by Pete Seeger and others.

THE SMITHSONIAN IN STEREO: T. W. SMILLIE, WHERE WERE YOU WHEN WE NEEDED YOU? by Susan Myers showed the Smithsonian as recorded in stereo views from 1860 to 1930. Coverage of the institution (and lack of it) by its photographer, T. W. Smillie was discussed and views of building exteriors, interiors, and exhibits were shown and compared.

STEREOSCOPIC TECHNIQUES IN SCANNING ELECTRON MICROSCOPY by Norman B. Patterson expanded on and updated his program at last year’s seminar. New and even better SEM stereos were shown and much more information on the instrument and its use in making stereo

Dr. William C. Darrah addressing the convention at the award ceremonies Saturday evening at which he was named Fellow of the National Stereoscopic Association.
images was presented with illustrations and examples of some of the problems that can come up when using live insects and other subjects not specially coated for the SEM.

SHORT TAKES FROM ABROAD by David Burder was a presentation of three sequences of stereo slides by a member of the British Stereoscopic Society (the mother group of the Stereoscopic Society, American Branch). Most memorable of all was a series of close up stereos following every step of surgery on a cat. The photographic and stereoscopic quality of the images was better than most similar views made for medical training! Live action shots ranged from close ups of about a foot to detail studies of only a few inches.

STEREO HALL OF FAME (PROGRAM I) produced by Arthur E. Ojeda included some of the earliest examples of 35mm stereography in the USA and continued with selected slides from PSA Hall of Fame winners into the 1970's. The collection involves some truly classic images that deserve eventual wide publication. One favorite view showed Realist inventor Seton Rochwite, and others were by familiar names in the Stereoscopic Society and the NSA.

1982 PSA STEREO SEQUENCE EXHIBITION produced by Jerry Walter included the usual fascinating group of short stereo photo-essays that people have come to expect of this annual touring exhibit. While some tended to be a bit cute or sentimental for some tastes, others were even better than last year's selection and included the efforts of NSA members Lucia Brann, Susan Pinsky, David Starkman, and Mel Lawson.

REPORT FROM THE CALIFORNIA MUSEUM OF PHOTOGRAPHY—THE KEYSTONE MAST COLLECTION by Edward Earle was a brief talk covering the museum's exhibits and publications and the progress to date on cataloging the huge collection of stereo negatives and views. NSA members were invited to visit the museum and make use of the collection as well as see the current exhibit of the work of Philip Brigandi, a chief photographer for the Keystone View Company from the Paris Peace Conference of 1919 to the brink of World War II.

EXHIBIT WINNERS

This year's Invited Exhibit was by Russell Norton and was titled English Groups, a large collection of very early English views in series that related stories, jokes, events, or other associated images published by some of the first English view companies. The collection was well documented with typed text pages, captions, and even reproductions of the information and logos on the backs of the views, which were mounted by each view. Proper study of every view in the exhibit required nearly an hour, slowly covering both sides of the full boards.—Difficult at a busy convention, but well worth the time.

Wide selections of views greeted buyers at the Trade Fair nearly every time they turned around. Dave and Robin Wheeler's series of tables was seldom without a row of browsing collectors.
This year’s convention featured the first annual awards ceremony to honor those people whose contributions to the NSA—in whatever form—have done the most for the organization and deserve some special recognition.

Chosen the first FELLOW OF THE NATIONAL STEREOSCOPIC ASSOCIATION for distinguished scholarship and extraordinary knowledge of the field was Dr. William C. Darrah.

The MERITORIOUS SERVICE AWARD for contributions of time and effort to the NSA went jointly to Linda Carter and John Weiler.

The EDWARD B. BERKOWITZ AWARD for the best article in a recent issue of Stereo World went to Peter E. Palmquist for his article “The Stereographs of Peter Britt” in the May/June 1982 issue.

The award for GENEROUS FINANCIAL SUPPORT went to Russ Young.

Highlighting the Saturday evening ceremony was Dr. Darrah’s talk to the group, “TOWARD A DIRECTORY OF AMERICAN STEREOPHOTOGRAPHERS (1854-1940)”. He related how, when the NSA was being organized in 1974, he had boldly predicted that such a group might someday number up to 500 people. He noted that NSA membership is now about three times that figure and still growing. A group of this size, he felt, should be able to start the process of producing a directory or index of all known American stereographers from 1854 to 1940. Such an invaluable reference would contain thousands of names and would require new research to add the many names not now in regional and national records. He urged members to continue sending names and view lists of any obscure sounding photographers to T. K. Treadwell, who will help catalog the initial phases of the index.

THE TRADE FAIR

Nearly 700 people attended this year’s Trade Fair, which for the first time was managed by a professional promoter, Robert Barlow of Tri-State Exhibitions. The combined drawing power of the NSA and Tri-State resulted in a show twice the size of most past ones, with
photographica dealers and collectors coming from all over the country, and the east coast in particular. For many NSA members it was the first convention they had been able to attend, and some veteran collectors mentioned that the selection of both views and equipment was one of the best they had ever seen.

Local interest in the event was spurred by a lengthy article that appeared in the Saturday issue of the Washington Post explaining the nature of the Trade Fair and some of the history of stereo collecting and the NSA. Writer James Lardner spent considerable time Friday talking to John Waldsmith, Bill Duggan, and Dr. Darrah. The result was a considerably better than average newspaper feature on stereo history and collecting—especially considering that it was written with a news-story deadline.

Dozens of eager collectors barely noticed the tropical thunderstorm raging outside the hotel Friday evening as they “room hopped”, buying and trading views from boxes crowding every flat surface available, in a frenzy that may have been the largest volume of legal transactions carried on in Washington D.C. hotel rooms in some time.

SPECIAL THANKS TO:

Dave and Robin Wheeler and family deserve everyone’s gratitude for the job they did chairing the convention and attending to all the hundreds of details and matters to be coordinated between convention committees and suppliers of various goods and services.

EXHIBITS—Peggy Bartlett, Pam Heseltine, John Waldsmith.

SPOTLIGHT AUCTION—Robert Vogel, John Waldsmith, Bob Duncan, Susan Myers, Linda Carter, John Weiler, Tom Rogers, Pam Heseltine, Tom Heseltine, Brandt Rowles, Martin Bass.

PROGRAM OF SEMINARS—Melvin Lawson, Bill Duggan.

DETAIL FACILITATOR—Charles Ilgenfritz

PUBLICITY—Fred Bell.

AND—Our thanks to Tim Hoffman and everyone else who helped with so many details of such a truly grand and successful event.
Actor Michael Keaton’s reaction was, “After I saw the original ‘Jaws’ I was afraid to go into the water. Now I’m afraid to go into the water wearing my 3-D glasses.”

With considerable fanfare, “Jaws 3-D” opened across the country on July 22. As of this writing, it is enjoying a good box office, bringing in $13.4 million in its opening three days at 1300 U.S. and Canadian theatres. Critical reaction has been, for the most part, lukewarm, and sadly uninformed about stereoscopy.

I suspect most readers of this column have, by now, seen this third installment in the great white shark saga. Therefore, regarding the story, I will simply observe that, although it doesn’t measure up to the original “Jaws” blockbuster, “Jaws 3-D” contains a decent script and solid performances from Dennis Quaid, Bess Armstrong, and Louis Gossett Jr.

The 3-D is really the star of the show, and good 3-D it is. At the two theatres I attended, the images were the brightest I’ve seen. Some of the scenes were extremely sharp, particularly those where backlighting was utilized. Most of the scenes were well composed for stereo, and Director Joe Alves’ use of bright colors in many of the set designs further enhanced the depth effect.

I would say that “Jaws 3-D” presented about the right quantity and spacing of “through the window” effects. Notable (although not especially pleasant) were the images of a fish head and a severed arm floating slowly off the screen. These were achieved by varying the camera’s interaxial and convergence during the shot, against a neutral background.

Some of the underwater scenes, composited from miniature sets and live action, did not work well. Also somewhat disappointing was the slow advance of the shark just before crashing into the control room. Although it was intended to be the most dramatic moment of the story, it took on a toy-like appearance. I noticed occasional vertical discrepancies although this wasn’t a major problem. The film was shot with two separate 3-D camera systems, Arrivision and Stereovision, and any resulting differences had to be corrected in the printing process.

Included on the bill was a trailer, in 3-D, for the upcoming feature “Metalstorm”. NSA member Tony Alderson is on the special effects team for this science fiction entry.

Coinciding with the opening of “Jaws 3-D” was a syndicated TV special/promotion, “The Making of Jaws 3-D”. Unfortunately, the one-hour program dealt primarily with great white sharks and with the personalities associated with the film, but barely mentioned the 3-D process. This is also the case with the film souvenir program—very little 3-D information. If you’d like, nevertheless, to add this bit of memorabilia to your 3-D collection, it may be ordered for $3 from Jawiz Programs, Inc., 254 West 54th St., New York, NY 10019.

New 3-D Issue of AMERICAN CINEMATOGRAPHER

A much more informative resource on the making of the film is in the July American Cinematographer. The entire issue is devoted to 3-D movies, and features articles on the making of “Jaws 3-D”, “Spacehunter”, “Metalstorm”, and even “House of Wax”. Also included are a chart of 3-D process formats, a “Plea for 3-D Standards”, “3-D Video assist”, and updates of articles from the Apr. 1974 issue, such as Alan Williams’ “A 3-D Primer” and Amazing 3-D author Dan Symmes’ “The Slowest Revolution”. Back issues of this important 3-D publication should still be available for $5 from American Cinematographer, P.O. Box 2230, Hollywood, CA 90028. Be sure to specify the July 1983 issue.
"3-D STILL A FILM FORM IN SEARCH OF AN ARTIST"

So read the headline of an article in the June 22 Oregonian (sent in by John Dennis). The article described a speech by Murray Lerner and the showing of his film "Sea Dream" at the 16th Annual Film & Video Seminar of the Northwest in Seattle.

Staff writer Bob Hicks comments in the article, "3-D isn't simply an added dimension, it's an altered dimension, and any film-maker attempting to use the process has to realize he's working in a surreal medium." Hicks reacts to a scene in "Sea Dream" where a sailboat boom leaps out from the screen: "How realistic, how vivid, one is tempted to say. Vivid, yes. Realistic, no. In real life, the focus would be the opposite. The boom would be a blur in the foreground, a blind spot in which the focus would be on activity farther away."

"It has to be a planned film," Lerner told the audience. "You have to choreograph some material."

The article concludes with "3-D is waiting for an artist, and a studio willing to make a big gamble and do it right. Any choreographers out there?"

3-D PROJECTION SEMINARS FOR THEATRES

If you recently saw "Jaws 3-D" or "Metalstorm" and found that the projection looked pretty good, it may only partially be due to well shot original photography. Recognizing that proper 3-D projection has been a major problem for recent 3-D releases. Universal Films hired Stereovision International to be the projection consultants for these films.

Stereovision is one of the few companies which makes both taking and projection systems for 3-D. Part of "Jaws 3-D" and all principal photography for "Metalstorm" was done with Stereovision lenses.

One area of this consulting consisted of an eleven city seminar tour: Los Angeles, San Francisco, Chicago, Cincinnati, Kansas City, Dallas, Atlanta, Washington, D.C., New York City, Boston and Toronto. All seminars took place during June 1983. Each lasted one full day.

Conducted in movie theaters, which would eventually be showing the 3-D films, each seminar was well attended by theater personnel who would be preparing their theaters for 3-D showings.

NSA members David Starkman and Susan Pinsky were part of the seminar group consisting of Stereovision President, Chris Condon, Bob Caspari, also of Stereovision, and Robert Edwards, Universal Films.

Topics covered included the basics of 3-D, proper 3-D projection, how to set up and align the projection devices, problems to look for (and how to solve them), screen masking and the importance of screen brightness.

The latter subject was one of the most important, as there is more than a 70% loss of brightness due to the polarizing system and the glasses. Techniques to produce the maximum picture brightness were demonstrated, and shown to be quite effective.

Most important, demonstrations of properly projected 3-D were given, so that exhibitors would know just what a good 3-D image is supposed to look like.

Credit should be given to Universal Films for providing this educational opportunity. If the results are positive it will help 3-D to become a viable alternative choice to be considered for any movie production.

HINTS TO COLLECTORS (continued from page 21)

America) were produced well up into the 1880s commercially, and even longer by amateurs. They were made not only in the standard stereo size, but in a couple of smaller formats in the late stages. Glass views are much more common than daggs and ambros, and bring prices in the tens of dollars in good condition. A collector can thus hope to acquire some of these, if subjects fall in his field of interest.

Tissue views: If glass views were largely French, tissue views were even more so. Probably 90% of the tissues I have seen were made by French photographers, and of that number, three-quarters were of Paris itself. It is often thought of as an old technique, but they were produced from the 1850s to the end of the century. I have seen only one example of an early U.S. tissue, but near the turn of the century two U.S. companies issued numbers of them for a couple of years. A tissue view is simply a thin paper print, usually nicely tinted and pin-pricked, mounted in a cardboard sandwich with a tissue paper backing to diffuse the light. Being unprotected and fragile, a high proportion are found damaged. They can be repaired, but it's tedious and not entirely satisfactory, so investment in badly damaged ones is risky. Many tissue views were also produced as card-mounted stereos, so there is duplication of subject matter. The main limitation for the collector is not so much price—they are usually under $10 each in fine condition—but subject, since they concentrate heavily on France, Europe, and a few genre subjects such as the "devils" and theatrical production models. At best, they are a visual delight, with skillful tinting and piercing, and hidden objects; they greatly enhance any collection.

Tintypes: Basically, a tintype is an ambrotype made on a piece of dark metal. They had the great advantages of being both durable and cheap; they were the poor man's alternative to the other processes. Unfortunately, they are often of poor technical quality, with low contrast and muddy tones. Of all the stereo media, the tintype is by far the rarest, even though they were made over a half-century. I have seen less than a dozen true stereo tintypes. Much more common are the paired images produced by multilens cameras; adjacent ones match up to give stereo, and those made with a four-barrel camera on a full plate are very effective. Due to their scarcity, rather than quality, good examples in true stereo format bring prices comparable to daguerreotypes and ambrotypes, but are of interest to the average collector primarily as novelties.

Photomechanical processes: To most collectors, these are the colored 'lithos' of the early 1900s. Less well known are the colored 'lithos' of the early 1900s. Less well known are the earlier examples; a pirated set of Frith's views was printed by collography in the early 1860's. But the later lithographs are of most interest to collectors since they are...
extremely common and often cover subjects not found on paper prints. Sad to say, their quality ranges from excellent to wretched. They also have the greatest variation in price; antique dealers will often price them high "because of the pretty colors". Most collectors have scorned these, but I believe they are a worthy part of stereo, due to their subject coverage. Their variety, by the way, was not as large as you might imagine; although they were issued by the Underwoods about 10,000, the number of different images is probably not greater than 10,000.

Q: How far back do "boxed sets" of views go?
A: The kind which look like books on the back were, I believe, first produced by the Underwoods about 1900. But small packets of Canadian views, boxed for mailing, were produced by Notman in the 1880s, and some of the French tissues were also boxed about this time.

Q: I have a glass view which is in pretty good shape, but the ground glass is missing. Can it be replaced without too much trouble? Where can I get ground glass in this size?
A: Kodak, on special order, sells sheets of ground glass for use in cameras, but it is expensive. Better to get your glass company to cut you a piece of the non-glare glass used for picture framing. It will work about as well, and is far cheaper.

Q: I'm going to Europe for a few weeks. Where are the good picture framing places to pick up stereos? Are they cheaper over there?
A: Over a period of almost 30 years, I have never found views as common there as in the U.S., and not much cheaper. The ravages of many wars have taken their toll. Best bets are antique shops and second-hand stores, plus old book shops. Unless you speak the language fluently, better take a view along and wave it, while shouting the phrase for "Got any of these?"

Events

(continued from page 17)

OCT. 23

Long Island Camera and Photographica Show. Student Center Hall Hofstra University, Hempstead, L.I. Contact John H. Gianella, Atlantic Photo Shows, PO Box 417M, Bayshore, L.I. NY. Call 516-665-4982.

OCT. 23

Lansing Photo Trade Fair, Lansing Civic Center, 505 W. Allegan, Lansing MI. Contact Sam Vinegar, 20219 Mack Ave., Grosse Pointe Woods MI 48236. Call 313-884-2242.

OCT. 23

Barone Camera Swap Meet. Conference Center, Olde Colony Motor Lodge, Alex., VA. Contact Camera Swap Meet, c/o Barone & Co., PO Box 18043 Oxon Hill MD 20745. Call 703-768-2231.

OCT. 29-30

Dallas Camera Show. Contact Bob Norman, PO Box 9604, Ft. Worth, TX 76107. Call 817-732-1194.

OCT. 30

Cleveland Photo Trade Fair, Cleveland Marriott Inn/Airport 4277 W. 150th. Cleveland, OH. Contact Sam Vinegar, 20219 Mack Ave., Grosse Pointe Woods, MI 48236. Call 313-884-2242.

NOV. 5

Atlanta Photographica Collectors Show. Holiday Inn at International Blvd. Contact John or Mary Armstrong, PO Box 87298, College Park, GA 30337. Call 404-892-0783.

NOV. 6

Albany Tri-State Camera & Photographica Show, Thruway House Hotel, Contact Robert Barlow, Box 76, Livingston, NJ 07039. Call 201-994-0294.

NOV. 6


NOV. 11

NSA DELAWARE VALLEY REGIONAL MEETING. George Washington Motor Lodge, King of Prussia, PA. 7:30 PM. John Waldsmith will present an illustrated talk on "What I Collect and Why".

NOV. 11

Western Photo History Symposium, University of California Riverside. Co-sponsored by Western Photographic Collectors Association. Contact WPCA, PO Box 4294, Whittier, CA 90607.

NOV. 11

NSA SOUTHEAST REGIONAL MEETING. Swap, show, & tell. Saga Motel, 1633 E. Colorado Blvd., Pasadena, CA. 7:00 PM. (Later start this year so that members may attend above symposium in Riverside.) Contact Bill Shepard, 425 N. Morada Ave., West Covina, 91790. Call 213-962-5581.

NOV. 12-13

Western Photographic Collectors Association 15th Annual Fall Trade Fair, Pasadena City College, Pasadena, CA. Contact WPCA, PO Box 4294, Whittier, CA 90607. Call 213-693-8421.

NOV. 12-13

Brown/Webber Fantastic Photo Flea Market, Louisville, KY. Contact Bob, 513-868-2536 day, 513-863-3669 night.

NOV. 19-20

Brown/Webber Fantastic Photo Flea Market, Nashville, TN. Contact Bob, 513-868-2536 day, 513-863-3669 night.

NOV. 20

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FREE IDENTIFICATION SERVICE for your early English “group” or “comic” stereo views!! Send clear front & back xerox. I especially need to see any marked or identified views. Russell Norton, Box 1070, New Haven, Ct. 06504. (203) 562-7800.

ANTIQUE PHOTOGRAPHY MAIL AUCTION. Another great Auction even better than the last. Hundreds of items, including lots of stereo views. Large variety, many better items. $1.00 for illustrated catalog, should be out this Fall. Don Ulrich, 1625 South 23, Lincoln, NE. 68502.

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SELLING STEREO VIEWS: Mostly Keystone, Kilburn, Underwood. Also lithos. 25c and SASE brings list or state wants with SASE. Joanne Kessler, Box 160533, Miami, FL. 33166.

RARE 3-D COMIC BOOKS from the 50’s. Send SASE for titles and prices. Also, 16 mm sound anaglyph condensations of “Creature from Black Lagoon” and “It Came from Outer Space”, $125 each. Bill Shepard, 425 No. Morada, West Covina, CA. 91790. (213) 962-5561.

VIEW-MASTER 3-REEL PACKS: Send 20¢ stamp to receive list to be sent out in February. John Walsmith, P.O. Box 29508, Columbus, OH. 43229.


WANTED

KILBURN VIEWS, any amount. Also views wanted of N.H., Maine, Cape Cod, Martha’s Vineyard, Nantucket; plus early European and maritime. Andy Griscom, 1106 N. Lemon Ave., Menlo Park, CA. 94025.


NEW HAMPSHIRE town stereoscopics and other images of Fremont, Brentwood and Chester, N. H. Any views of people, buildings and village scenes will be appreciated. Will trade or pay top prices. Matthew Thomas, Route 107, Fremont, N. H. Tel. (603) 985-4032.

PUERTO RICO stereo views and real photo post cards wanted. Also any Brooklyn, Queens and Long Island, N.Y. stereo. Send photocopies or on approval to Fred Rodriguez, 62 Shady Lane, Huntington, N. Y. 11743.

WHITING VIEW COMPANY “Twentieth Century Series” views, curved mt. views look much like Keystones on buff, orange and grey mts. Have many in my collection but would like more. Also need trade catalogs, lists of titles, etc. John Walsmith, P.O. Box 29508, Columbus, OH. 43229.

ILLINOIS views wanted except Chicago. Please list or send on approval. Earl Moore, 152 Walnut St., Wood Dale, ILL. 60191.

STEREO VIEWS with “Golioworks” (English black doll-turn of century) in them. Harold A. Ballenger, 196 Acalanes Dr. #4, Sunnyvale, CA. 94086.

MASSACHUSETTS. All views — Hull, Nantasket Beach; Hingham, esp. Grover Landing-Melville Gardens; Cohasset. Also any Massachusetts Humane Society (Lifesaving). Describe and price or send on approval. Dennis Means, 5 Vautrinot Landing-Melville Gardens; Cohasset. Also any Massachusetts Humane Society (Lifesaving). Describe and price or send on approval. Dennis Means, 5 Vautrinot Lane, Hull, Mass. 02045.

OREGON, WASHINGTON, IDAHO, MONTANA Indian photographs. All formats: CDVs, tintypes, stereo, cabinet cards, early B&W postcards. Will trade. State wants. Richard Storch, 8835 SW Canyon Lane, Portland, OR. 97225.

TO COMPLETE SET, U.S. Switzerland #35 “All the World’s the Same” plus #77 “Lovely Geneva” Must be in Excellent condition. Also interested in other boxed sets, tissue and hand-tinted views. Bill Rountree, 1370 Stephens Ave., Baton Rouge, LA. 70808.

CONNECTICUT VIEWS of Waterbury, Naugatuck, Union City, Seymour, Ansonia and Derby; especially by photographer Alfred A. Adt. C.W. Bell, Box 9162, College Station, TX. 77840.

MEGALETHSCOPES, Alethoscopes. Pontoscopes and/or any slides or stereographs by Carlo Ponti of Venice. Also Pre-Cinema devices and old Kaleidoscopes. Sidney Malitz, Box KH, Scarsdale, N.Y. 10583. (914) 636-3367.

SARATOGA HORSE RACING track and any other horse racing tracks wanted. Paying highest prices. Buying any Catskill Mountains views I don’t have. Love to trade views you collect! Gosse, Box 5351, Albany, N.Y. 12205.


FLORIDA STEREO VIEWS. Send price. Mark V. Barrow, 1130 NW 64th Terr., Gainesville, FL. 32601.


AUSTRALIA, TASMANIA, New Zealand views. Generous purchase or trade. I’m desperate to locate early Australian photographic papers for research purposes, even if not for sale. Please help Nigel Lendon, Box 142, Balmain, NSW, Australia 2041.

CALIFORNIA, NEVADA, HAWAII—pre-1890 cities, streets, mining, railroad, industrial—especially Houseworth, Watkins, Muybridge, Taber —For personal collection. Top prices paid. Larry Moskovitz, P.O. Box 13151, Oakland, CA. 94661, (415) 482-0406.

VIEWS BY THESE PHOTOGRAPHERS— Kilburn Bros. square-cornered mounts, especially with revenue stamp; Soule, Bar, Beazley, Bennett, Curtis, Hoywood, Hurst, Melander, Stacy, Weller, Langenheim, E. Wilson. Early English and European photographers, especially Wm. England, Braun, G.W. Wilson, Frith, Ogil & Edge, York, and Bedford. Also glass and tissue views, especially European makers and subjects. Will purchase or trade. T.K. Treadwell, 4201 Nagle Rd., Bryan, TX 77801.
The response of the membership of the National Stereoscopic Association to our solicitation of donations last fall was truly overwhelming! Throughout the winter and into the spring, we have received gifts from 110 members totaling $2,672.50!! As a non-profit association, the NSA needs donations to provide those “extras” that our dues don’t quite cover. This heartwarming response and the many beautiful comments you sent to us have given the officers renewed enthusiasm to continue working to make the NSA and Stereo World better than ever! So, thank you, again, loyal friends.

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