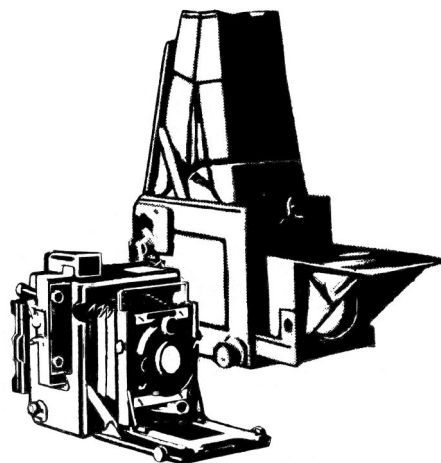


# GRAFLEX HISTORIC QUARTERLY

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## FEATURES

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### The Folmer & Schwing Folding Stereoscopic Camera and Stereoscopic Graphic

By David Silver

While first establishing its reputation as a lighting fixture company, then an important dealer and supplier in top quality photographic goods from a variety of other companies beginning in 1891, it was in their 1894 catalog that the Folmer & Schwing Mfg. Co. of New York began offering its own line of high quality cameras and accessories that would eventually impact the entire photographic industry.<sup>1</sup> Learning well from the other manufacturers they represented (including Scovill, Rochester Optical, Rochester Camera, American Optical, and Blair), the earliest F&S self-casing models reflected a careful consideration of the best traits found in competing brands. Most importantly, although the older, heavier standards such as the Henry Clay, the Folding Premier (Rochester Optical Company), and the Folding Hawk-Eye (Blair) were still the height of popularity at the time, Folmer & Schwing sought a more simplified approach similar to the lighter style introduced with Rochester Optical Company's 1893 Premo line, one of which F&S carried in their 1894 catalog. Indeed, as the first F&S and Graphic models were probably manufactured for Folmer & Schwing by outside sources (most likely the

innovative Flammang, by then acting independently of Scovill & Adams, as discussed in Rodger Digilio's article on early F&S cameras in Issue 1 of Volume 15 of the *Graflex Historic Quarterly*), the cutting edge resemblance to the most current Premo and Poco models shouldn't be a surprise. But it was Folmer & Schwing's commitment to higher quality, better materials, and unique attention to detail that would set their self-casing folding plate cameras apart from all others.

### Folding Stereoscopic Camera



From the very start, although few other original models were offered in that 1894 catalog, the F&S Folding Stereoscopic Camera was a competitive endeavor and emblematic of all the highest standards Folmer & Schwing sought to achieve.<sup>2</sup> The camera's overall design, whether outsourced first or later produced in their own factory starting in 1897, established an aesthetic appeal and level of quality only replicated in their own many Graphic models that followed. If judged apart from their other less innovative entries in that seminal catalog, technically and aesthetically the F&S Folding Stereoscopic Camera may have been Folmer &

Schwing's true first expression of their own unique manufacturing philosophy, and a glimpse into their future success.



The F&S Folding Stereoscopic Camera was initially available in either 5" x 7" or 6½" x 8½" format. The foundation of the camera was a body in the traditional self-casing boxy form, with a side door accessing ample room in the back to store three double plate holders, a small rear door to view the internal ground glass focusing panel, and a large front drop bed, all constructed of fine mahogany and cherry wood, carefully matched and cross seamed for maximum strength and durability. The entire exterior of the body, as well as the inner surfaces of the doors and the drop bed, was covered in a particularly plush grade of medium grain black leather, generously embossed with shape-defining lines and stylistic fleur-de-lis corners, and topped with a heavy leather carry handle securely rivet braced into the wood. The focusing track and other hardware were formed from hand-machined brass, featuring extensive decorative polish and burnishing. The front standard sported more mahogany and cherry wood construction, varnished to a golden luster, and supported a rich maroon red leather bellows.

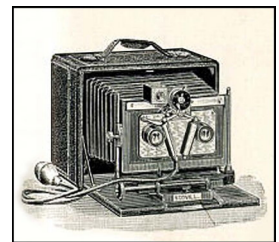
As you can see in the pictures of the author's example of the F&S Folding Stereoscopic Camera above and on page 1(serial number 5655), it was a stunningly beautiful machine, but that external appeal was further enhanced by the camera's exceptional, yet well organized and simplified, functionality. Unlike the awkward track-on-track focusing of the Henry Clay, or the tenuous rack and pinion device jutting out of the front stan-



No. 5 Folding Kodak

dard on the "improved" Folding Kodak or the original Folding Hawk-Eye, the F&S Folding Stereoscopic Camera initially adapted the simple manual pull and lock method being popularized by newer self-casing cameras. Later it was equipped with a single generous broad-focusing track along which the user first pulled out the front standard to the infinity mark, locked down, and then focused by means of a finely machined rack and pinion embedded in the drop bed itself that moved the entire track. For hand-held instantaneous work, a large reflex finder was positioned on the front bed fixed approximately where the front standard would most frequently align. This was conveniently relocated to the top of the front standard for easier access and less chance of obstructions when the model was improved. The working end of the camera, in the most expensive and desirable configuration as seen here, mounted a pair of matched Bausch & Lomb Rapid Rectilinear 4" x 5" lenses (in early catalogs noted as "Universal" lenses, and later as "Graphic" lenses) in a Bausch & Lomb Stereo Diaphragm shutter. At various times, the camera could also be ordered with cheaper Rapid Symmetrical or Gundlach Rapid Rectigraphic lenses, while early versions had the option of the simpler Patent Automatic Setting Shutter, and later the impressive Prosch Triplex Stereoscopic Shutter. Behind the shutter, the camera concealed an ingenious fabric spring-tensioned roller blind septum that extended and retracted with the bellows.

It was clear in the 1894 catalog that Folmer & Schwing wanted to make their F&S Folding Stereoscopic Camera competitive with American Optical's Henry Clay Stereoscopic Camera, which they ironically advertised a mere page apart. While the latter was priced from \$70 to \$80, depending on configuration, the former could be had in the 5" x 7" format, equally equipped, for as little as \$36, up to no more than \$54, for a double swing 6½" x 8½" model. What's more, the F&S Folding Stereoscopic Camera could also accept a standard 5" x 7" roll film holder costing only \$9, but the Henry Clay required a specially adapted custom-ordered body to accept their own special version of roll film holder, and that holder then cost an additional \$15. Folmer & Schwing applied a similar pricing strategy with their other new models in the 1894 catalog, competing directly with the different brands and models they were selling, but just as the F&S Folding Stereoscopic Camera was their most aggressively innovative design, the marketing strategy for it was correspondingly aggressive. Af-

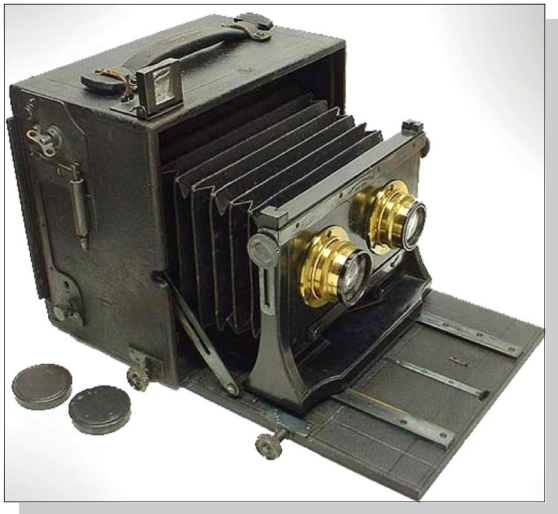


1892 Henry Clay Stereo

ter comparing features and functions, the differences between the two brands must have seemed negligible, and the price point was simply too good to ignore.

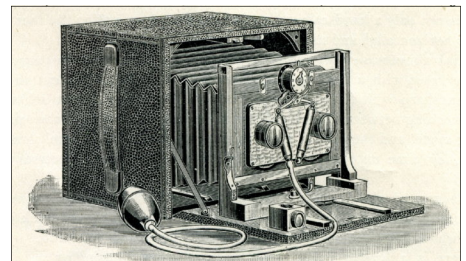
In 1897<sup>3</sup> Folmer & Schwing was manufacturing some (and possibly all) of their cameras, and now confident in their market success, the F&S Folding Stereoscopic Camera began a slow evolution into an odd state of temporary oblivion. Although its designation and description had been subtly tweaked several times in a short three years, and the price had increased to a robust \$70, to better align the camera with the most popular brand name in the Folmer & Schwing catalog, they rechristened the F&S Folding Stereoscopic Camera as the Stereoscopic Graphic. Then to simplify the manufacturing process, some of the model's constructive elements were changed to mirror and share with the company's standard F&S Graphic model, which ironically owed its own evolving success to the very design elements it inherited from the original F&S Folding Stereoscopic Camera in the first place. By 1899 it was debatable whether the Stereoscopic Graphic existed as a specific separate model at all, as Folmer & Schwing was advertising that customers could special order a "Stereoscopic Graphic" as derived instead from the standard Graphic, the Long Focus Graphic, or the Reversible Back Graphic, in 5" x 7" or 6½" x 8½" format, adapted with a wider front and bellows for stereo work. However, probably reflecting the limited market value of offering so many custom alternatives, 1900 saw Folmer & Schwing settle again on a final specific configuration for the Stereoscopic Graphic, admirably designed and equipped for the serious professional stereo photographer in 5" x 7" format only, and there it remained, as exemplified in the author's example, unchanged for its three last years of production as a traditional pretty wood and brass self-casing folding plate camera with front mounted shutter. From the standpoint of style, quality, and function, this must be regarded as the original Stereoscopic Graphic's brief golden age.

### Stereoscopic Graphic



Now we all know our tales of "the best laid plans" and how change can catch us unaware and unprepared. Such is often the case in the world of photographic technology, and so it was with the introduction and popularization of Folmer & Schwing's novel focal plane shutter in 1902, that the Stereoscopic Graphic as it had been known ceased to exist altogether. But in its place came a radically new 5" x 7" stereo self-casing folding camera, bearing the same name, now in compact "cycle" style without internal room for storing plate holders, and finished in black with professional gray metal hardware. As seen in the example from the author's collection (serial number 8450, making this a relatively early version of this model), the most important change was the addition of that selfsame integral focal plane shutter and the allowance to use virtually any appropriate fine optics of the time, such as the superb Carl Zeiss Jena Tessar 155mm f/6.3 lenses evidenced here. In this new configuration, the Stereoscopic Graphic would not only thrive for the next twenty years, it would do so virtually unchanged and in this way provide a final fitting testimony to its still recognizable roots in the F&S Folding Stereoscopic Camera, possibly Folmer & Schwing's first triumph as an independent camera maker, and the beginning of a great photographic legacy.

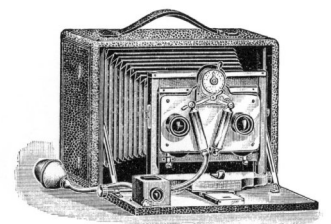
<sup>1</sup> Interestingly, as was common at the time, the 1894 Folding Stereoscopic catalog image, provided courtesy of Rob Niederman, was "borrowed" from an 1893 Rochester Camera Mfg. catalog. Perplexing is the fact that several "new" F&S cameras appeared in the 1894 catalog, while Mr. Folmer wrote that during 1895 and 1896, F&S had Scovill & Adams manufacture "special cameras to order, being improvements on their then existing model known as the Henry Clay." Flammang started making "special cameras to our specifications" in 1896. So who was making their F&S branded cameras in 1894, and how many of their cameras were they making then and later?



<sup>2</sup> Based on the use of chamfered bellows and a lens later than that shown in the 1894 catalog, Mr. Niederman believes the camera may have been made between 1897 and 1899.

<sup>3</sup> GHQ Volume 15, Issue 1, article by Rodger Digilio.

1895 Stereoscopic Premo



## Speed Graphic Cameras Used in the Pacific by the United States Marine Corps 1942 – 1945

By Theo Servetas

I am nearing completion of my book dealing with the combat stills and artwork produced by the 4<sup>th</sup> Marine Division's combat photographers and artists. This survey of images is now culminating in a rather all-inclusive graphic history of the 4<sup>th</sup> Marine Division's campaigns during the seizure of the Marshall Islands, the Marianas, and the Volcano Islands.

One very important aspect of the images produced concerns the Anniversary model Speed Graphic camera manufactured by The Folmer Graflex Corporation, Rochester, N.Y. That was precisely the camera issued by the Marine Corps to my uncle, Sgt. Theo Hios, who was a combat photographer and artist. Many years ago, I had a general idea what sort of camera the Marine Corps issued him, and I asked him if his camera was all black or olive drab. He smiled and told me it was an all-black "off-the-shelf press camera," but he concurred that he had friends in the Marine Corps who had the olive drab painted camera (Even that image in my head was not accurate, because I was thinking of a post-war Army PH-47-J, when my uncle thought what I really should have been referring to was a Combat Graphic...more on that camera later.). But through all the years, the exact model of "Speed Graphic" was something of an enigma to me, sort of like stating "I drove a Buick," but not knowing exactly which model or year. It was not until I discovered some photographic images at The National Archives in College Park, Maryland, of Theo Hios with his "Speed Graphic" that I was able to distinguish it as an "Anniversary" model.

My research did not stop there. I was fortunate to contact Norman Hatch, the Photographic Officer from the 5<sup>th</sup> Marine Division (Iwo Jima), who won a Bronze Star for his work on the Marine Corps documentary, "To the Shores of Iwo Jima" (1945). Norman Hatch's prior motion picture coverage of the battle for Tarawa (1943) was also instrumental in the Marine Corps being presented an Academy Award for the Most Outstanding Documentary Film, presented in 1944 by the Academy Awards program of the motion picture industry. What Norm told me was exactly what my uncle had stated: The Marine Corps used an off-the-shelf civilian model press camera. The earlier 4x5 Anniversary Speed Graphics were civilian manufactured cameras purchased by the Marine Corps. The cameras were all black because of requests from the military for a non-reflective finish (and possibly a shortage of chromium salts). I asked Norm if Marine Corps issued Anniversary model Speed Graphics had any U.S.M.C. markings or data plates, and he told me he did not recall seeing any, with the exception of the late war Combat Graphic camera. The Combat Graphic, as Norman explained, was a bellows-less camera with an exterior made entirely of wood painted a rough texture olive drab color (similar to the finish on a helmet). Some, but not all, U.S. Navy versions were also painted gray. It was a durable and sturdy camera that was not prone to being damaged in combat and could be used for aerial reconnaissance, as delicate bellows would not hold up to rough wear. That camera, to Norman Hatch's recollection, the Combat Graphic, was contracted through the Navy for the Marine Corps from the Graflex Corporation. Combat Graphic cameras issued to the Marine Corps had U.S.M.C. property tags.

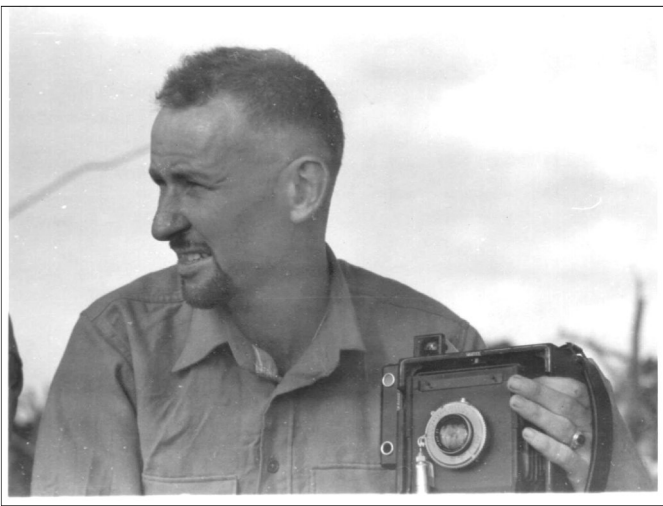
Before I could attempt building an Anniversary Speed Graphic to Marine Corps wartime specifications, I consulted many sources, including Bruce Thomas, the Graflex Historic Quarterly, in addition to many books, manuals and catalogs from the 1940s. It was a learning curve and a true labor of love. And as a fellow enthusiast of the Anniversary Speed Graphic, I have come to appreciate the subtle differences in the Speed Graphic cameras that each of these images presented in this article depicts.



Sgt. Hios (left), most likely at Camp Lejeune, while taking his first photography courses at the Engineer School, is seen holding a pre-war manufactured 4x5 Anniversary Speed Graphic press camera, manufactured by the Folmer Graflex Corporation, with all the bells and whistles, in chrome. Included is a Graflex model flash with a 7" reflector connected to a No. 2 or No. 3 Graflex Solenoid that is tripped by the release of a Kodak No. 2 Supermatic shutter holding a 127mm Ektar lens. While the rangefinder cannot be seen, it is either manufactured by Hugo-Meyer or Kalart. This camera is very similar in arrangement to an Army Air Corps Model C-3 camera (U.S. Marine Corps Photo).

In this picture (right), Sgt. Theo Hios is seated to the left (and holding artist's sketch pad with captured Japanese "abacus" calculator), while Cpl. George Fitzgerald poses with his 4x5 Anniversary Speed Graphic. Roi Namur, Marshall Islands, February 1944 (U.S. Marine Corps Photo).





A close-up of Cpl. George Fitzgerald's camera (above) yields some important details: This 4x5 Anniversary camera has no chrome trim. The only chrome-looking parts are the No. 2 or 3 Graflex solenoid, the No. 2 Kodak Supermatic shutter, and the lens bezels on the Kalart rangefinder. Further examination of the still shows that the shutter was set at f:8 and 1/100 second. The shutter is mounted on a black-painted wood "C" board, and the slide lock that holds the lensboard in place is a generic metal flat-black stamped type. Pre-war press cameras would have differed dramatically in appearance with chrome trim and a bright "Speed Graphic" slide bar (U.S. Marine Corps Photo).

Here is a photo (right) inside the fox hole photo laboratory on Roi Island in the Marshalls. This is where Sgt. Theo Hios, Warrant Officer Kenneth A. Traver and Cpl. George Fitzgerald developed the film and produced positives in the field. Note the roof of this darkroom is made from a camouflaged shelter half and not exactly light tight. Norman Hatch devised a procedure utilizing darkroom changing bags to process 35mm film, but it is still a mystery how the 4x5s were processed in the field (U.S. Marine Corps Photo).



Here Sgt. Theo Hios (bottom of left column) is seen holding his 4x5 Anniversary Speed Graphic. The key components of his camera are virtually identical to that of Cpl. George Fitzgerald's camera: A Kalart Synchronized rangefinder is mounted on the right side of the camera; there is a Kodak No. 2 Supermatic shutter with a Kodak 127mm Ektar. This camera is also in the wartime black, with no chrome trim, except for the lens rings on the Kalart rangefinder, solenoid and shutter (Note: Don't assume this is the universal standard of Marine Corps-issued press cameras, as I will show more examples of what other Marines carried in the field.). Note the Marine Corps officer's pack to the lower right – That is Sgt. Hios' Combat Camera Bag (U.S. Marine Corps Photo).



Sgt. Theo Hios, is shown (at left) producing a water-color painting on the island of Iwo Jima, March 1945. Next to Hios is his M1 Carbine and Speed Graphic. Note the bright-finish lens cap covering the 127mm Ektar lens. Also, the same features as displayed previously, but

two other details emerge: On the back of the camera is a spring-loaded Graphic back, which can accommodate a 12-exposure film pack adapter or a double-sided film holder. Another detail is the shutter speed plate on the lower left side of the camera. The plate (having the Curtain Aperture and Tension Numbers) used to be mounted on the top of the camera bodies until 1942. By that time, Army contract cameras required a large Army nomenclature data plate to be affixed to the top, next to the rangefinder. The smaller shutter speed plates were relocated to the lower left side. Thus, all cameras were manufactured with the small plates. Marine Corps cameras did not have a larger Army-style plate at the top; therefore, it appears some of the Marine Corps "off-the-shelf cameras" had no plates on the top after 1942 (U.S. Marine Corps Photo / NARA).

Combat Camera-man, Sgt. Theo Hios (right), seen here at Camp Maui focusing his Speed Graphic. The tripod is the wooden Crown Tripod No. 1, made by the Folmer Graflex Corp., with a Graphic Pan-Tilt Tripod head. What really intrigued me for a while was the profile of the lens, which I thought might have been a special telephoto lens. No, still a standard 127mm Ektar lens. The profile is attributed to a Series VI lens hood.



Series VI accessories were made by Eastman Kodak. If you have a 127mm Ektar lens, then you will need a Series VI 1½-inch adapter ring to mount a Series VI lens hood and filters (U.S. Marine Corps Photo).



Above is a close-up of a 4x5 Anniversary Speed Graphic seen in the hands of a Marine Corps Combat Photographer on Saipan Island in 1944. Note the absence of the viewfinder on the top of the camera body. Evidently the cameraman discarded it in the field, as the three mounting holes are still evident. This camera has a Kalart rangefinder. Also, note that the camera body has the shutter speed plate mounted on the top right, an indication that this camera body is of 1942 or earlier manufacture. Also note the chrome "Speed Graphic" slide lock mounted above the wood "C" board, housing a Kodak No. 2 Supermatic Shutter and a 127mm Ektar lens, with a Series VI lens hood (U.S. Marine Corps Photo / NARA).

This Marine Combat Cameraman, Warrant Officer Kenneth A. Traver (at right), photographed on the Mariana Islands, was issued a 4x5 Combat Graphic camera. Unlike its Anniversary predecessor, this camera had a 127mm Kodak Anastigmat Special lens, mounted in a black No. 2 Supermatic shutter in which the front element was used to mechanically focus the lens by means of a gear on the right side, which compensated for the lack of a bellows on a movable track. This is the camera Norman Hatch described as having an all-wood body with no bellows. These cameras were issued late in the war and did not see wide service in all theaters (primarily in the Pacific) and were marked with a data plate, "Combat Graphic." When the war ended, many of these cameras were sold on the civilian market with new data plates that read "Graphic 45," implying the 4x5 format, not "1945" or .45 automatic pistol which some collectors would fancy to hear. Sorry (U.S. Marine Corps Photo).



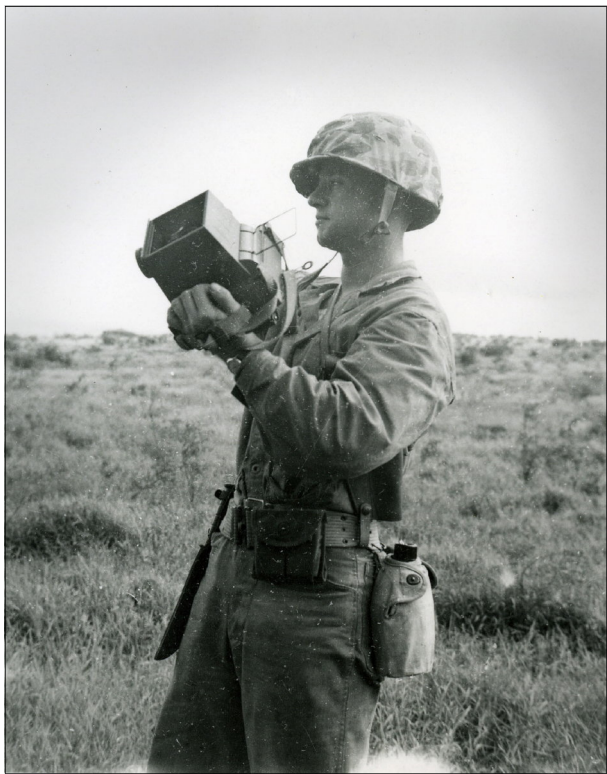
The twin brothers Eugene and Charlie Jones (above), on Iwo Jima, at the "Iwo Jima Press Club." Eugene was in the 4<sup>th</sup> Division Photo Section, and Charlie worked with Norman Hatch in the 5<sup>th</sup> Division. There is no "correct and right" formula for putting together a historically accurate U.S. Marine Corps Anniversary Speed Graphic. There are subtle variations of the camera, whether they are Sgt. Theo Hios' and Cpl. George Fitzgerald's cameras, or the Anniversary camera used by Eugene Jones. This "Annie" has no viewfinder on the top, but likely a speed plate on the left side. The solenoid was removed, but the solenoid mount is still present on the lensboard, next to the Kodak No. 2 Supermatic shutter and 127mm Ektar lens. There are also some other details of hardware on the corners and lensboard I have yet to identify, so good luck in building Eugene's camera. Also, note the camera strap on his Anniversary is a field-modified M-1941 shoulder strap (only one of a pair) that was securely taped with medical tape and clipped to the Speed Graphic's hand strap bales. Charlie Jones holds the state-of-the-art camera for Iwo Jima: A brand new 4x5 Combat Graphic by the Folmer Graflex Corporation. Note how the 127mm Kodak Anastigmat Special lens is recessed in the wooden camera body. Eugene is probably pointing to the lens focusing gear or shutter release, which are both on that side of the camera (U.S. Marine Corps Photo).



This group of U.S. Marine Corps Combat Photographers on Iwo Jima (at bottom of prior page) also shows a wide assortment of Folmer Graflex manufactured camera equipment: Left: A 4x5 Combat Graphic with flash. The second camera is an Anniversary with an early c.1942 Kalart rangefinder with a brushed aluminum cover. The third camera from the left is another 4x5 Anniversary, with the top viewfinder removed. And the fourth camera should really disturb the purists: This Anniversary Speed Graphic is complete with a chrome-plated, three-cell Graflex flash with a 5" reflector attached and mounted on a 1942 era Kalart brushed aluminum Model E rangefinder. Yes, even in combat conditions, a flash was needed to record the interiors of caves and bunkers. There appears to be no attempt to subdue or camouflage this flash, since this flash is chromium plated. All Anniversary cameras here appear to have Kodak No. 2 Supermatic shutters with 127mm Ektar lenses and Series VI lens hoods (U.S. Marine Corps Photo / NARA).

This concludes my preliminary survey of what I found used by the U.S. Marine Corps based on archival public record. The Anniversary Speed Graphic cameras issued by the Marine Corps produced more reliable and enduring photographs with outstanding depth of field, which is comparable to today's high resolution digital cameras that is instrumental in the presentation of graphic images, telling the story of the fighting 4<sup>th</sup> Marine Division during the campaigns and battles for Roi-Namur, Saipan-Tinian and Iwo Jima. My book will present those images, along with the stories of the Marine Combat Cameramen, artists, correspondents, and the best camera they used: The Anniversary Speed Graphic and Combat Graphic cameras.

If this article is well received in the [Graflex Historic Quarterly](#), I might contemplate another article based on the camera sets that I personally built and reverse engineered to the specifications as seen in some of these images. Perhaps some of you may consider salvaging those chrome-less wartime civilian cameras and building a Marine Corps Speed Graphic to your liking. Happy hunting.

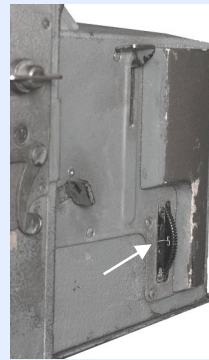


Warrant Officer Kenneth A. Traver of the 4th Marine Division with a Combat Graphic camera, on the Mariana Islands in August 1944. Photo courtesy of Ken Traver's friend, Warrant Officer John Link. Thank you, John, for sharing this photograph with us (U.S. Marine Corps photo).

## The Combat Graphic Lens

Because Graflex was not good at documenting its history, we do not know with certainty where they came up with the Combat Graphic's body style or lens. It is reasonable to assume, though, that they worked with the military and that, at least with the camera shape, the company had already used a rigid replacement for the bellows on both their WWI aerial and later Ring-side cameras.

The lens was a Tessar-design 127mm f/4.7 Kodak Anastigmat Special in a Kodak No. 2 Supermatic shutter. Unique to this

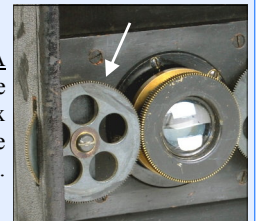


lens, it was focused by moving the front element in and out,

using a helical mount. Focusing was done with a gear (arrows) that protruded from the cone and in increments from 5 feet to infinity. Thus far, all the lenses that have been found show a manufacture date code of 1944.



Although Dr. Kingslake (in his definitive book, [A History of the Photographic Lens](#)) says that the concept was first suggested around 1900, Graflex first used this type of lens, a specially made Cooke Focusing Lens, on their 1906 Auto Graflex Jr. right. Arrow points to focusing gear wheel.



Both the Kodak Monitor (following page) and Vigilant used a 101mm f/4.5 front element focusing lens, starting in 1939. Although Eastman Kodak sold their Graflex operations in 1926, they maintained a contract to sell Graflex equipment through their Eastman Kodak stores through 1945. According to Graflex historian Tim Holden, they continued to maintain a cordial working relationship for many years. As Graflex never made lenses but Kodak did, it is reasonable to assume that Kodak was involved in the selection of a lens for the Combat Graphic.

Because the Combat, Monitor and Vigilant lenses used the "Special" designation, I believe the word referred to the type of focusing.

From Martin Scott and Todd Gustavson, of the George Eastman House, I learned that the term "Ektar" was initially an Eastman Kodak marketing term for its top quality lens, and not necessarily based on new lens designs. The names progressed from Kodak Anastigmat to Kodak Anastigmat Ektar and, finally, to simply Kodak Ektar. Also, Mr. Scott believes that a standard 127mm Ektar could have been converted to a front element focusing lens with relative ease. In my opinion, because front element focusing tended to reduce close focusing performance, the top of the line Ektar name may not have been appropriate.

[GHQ](#) subscriber Robert Carter relates the story of the Leica KE-7, made for the U.S. Army Signal Corp. Instead of using the already available 6-element f/2 Summicron, a new 4-element f/2 Elcan lens was designed in order to meet competitive bidding specifications at lower costs. Although no records of the contract for the Combat Graphic have yet been located, it may be that an Anastigmat was used instead of an Ektar to keep the cost down.

KM

## Graflex Historic Quarterly

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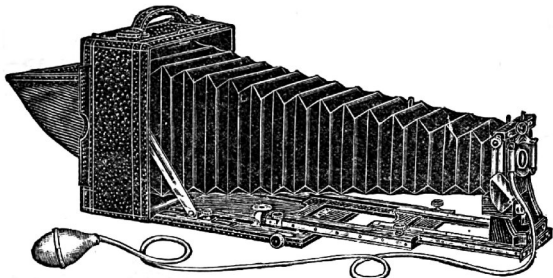
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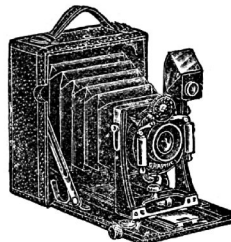
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Kodak Anastigmat *Special* (c.1940) lens in a No. 1 Supermatic shutter on a Kodak Monitor Six-20 camera. Image courtesy Todd Gustavson, Technology Curator, George Eastman House.