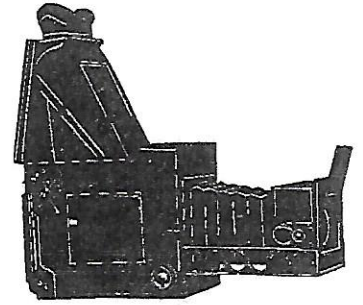


GRAFLEX HISTORIC QUARTERLY



VOLUME 3 ISSUE 1

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Little Bertha

by J.C. Welch

Several issues back, GHQ featured an article on some examples of the famous "Big Berthas," which were Graflex SLR's [usually 4x5's] with long focal length lenses mounted on them.. These cameras were particularly valued in the 1930s and 1940s before 35mm cameras with long telephotos became commonly available. A favorite model was the 4x5 RB Auto because of its fold-down bed.

It's probable that very few Big Berthas are now being constructed, but I recently put together a smaller version of them, immediately dubbed "Little Bertha." It came from a need for a 2-1/4x3-1/4 camera with a long telephoto lens on it. I have used a series of medium format cameras in the last few years, including a Mamiya RB67 with 360mm tele. I liked this camera/lens combo

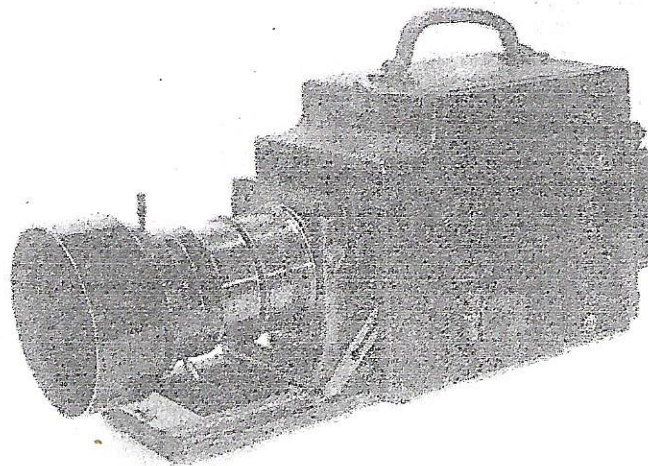
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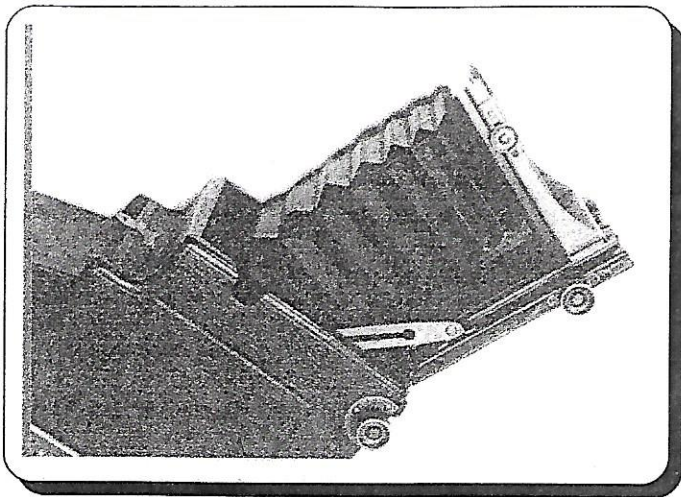
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RB Auto drop-bed feature

for its ability to reach out, but wanted a longer lens yet. The Mamiya RB 500mm is huge, and makes an already heavy camera just too bulky. Plus, I prefer the larger 6x9 [or 2-1/4x3-1/4] format.

The way smaller 2x3 RBB SLR is a fine camera; mine has served well on many trips. However, it won't easily take a tele longer than 250mm. I turned instead to trying out several 3x4 Graflèx SLRs, since I had a rollfilm back for them. The RB-D and Super D are great usable cameras, and I went through a period of using a model D with a Wollensak 15" (375mm) tele on it, with good results. To use this lens or the equally nice 360 Schneider tele-Xenar on the D it is necessary to make an extension lensboard, so that the lens can focus at infinity. *Despite this minor task, I highly recommend these long lenses for the 3x4 SLRs.* The RB Auto, however, a smaller version of the one often used for Big Berthas, has several advantages over the D, so I switched models.

The 3x4 RB Auto has more than 15 inches bellows extension, while the other 3x4s have less than nine. It also features front rising lensboard and tilt bed (see photo). This last ability I have never used on this camera. Have any readers? It would be useful for wide angle lenses, but Graflex SLRs are not known for the ability to use them, least of all the RB Auto which has a longer body. It in fact cannot accept the usual 6" lens that other 3x4 Graflex SLRs take; it must have at least a 7-1/2" lens on it. Another very nice feature of the RB Auto is the fact that the barrel of whatever lens is mounted on it is easily accessible. Adjusting the iris is much easier.

Several GHQ subscribers helped me obtain the equipment for this camera, with Ken Metcalf providing a nice body with new shutter curtain, and also sending me back the

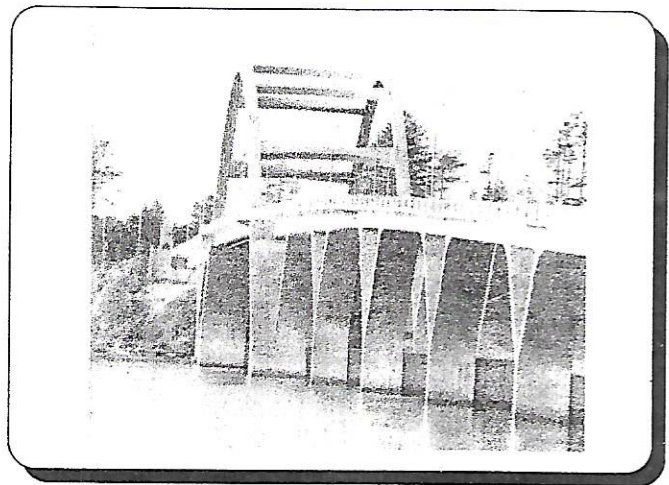


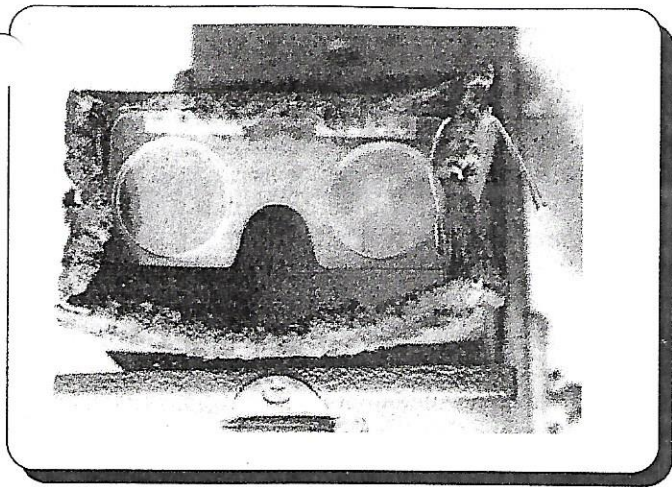
photo made in Reedsport, OR with 22" Busch Tele

7-1/2" f4.5 Goerz Dogmar I had sent to him some months earlier, before I got busy putting together Little Bertha!

But the main feature of this camera is its tele lens, and I have Don Temple to thank for it. At a show near Seattle, I found him at his table with an odd lens in an aging wood box. It proved to be a 22" f7 Busch Telar made for Cooke (Taylor-Hobson). At 550mm, it was quite long enough for the task, and testing found it to focus at infinity in only 12 inches! Although it dates from before the First World War, having a brass barrel, it is still a fine optic by today's standards. Its lack of coating on the glass is no deterrent to clean images, although a hefty lens shade was deemed advisable [see photo on page 1].

The Goerz Dogmar was adopted later as the camera's "normal" lens for its ability to produce better results at wide apertures than the more common B&L Tessar. A mask was also cut (from a piece of film) to be placed on the ground glass viewing screen, to show the area covered by the roll back, either vertical or horizontal, which of course is less than the area normally covered by the camera in its 3x4 format. . One last item has yet to be installed: a piece of fresnel to brighten the screen (such as found on Super Ds and later Graphics). The camera and tele lens weighs 8-3/4 pounds, as I remember similar to the RB67 with its tele.

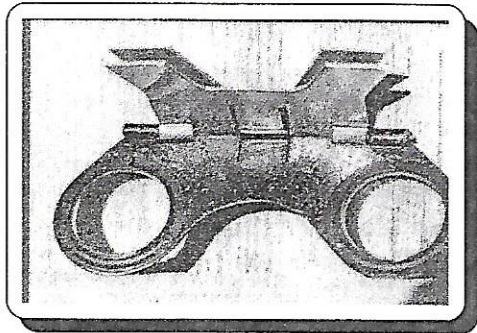
The Mamiya did have an advantage or two over Bertha, I'll have to admit, in that it had an automatic diaphragm and even a metered finder if desired. I do not however miss either modern feature. In daylight I seldom have to use a meter, and actually find focusing the Busch Telar at its most commonly used aperture (f11) not only easy but desirable, for exactly what is in focus is easily seen. ASA 400 film in 120 size for this camera gives excellent prints,



Bertha's hood magnifier

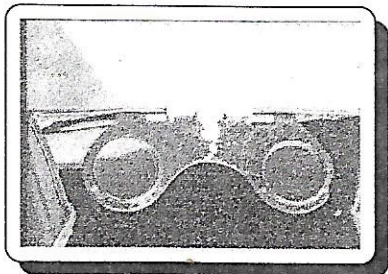
and allows for high enough shutter speeds to allow hand holding Little Bertha. I do have some 3-1/4x4-1/4 sheet film in the refrigerator, and when desired, Bertha likes it, too, switching the 120 roll back for some of the old slot-sided wood sheet film holders. And no, I haven't been tempted to dig out some of the "bag-mags" from storage.

The last feature for this excellent user is something more of a personal nature. I have become more farsighted as I get into middle age, and noticed with alarm that I was having trouble using Graflex SLRs. Other medium format cameras commonly have magnifiers, but not the Graflex



models. Installed on a Super D 3x4 that I found, came a

Several hood magnifiers apparently designed for older SLRs



hood-mounted magnifier. I moved this to Bertha and

found it made just the difference. It is pictured here, and appears as if it might be made from a pair of cheap reading glasses, as it is plastic.

This last item, it turns out, is not unique. After I related my glee at finding the item, Steve Church sent in several pictures of some he has accumulated, apparently designed for hooded SLRs!

A photo taken with Bertha is on the previous page, taken on a trip to the Oregon coast. A long tele makes an interesting picture of one of the many unique bridges found there. It is a very versatile, yet rugged camera to use. Perhaps the one nuisance about Graflexes that affects me is their awkwardness is being carried about. It sits well on a car seat, but for hiking makes a large lump indeed in a backpack. Thanks to Dick Paine via Cliff Scofield, I have installed stronger hold-downs [that appear factory made] for the top handle, so it can be carried by hand without worry.

**ARE 3-1/4x4-1/4 CAMERAS OBSOLETE?
NOT WITH A ROLL FILM ADAPTER!**

by Dick Paine

[published with permission]

A generation ago 3-1/4x4-1/4 film was accepted by amateurs and professionals alike as a practical size for general high-quality photography. The availability of 3-1/4x4-1/4 hardware certainly reflected that sentiment. There was a broad variety of fine cameras around which the photographer could build his equipment. Speed Graphic, Graflex and others, probably sold more 3-1/4x4-1/4 units than any other size. Today, the same film is very infrequently seen on the shelf; in most cases, it has to be placed on order. Why?

There were many reasons for the past popularity of 3-1/4x4-1/4 format. First of all, the film was cheaper than 4x5, and the cameras cost less, too. In those days, the price of a Speed Graphic amounted to about two months' average salary. Thus, the purchase of a fine camera was a major expense, and every consideration was given to getting the most for the money. It was also generally agreed that there was no compromise in image quality, because no ordinary human being could tell the difference in the finished print. Lastly, there was the aspect of portability; 4x5 and larger cameras were big and heavy. So the 3-1/4x4-1/4 cameras were the fastest sellers during the 30's and 40's.

In contrast to the early prevalence of 3-1/4x4-1/4, new standardization trends in the post-World War II years resulted in the gradual replacement not only of that size,

but many others as well. Thus today [1979], with the exception of either "tourist" or highly-specialized applications, we find only three sizes in general use - 35 mm, 120 and 4x5. This standardization resulted at least in simplifying many of the photographer's decisions in selecting equipment.

But the same standardization which has simplified selection has also reduced the value of much of yesterday's finest equipment. For example, in reviewing classified ads, we can quickly see that a 4x5 Super-D Graflex can bring up to \$400 [circa 1979], whereas the equally desirable 3-1/4x4-1/4 may not move at \$200. Similarly "23" and "45" Pacemaker Graphics are sold at premium prices, while the otherwise equal "34" is often offered for little more than the price of its lens. This inevitable outcome is the result of inability to readily buy 3-1/4x4-1/4 film at the local camera store. It may also result from the average American's mortal terror of being considered "different."

In spite of the present standardization into three film sizes, 3-1/4x4-1/4 cameras are still favored by this writer - and for practical reasons. Readily available 120 roll holders can be used into the foreseeable future, resulting, to all practical purposes, in a wide variety of professional 120 cameras. True, 120 roll holders with the 3-1/4x4-1/4 shell are scarce, but 4x5 shells are common, and it doesn't take much imagination for a capable machinist to adapt these to the smaller 3-1/4x4-1/4 back - either Graflok or Graflex. I have had several made for both backs and they fit as snug as factory originals if properly adapted.

The conversion must be done with a milling machine. For a Graflex roll holder, a 3-1/4x4-1/4 film holder or film pack adapter can be used as a guide. First the ribbed edges of the 4x5 plate are removed to fit the smaller camera back, taking special care to insure that the 2-1/4x3-1/4 [if this format is desired] aperture will be centered in the film plane. Then the "Graphic ridge" on the surface of the plate that faces the lens must be milled down, flush with the surrounding surface. To insure light-tight contact, a groove is then cut across this surface. This groove also "stops" the roll-holder when the dark slide is withdrawn. Special care must be exercised in cutting the groove to keep from going all the way through the thin metal. The groove should be 1/16" wide and not over 1/32" deep. Finally, to insure a snug fit against the camera slide-locks, the new smaller plate has to be equipped with thickening ribs like those removed in the first step. The simplest way to do this is to remove 1/4" of the leather covering around the rear edge, then adhere hard-wood strips 1/8"x7/32" to the bare metal with epoxy. Final surface painting is cosmetic.

I can provide you with specifications for this conversion if needed.

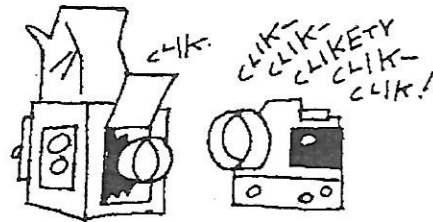
Consider for a moment the advantages of a "34" Pacemaker Crown Graphic with Graflok back and 120 roll holder. It will accept a full range of lenses from a 65 mm wide angle to a 15" telephoto. It also has a track long enough to accommodate at least two sets of infinity stops and focusing scales - a near impossibility with the popular "23" because of its smaller bed and shorter track. And the 127 mm Ektar with which the "34" was normally equipped covers almost the same field on 2-1/4x3-1/4, as a 50 mm lens on 35 mm film.

If the photographer shoots extensively for color reproduction, he may prefer the focal plane shutter of the Speed Graphic, But he must forfeit the 65 mm lens due to the greater depth of the body and be satisfied with an 80 mm minimum.

The advantages of the 3-1/4x4-1/4 Graflex SLR are even more dramatic because of the variety of capable cameras available. The most versatile ones; i.e., the Tele, the RB Auto, and the D, were made in both 3-1/4x4-1/4, and 4x5 sizes. And of course that super portrait and pictorial camera, the Series C, was made only in 3-1/4x4-1/4. This writer prefers 3-1/4x4-1/4 cameras in all cases, not only because of their greater handling ease, but also because their shorter focal length lenses make more sense in combination with a 120 roll holder. Very few 2-1/4x3-1/4 models were made by Graflex, and the only one which can be regarded as a modern camera is the RB Series B.

My own favorite Graflex is the 3-1/4x4-1/4 Super D. I use one with three lenses: the 152 mm f4.5 auto Ektar as a general purpose lens; a 15 cm f2.9 Plaubel Anticomar as a "special effects" or portrait lens (to all practical purposes a Super D with f2.9 is a substitute for the pictorial Series C); and a 10" f5.6 Tele-Optar to complete the trio. I also use an RB Auto body for close-ups.

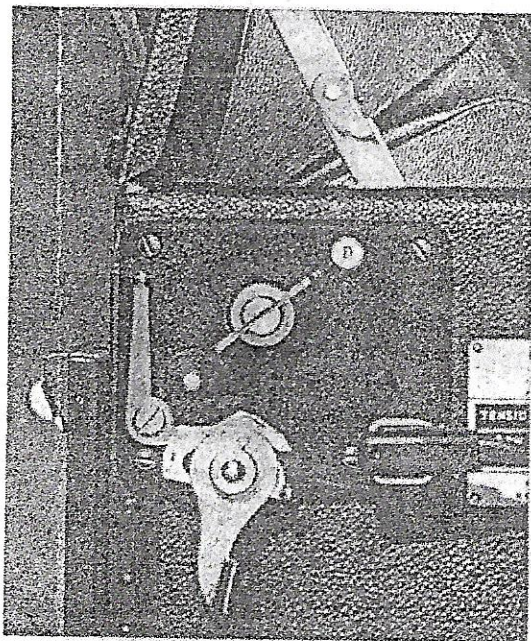
In summary, 3:x4: cameras are as versatile and useful now as they ever were. They are today's "best buys," and in combination with a roll-holder they provide maximum versatility at a modest investment.



Part I - Description of the problem

A great many Graflex cameras were built without flash synchronization of any kind, and there are a number of very practical reasons why this was so. The first Graflex models were introduced long before convenient flash systems became available and they were therefore intended primarily for use with natural light. And in 1930, when the portable flashbulb finally arrived, its short burst characteristics proved difficult to utilize efficiently with large, slow-moving shutter curtains such as those found on Graflex cameras. As a result most Graflex exposures were still made by continuous natural or artificial light.

The Graflex shutter is a marvel of rugged simplicity that requires no delicate timing mechanisms. It consists of a single long shutter curtain with fixed-width slits or apertures that are spaced at intervals along its length. These apertures are graduated in size. On a 4 x 5 camera, for example, one might find 1/8", 3/8", 3/4", and 1-1/2" slits. Any one of these can be preselected, along with an independently-set spring tension, to realize one of the available shutter speeds as shown



FLASH SYNCHRONIZATION greatly enhances the versatility of the Super D Graflex. Both 3 1/4 x 4 1/4 and 4 x 5 sizes provide synchronization with long peak focal-plane flash lamps, plus the "drop curtain" setting for automatic flash exposures with type "F" lamps as well as high speed flash units,

on a chart. The actual exposure is then accomplished as the selected aperture is allowed to run continuously past the film at a speed determined by the spring setting. The design was further simplified and improved on the last Super D model, but the basic concept remained the same.

All of the shutter speeds on Graflex cameras, from 1/10 sec. to 1/1000 sec., are produced by sweeping a fixed-width slit past the film. But because none of these slits is as wide as the film is high, there is never a time during an instantaneous exposure on a Graflex when the whole film is uncovered at once. In other words, there is no instant when a contact could be made to close and cause a short duration flash to illuminate the entire film aperture.

By contrast, most modern miniature and medium format focal plane shutters are of the two-curtain, self-capping type and feature fast curtain travel times. As a result they are far easier to synchronize, at least at slow shutter speeds, than single-curtain shutters. In their slow-speed range, the first shutter curtain initially uncovers the film and then, after a suitable timing delay, the second curtain covers it once again. During the delay interval, the entire film area remains open, and any short duration flash that occurs in that time can expose all parts of the film simultaneously.

The synchronizer contacts in such shutters are arranged to close near the beginning of the delay interval and can thus be used at any shutter speed up to a point where (in order to realize even faster shutter speeds) the second curtain must start covering the film aperture before the first curtain has completely uncovered it. Thus for flash bursts of brief duration (i.e., zero-delay, or X-synchronization), there is a definite maximum speed at which the synchronizers on these shutters can be utilized. That maximum speed is a function of shutter design, and is typically 1/30th sec., or so in medium format cameras, and somewhat faster (1/60 sec., 1/125th sec. or sometimes higher) in miniature cameras. Note that above its maximum X-sync speed, a two-curtain shutter begins to mimic the characteristics of the single-curtain design. The designers of the Super D Graflex overcame the difficulty of synchronizing their large, single curtain shutter when they incorporated a factory-installed synchronizer (primarily intended for use with flash bulbs) on the 3 x 4 model that was introduced in 1941. This feature was subsequently added to

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(submitted by Ken Metcalf)


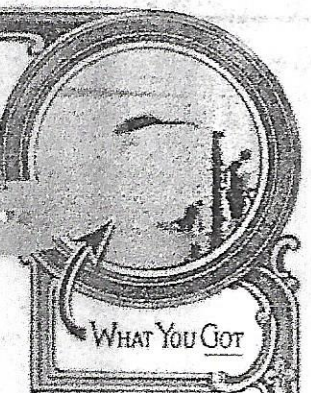
the 4 x 5 model when it became available in 1948. However, to realize the benefits of this form of fully synchronized flash, one had to choose special long-burning flash lamps and use only the fastest shutter speeds. The 3 x 4 model had a film aperture of moderate size that would synchronize at 1/200, 1/400, or 1/1000 sec., but on the bigger 4x5 size, flash synchronization was guaranteed only at the very highest shutter speed (1/1000 sec.), and there was a further stipulation that the revolving back had to be in its horizontal position where curtain travel time across the film would be shortest.

Additionally, the Super D design offered a way to use regular short peak bulbs and even electronic flash, by incorporating a "drop curtain" flash mode. This technique takes advantage of the time exposure aperture in the Graflex curtain, which is large enough to uncover the full film at one time. The curtain operating controls for time exposures are arranged to stop this large curtain opening in front of the film during a time exposure and hold it there (with the film uncovered) until the curtain is manually released, at which time the curtain moves down and covers the film once more. The "drop curtain" mode is entered by prepositioning the curtain in its "open" position (as during a time exposure). The "I\diamondT" coupling slide is placed in the "I" (instantaneous) position, and the mirror is latched down in its light-sealed position, where it blocks the light path to the film.

Then, when the mirror is released, it moves upward uncovering the film as it travels. The built-in flash contacts are arranged to close shortly before the mirror reaches its full-up position, and then, as the mirror continues upward, the shutter curtain is automatically released and allowed to "drop" to cover the film and terminate the exposure.

In the drop curtain mode, the shutter remains open a relatively long period of time, usually about 1/5 sec. or so. Consequently, the continuous lighting of the subject must not be very bright if ghosting is to be avoided, and the appearance of light sources in the scene cannot usually be tolerated without risk of blurring them. Nonetheless, in many indoor (studio) situations, and particularly for flash portraiture, drop curtain sync works, and works well.

At one time, a number of after market add-on synchronizers, based on the drop curtain principle of synchronization, were offered for Graflex and other similar cameras. Almost without exception these consisted of a pair of contacts in a housing that could be attached somewhere on the outside of the camera body and were actuated by some moving part of the external mirror and shutter hardware. These after-market units were often tricky to install and adjust properly and just as often proved lacking in reliability. Most of them suffered

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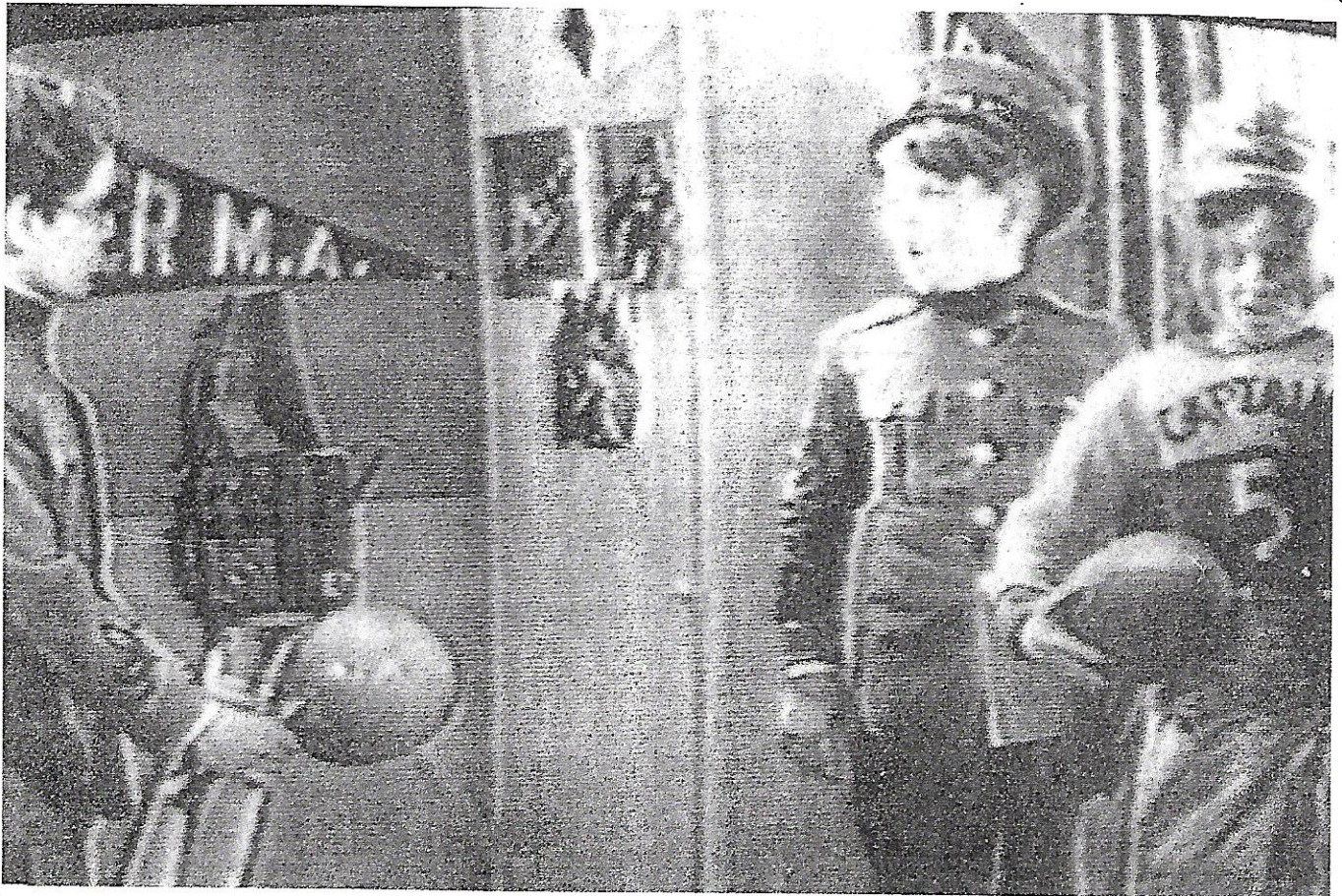
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the additional drawback of remaining closed after an exposure, until the mirror was reset. Many electronic flash units are not at all tolerant of such a condition, and will not recycle properly as long as the synchronizer circuit remains closed. Cameras whose flash contacts could remain continuously closed also created a serious risk for earlier photographers using flashbulbs. Many a veteran photographer became painfully aware of this hazard the first time a fresh bulb went off in his hand as he attempted to screw it into the socket of a still-closed flash circuit. This was such an unsettling experience that he usually did it just once, and thereafter took great care to see that it never happened again!

These days there is little or no demand for add-on synchronizers, therefore they are no longer manufactured. In fact it is probably safe to say that such items are rarely, if

ever, seen anymore, even on used equipment tables at photo shows. This is of little concern to the owner of a Super D Graflex, whose camera is already equipped with its factory synchronizer. But the situation certainly doesn't help anyone who uses an older model. Of course, flash-illuminated exposures can be made on any model Graflex through use of the "open" flash technique, where the flash is manually fired while the shutter is open during a short time exposure. But if a form of shutter-synchronized flash is desired on an older Graflex, there is little choice today but to add a custom-built synchronizer.

In the second installment of this series, a simple and reliable internal drop curtain flash synchronizer will be described that has been successfully installed in a very old 4 x 5 R.B. Series B Graflex body and has proven to work very well indeed.



This issue's quiz. What model is featured in this clip from an Our Gang outtake from about 1936, featuring Alfalfa?

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Any subscribers wishing to place a want ad selling or seeking Graflex-related items may send them to the GHQ for inclusion at no charge (at this time). The editors reserve final publication decisions.

WANTED: 1A Graflex for parts or just back. Steve Church, 151 Jacquelyn Ct., Ridgecrest, CA 93555 760-375-6492

FOR SALE: Tons of Graphic parts and parts cameras. Write needs. Harry Porter, 505 Sunlight Dr. Arlington, TX 76006

WANTED: Triple lens Stereo Graphic. Stanley Fishfader 213-776-6470

Graflex Historic Quarterly

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